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# EDUCATION FOR SUSTAINABILITY: A STUDY OF CURRICULUM, TEACHERS' AND STUDENTS' UNDERSTANDING

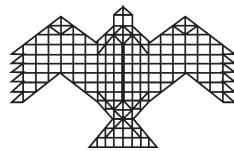


NATIONAL INSTITUTE OF ADVANCED STUDIES  
Bengaluru, India



# Education for Sustainability:

A Study of Curriculum, Teachers' and Students' Understanding



Education Programme, School of Social Sciences  
**NATIONAL INSTITUTE OF ADVANCED STUDIES**  
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# Acknowledgment

When one starts thinking about the goals of education it is difficult not to think about the values of a creative and sustainable society. Most of us agree that education has to help in solving the most fundamental challenges faced by human society. This project is an effort in this direction. It is a vision to go beyond knowledge and skills and generate values from education, rather than acquiring economically productive skill exclusively. It is a contribution to a value creating society. Therefore, the sources who have contributed to this project are to be thanked for being part of a bigger journey of humankind.

First and foremost, I express my gratitude to the Director, NIAS, Dr. Shailesh Nayak who supported the incubation and implementation of this project. He was welcoming and encouraging of imagining and implementing new ideas in this project.

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**Shalini Dixit**

# Abbreviations

ESD	-	Education for Sustainable Development
ICSE	-	Indian Certificate of Secondary Education
NCERT	-	National Council of Educational Research and Training
CBSE	-	Central Board of Secondary Education
IPCC	-	International Panel on Climate Change
SDG	-	Sustainable Development Goals
WCS	-	World Conservation Strategy
NGO	-	Non Governmental Organisation
EfS	-	Education for Sustainability
SD	-	Sustainable Development
UN SDG	-	United Nations Sustainable Development Goals
EVS	-	Environmental Studies
TGT	-	Trained Graduate Teacher
PGT	-	Post Graduate Teacher
PRT	-	Primary Teacher
SUPW	-	Socially Useful Productive Work
PBL	-	Problem Based Learning



# Executive Summary

## Research Objectives

To review the existing status of Education for Sustainable Development in India

- To analyze the textbook of classes 5<sup>th</sup>, 7<sup>th</sup>, and 9<sup>th</sup> for the provisions regarding Education for Sustainability (ESD)
- To find teachers' understanding of sustainability and ESD
- To observe the classroom interactions for issues around sustainable development
- To explore the understanding of sustainability amongst the youth who are between 19-25-years-old.

## Research Design

- Two schools were selected, one government affiliated with CBSE and another private school with ICSE board, both located in Bangalore.
- The focus was to get descriptive data, and observations based on the **Whole School Approach** used for Education for Sustainable Development (ESD), which is not limited to the formal curriculum, rather extends to experiences outside the classroom.

The method design consisted of four data sources:

- Interaction with Teachers (open-ended questionnaire)

- Textbook analysis
- School observation
- Survey on youth in Bengaluru

## Research Findings

- The NCERT textbooks that were analyzed provide scope for teachers but it is not used optimally as a resource by any of the 36 teachers observed.
- The findings suggest a huge gap on part of teachers' knowledge and their classroom behaviour. On being interviewed they gave responses in favour of education for sustainability (though many of them did not give a complete explanation for ESD), but their actual classroom transactions did not emphasize the values related to sustainability.
- Teachers were found to be unaware of the available resources about ESD in the school.
- There was also a focus on making the students memorize the content rather than instilling values about sustainability.
- The data from the youth showed that there was extremely low level of awareness amongst the youth about sustainability and the ways they contribute to it.

### Conclusion and Suggestions

Findings of the study suggest that the syllabus and the model textbook, written by NCERT have provisions for teachers to talk about sustainability in a meaningful way. However, teachers interviewed and observed for this study appeared to be ill-informed and unprepared for the ways and resources to teach about sustainability. They demonstrated lack of knowledge and a lack of attitude towards it. The constraints of attitude are more of a systemic limitation. Using Bordieuan analysis the study proposes that just like most of the members of the current society, teachers do not possess

a habitus for sustainability. In such a scenario, the policies and curriculum will not be sufficient means for Education for Sustainability. In view of the fact that the society we live in is largely consumerist and capitalist, if education has to be the axis of transformation, we need to build the deep attitudinal resources of teachers. There is a need for intensive training of the teachers with an effort to build habitus for the same. Since the study is small it is imperative to plan larger action research that implements intense dialogic workshops with teachers to build their values and choices for education for sustainability and document the same for larger applicability.

# Introduction

The effects of climate change are visible. Science has given concrete measures and indicators of deteriorating ecosystems. The International Panel on Climate Change (IPCC) showed us the scientific reality, also called the scientific consensus, that this change has taken a physical form, and that the emissions of greenhouse gases have caused it. The resultant increase in global temperature has made its impact on the physical systems of glaciers and rivers; flora and fauna and displacement in search of livelihood and better living conditions. Several international and national agencies, government and non-government bodies agree with the urgency to control climate change. However, there are economic goals to be met.

Modern nation-states (even if they are bureaucratic) are characterized by an uneven distribution of power and taking decisions in favour of business and money towards non-renewable and inorganic sources. Traditionally

trade and economic activities have directly exploited the environment and have caused damage to the climate. Discourse to curb inevitably starts with talks about curbing industrial growth which in turn affects economic prosperity. Thus, the inequality generated perpetuates and creates social crises, inequality, poverty, etc. Also, if we maximize our economic activity without considering the depletion of natural resources, we know that future generations will not be able to meet their requirements. Thus, climate change becomes a complicated concept, difficult to define in the form of sustainable development. Brundtland Commission (1983) defined sustainable development as “development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs.” Brundtland’s definition of sustainable development can be a good starting point to talk about sustainability. It posits a definition, broad enough to allow a diversity of conceptualization;



Cartoon by Seppo Leimonen

this definition provides the space to define the further ways and means of following the path.

When we move forward from Brundtland's definition to adapt specifications, such as what of all the needs should be met so that (which) needs of the future are met. Here comes the debate about the nature and direction of social and economic development. If we go further along, in order to make a judgment about the practices and prescribed knowledge system we must first define what we are looking at.

### SOCIETY, SUSTAINABILITY AND ITS DIFFERENT MODES

Societies organize and govern production processes differently at different times. Historically, the end of feudalism and the rise of capitalism, has established production of consumer goods for trade and profit, thereby capitalizing nature. The traditional worldviews about nature started getting replaced by modern world views. Sustainable development has weak and strong modes. Its weak mode includes emerging regulations that enable the supply of conditions and means of production, whereas the strong mode includes the emergence of a self-reliant community that can sustain its people, using appropriate technology. Liberals support weak sustainability because of free markets, minimum interference by the state, and individual rights. It also expresses the value of nature as the value equal to the value derived from it. Neoclassical environmental economists suggest inventing the value of nature via inventions. This may extend the property rights to things that were free earlier. Weak sustainability, therefore, is at the level of ideology.

Democratic organizations can play a lead role in a socialist transition to sustainable development

in its strong mode, that would narrow the gap between the rich and the poor, generate job opportunities and develop global citizenship, and modernize the society in an eco-friendly manner by using appropriate technology. Green politics suggests that it is the people who can bring about sustainability through their actions, and calls for cultural change.

Modernism saw society beyond nature and culture, which resulted in people's alienation from nature, other people, and themselves (Huckle & Sterling, 1996). The focus of Capitalism government's remains on maintaining the lifestyle and capital of the majority of the voters which further drives away from sustainability. Sustainability can come through a change of thinking and practices that are well within the ecological limits. Also, a sustainable society will make learning about sustainability a continuous practice.

### EDUCATION AND SUSTAINABILITY

The role of Education is not just sensitizing future generations but also in exposing the truth about the narrative of growth and development. With the diversity of meaning the role of education should be to make people reflect on these meanings and make an informed choice. Education for sustainability can help us in moving towards a more sustainable economy that also conserves the means and conditions of production. The role of education in forming a sustainable society is crucial and obvious as in a fast-changing world, we are educating students for a world that does not exist anymore (Huckle & Sterling, 1996). The current education system prepares students for the competitive economy that is already weighing under social and environmental issues. A sustainable economy will have social and economic stability and

sustainability by protecting and enhancing the support systems that it depends upon while also bringing harmony among citizens (Robinson et al.,1990).

Students spend about six to eight hours of their day at school and about 12-14 years of their early years in school. It is an undisputed fact that the school plays a huge role in a student's life, in laying the foundation of environmental ethics as these habits, values, and attitudes (Shohel and Howes, 2011). A student, or anybody for that matter, protects a commodity, person, place if they have a sense of belonging towards that or them, that happens when the person is actively engaged or involved with the place or commodity. Therefore, the school should provide opportunities to the students to engage with the school surrounding, to nurture a sense of belonging towards school (NCERT, 2007). This feeling of belonging when imbibed in them from school will be carried forward by them to the places they move globally, which in turn will result in them being sensitive towards their society and planet. According to Sterling, Environmental Education theory and practice have evolved over the past three decades gave three forms of environmental education as education in, about, and for the environment. Education *in* and *about* the environment is aligned with the dominant liberal neoclassical education and hence, prevail. EfS emphasizes education for sustainability to be the way towards an ecological educational paradigm. Huckle and Sterling (1996) discuss two paradigms that guide our thinking. Radical democratic, which focuses on social justice, equity, democratic duties of the government and structural change, and radical ecologic, also called systemic view, local links and networks.

Attitudes and values depend on the upbringing and the nature of social interaction, rather than education.

*Peter Martin, First Steps to Sustainability, 1990*

Modernization has replaced community bonds which had an effect on the environment and future generations, along with resulting in loss of social and environmental capital. The critical view helps us in looking for alternatives like EfS. Sterling gives five key areas that EfS needs to focus on- Sustainability values, Personal and Community values, Pedagogy, Curriculum, and Structures.

The World Conservation Strategy (WCS) called for changes in the attitudes and values through education (Martin, 1990), since environmental problems are behavioural problems caused by values, beliefs and thoughts of people (Fabio & Kenny, 2018). According to Peter Martin, attitudes and values depend on the upbringing and the nature of social interaction, rather than education. In order to use education as a means to influence society, NGOs being small and having limited resources need to have precise targets in order to make a dent in the education system. Since NGOs are developed when the existing structures lack focus on specific concerns, the NGOs contribute by giving alternatives to the education system. Also, various NGOs have come up that focus on specific environmental issues, which further helps in giving clarity during the process of promotion and marketing. NGOs have contributed to environmental education in the form of providing additional content and teaching strategies. The view that environmental education should take place outside the classroom, and in the environment, is considered to be an extra activity or project work, instead of an important part of education by the majority of educators. In order to perceive the problems and look for solutions, it is important to fully immerse and understand the environment

through first-hand experiences. An emotional response is a crucial part of environmental education, without it, humans will have little concern towards the impact of their actions on the environment, which would make the entire environmental education futile. Certainly, Sustainability requires urgent reformation of education which can be done through policy changes. The systematic nature of sustainability and EfS can be used to make a positive impact in one area and see its ripple effects in other areas as all the issues are interconnected. Education can be used to assess sustainability indicators.

**Figure 1:** Science Exhibition in one of the schools on the theme of Sustainability



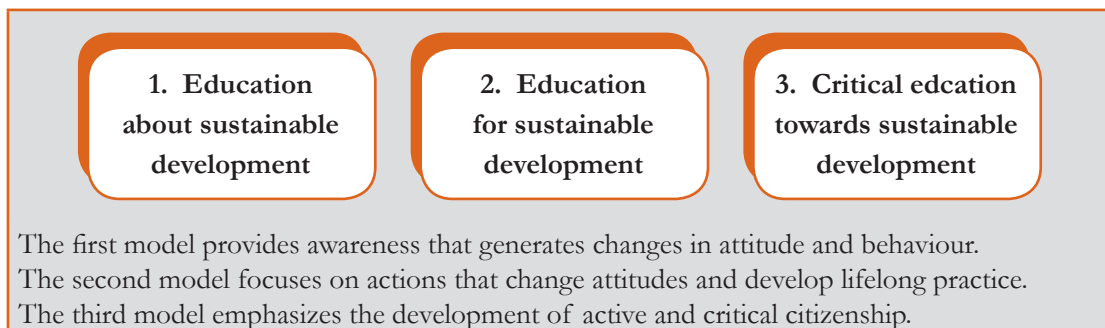
It is important to introduce children to environmental issues right from primary school, as they can become ‘prisons of fairyland’. The third perspective on environmental education is

Critical inquiry, which involves learning about the processes and finding alternative solutions to them. EfS can contribute to various subject areas including language, Geography, and Mathematics. Ken Webster brings to light how educational institutions are also modernized. In order to overcome that, the curriculum needs to be analyzed, and the modernized and mechanized parts should be identified. Regardless of various initiatives and updates included in the curriculum, the educational institutions only adopt the non-challenging parts of these initiatives, for example spreading awareness about issues but not the ability to critically analyze the content implying that the weak sustainability model is adopted over the strong model, as it can be moulded according to the society. Moving to secondary education, business education is also no different, and just merely replaces the individual with a company. Though many business models are adopting the weak model of sustainability by reducing the raw material and greening their business, the efforts are limited compared to what nature demands at the moment.

There are three models that can help inculcate sustainable development in education on different levels.

- Education about Sustainability
- Education for Sustainability
- Education towards sustainability Figure

**Figure 2:** Approaches to Education for Sustainable Development



Most schools follow the first model- Education about sustainability. Scott and Gough (2003) also proposed three theories linking Change, Sustainable Development, and Learning.

Type 1 theories suppose that there is no link between Change and Learning, which makes it similar to the first model suggested by Shohel and Howes (2011). This model fails to relate knowledge with action. It only helps one to learn about sustainable development and does not promote change in behaviour and attitude towards the environment.

Type 2 theories help develop the ability to think and act for sustainable development. This leads to a holistic approach towards ESD, with a focus on community interests and participation. The

second model is different from the first one in a way that it focuses on the actions that can alter behaviour instead of only spreading awareness about SD. The third model promotes the generation of knowledge through critical action and analysis.

Type 3 theories by Vare and Scott (2007) consider this approach as the most reflective one, where the child is experiencing open-ended learning. It is also called the whole school approach. The “Whole school approach” is not limited to the formal curriculum, rather extends to experiences outside the classroom. These first-hand experiences help students acquire skills and attitudes that are environment friendly, because of their involvement, understanding, and sensitivity towards the environment.



## BUILDING ATTITUDE TOWARDS SUSTAINABILITY

The purpose of incorporating ESD into the formal curriculum is not to increase the burden of students, but to enrich the subject with skills, values, and attitudes that will help them think and act along the lines of sustainability. Sustainability Science acknowledges the psychological perspectives of sustainability by combining natural and applied sciences, social sciences, and humanities. It works along the lines of the UN Sustainable Development Goals, which include overcoming challenges like inequality, injustice, climate change, environmental degradation and attaining peace and human well-being. To achieve them, contributions from various fields are required (Fabio & Rosen, 2018). Sustainable Science upon establishing a new research area Psychology of Sustainability and Sustainable development recognizes the value of psychology in the process of sustainable development, as psychological processes are involved in the decisions taken while acting upon our environment. These processes need a better understanding, and the psychology of sustainability and sustainable development proposes to do exactly that. It goes beyond the framework proposed by Brundtland Report on the 3 “E’s”- economy, equity, and ecology, as it talks about regenerating resources apart from just using them judiciously. It is focused on the interpersonal and intra-personal development of the individual, along with the development of the environment, considering the various kinds of environment: natural, personal, social, organizational, community, global, and cross-cultural environments (Fabio & Rosen, 2018).

An important evidence for the need to implement this research area is that certain

critical variables that are found to be associated with connectedness with nature, like empathy, emotional intelligence, positive relational management, academic relational civility, workplace relational civility, and human capital sustainable leadership. Unlike personality traits, these variables, through training can be enhanced, thereby building a strong connection with the natural as well as the social environment. Incorporating the psychology of sustainable development in developmental projects can also benefit society as it would consider societal needs. The Lack of connectedness with nature is believed to be the reason behind the current environmental crisis, and the reason behind this lack is the Urban lifestyle (Evans and McCoy, 1998). Even though the connection with nature is a basic human instinct, the urban lifestyle captures humans inside concrete walls and away from nature. Consequently, connectedness to nature has been getting a lot of interest in the field of sustainability. Reason being that the perceptions towards the environment shape the behaviour towards the environment. A study conducted by Di Fabio and Bucci indicated a strong connection between empathy and connectedness to nature. Also, the influence of personality traits of agreeableness and openness were found to have influence on connectedness to nature.

Compared to other personality traits, empathy can be intervened and improved, thereby proving to be an influential area in the field of sustainability. Therefore, certain training programs could be offered to individuals in order to improve their connectedness to nature. Settings closer to nature could be chosen for these sessions (Fabio & Kenny, 2018).

Sustainable patterns of living can be inculcated in students through the subjects that are a



part of their formal curriculum. Each subject provides an opportunity to understand and practice various aspects of sustainability, along with helping them gain the skills required. For example, in Science, students learn about the interconnectedness of various systems of the

world, thereby understanding how one affects the other. They understand the cause and effect relationship and become responsible for their actions towards the environment (NCERT, 2017).

# The Present Study

## METHOD

Given the crucial role of education in generating and sustaining pro-sustainability behaviour it is deemed crucial to study the way our education system is working towards making sustainability part of students' life. Thus, to review the existing status of ESD in India following objectives were formed:

## RESEARCH OBJECTIVES

1. To analyze textbook of classes 5<sup>th</sup>, 7<sup>th</sup>, and 9<sup>th</sup> and explore the provisions for ESD
2. To find teachers' understanding of sustainability and ESD
3. To observe the classroom interactions for issues around sustainable development
4. To explore the understanding of sustainability amongst the youth who are between 19-25-years-old.

## SAMPLE

We selected two schools, one government affiliated with CBSE and another private school with ICSE board, both are located in Bangalore.

## DATA

We aimed at getting descriptive data and framed our observations based on the *whole school approach* used towards Education for Sustainable Development (ESD). The method consisted of three to four data sources

- Textbook analysis
- Interaction with Teachers (open-ended questionnaire)
- Observation of Classroom interactions
- Survey on youth in Bengaluru

# Textbook Analysis

Textbooks are an integral part of the curriculum, that act as a guide for teachers and a learning resource for students. Since textbooks are considered to be the major source of information, it is important to analyze the content being provided in them.

Textbooks pave the way to Sustainable Development that helps us convey, not only knowledge but also social values. Most of the content and pedagogy depends on textbooks in most schools. The government policies and curriculum intentions determine the content of the textbooks, which makes it politically influenced, hence textbooks also help us in shaping our political ideologies. Analysis of the curriculum content and textbooks can help us in assessing the extent to which the principles of sustainability are incorporated into the curriculum. Textbooks can be instrumental in instilling sustainable values, tolerance, and can prevent violence or conflict, thereby playing a major role in avoiding destruction in the world (Jimenez et al., 2017). Target 4.7 states the need that ‘all learners acquire the knowledge and skills needed to promote sustainable development, including, amongst others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture’s contribution to sustainable development’ (United Nations, 2015).

	Grade 5	Grade 7	Grade 9
Subject Textbooks Analyzed	EVS	Social Science Geography Science History	Economics Geography Science

To understand the significance of sustainable development in the curriculum, above mentioned textbooks published by NCERT of grade 5, grade 7, and grade 9 were analyzed. Content analysis was done by categorizing the data obtained from the text into themes that align with the Sustainable Development Goals. The themes that could be found to be relating sustainability were; Environment, Climate change, Income Inequality, Labour Market, Production and Consumption, Domestic Violence, Sexual and Reproductive Health, Exploitation and Unequal pay structure, Access to Technology and Education, Forest, Land ,and Water: Conflict between globalization and localization, Conflict and Resolution, Management of resources, Health Inequality and environmental aspects. The findings of different textbooks are described below.

## FINDINGS: INCLUSION OF SUSTAINABILITY IN CURRENT NCERT TEXTBOOKS

### Class 5

In class 5 there are not many subjects. Apart from languages and Mathematics, there is Environmental studies or EVS which heavily deals with several aspects of sustainability. The book titled “Looking Around” is based on the guidelines of the National curriculum 2005.

It advises teachers to encourage observation and sensitivity towards the surroundings, among children. The textbook envisions to instill a holistic approach towards the environment and surroundings. A few of the themes incorporated in the book include everyday real-life incidents, challenges and related to natural resources

like fuel, water, forests, protection of animals and pollution, etc. Included in the chapters are activities for children to engage, debate, and develop a sensitive understanding of the challenges posed to us. Most importantly the book intends to facilitate teachers' knowledge and enrich their experiences through the teaching process.

**Figure 3:** EVS textbook titled “Looking Around (for class V)



The textbook covers real-life incidents, challenges and related to natural resources like fuel, water, forests, protection of animals and pollution, etc.

The prominent themes that could be seen vividly are the following:

The textbook covers **Environmental Aspects** in the chapters like “Every Drop Counts” and “Experiments with Water”, discuss various aspects of water that can be considered as challenges towards sustainability, like water pollution, aquatic life, water scarcity, etc, taking forward SDG 6 (Ensure availability and sustainable management of water and sanitation) and SDG 14 (Conserve and use marine resources

for sustainable development). The Chapters like “Whose Forests” and “Snake Charmers Story” can be related to the SDG 15 (Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss)

The book also attempts to introduce **Economic Aspects** in chapters like “Who will do this work?” and “A Seed tells a farmer’s Story” respectively. They discuss the issues faced by farmers, domestic workers, and cleaners. The text also encourages students to interview these people with a list of questions. These activities help in removing the prejudices and help students to understand the role of each worker and individual in their surroundings, also instilling values of respecting these people for their work, as well as addresses the aspect of dignity of these workers.

**Figure 4:** Page 148, Looking Around NCERT, (2019)

Talk with people who do the cleaning job around your house and school.

- ◆ Since when have they been doing this work?
- ◆ How much have they studied?
- ◆ Have they tried to look for some other work?
- ◆ Did the elders in their family also do this work?
- ◆ What kind of difficulties do they face in doing this work?


An example for an interactive activity addressing the aspect of dignity among all types of work.

Through the interviews, students will get to know the conditions some of these workers are working in and might encourage them to help the workers in certain aspects. On the same page of the book, teachers are advised to sensitize children about the kinds of questions they could ask and to be respectful while interviewing.

Covering another aspect of social inequality the book covers **Gender differences** in the chapter

Figure 5: Page 154, Looking Around NCERT, (2019)

**Stars in her eyes (Indian Express, 2007)**



utensils for a living. The gender wall her mother had put up for her.

Today, Afsana herself has become a strong wall of NBA, the Nagpada Basketball Association of Mumbai.

Today, she is the source of strength for five other girls who have come to the basketball court, leaving behind the problems of their everyday lives.

Today, she is the star of a young team. This team has managed to surprise some of Mumbai's club teams. With a lot of guts and courage, the team has reached the semi-finals of a district-level tournament.

Just 13 years old, Afsana Mansuri has already jumped over the wall. The wall between her *jhuggi* and the local basketball court. The wall made by society, for a girl who washes

Example of one of the ways the textbook encourages discussions to break stereotypes and motivate students from varied economic backgrounds

“Across the wall” discusses a player Afsana, who used to sell utensils for a living and eventually ended up being a part of a Basketball Association of Mumbai because of her talent in basketball. Following is a snapshot of the same:

This chapter helps in breaking those stereotypes and could be used in driving the discussion towards SDG 5 (Reducing Gender Inequalities). Sports are essentially considered important to boys in many households and even schools, whereas all the vocational skills are supposed to be mastered by the girls. Even during school observations, while observing the games periods, it was observed that girls were usually excused from playing any sport, and few of them were seen sitting in the corners of the ground either completing their homework, playing chess, or simply talking. This was the case regardless of the grade that came to the playground.

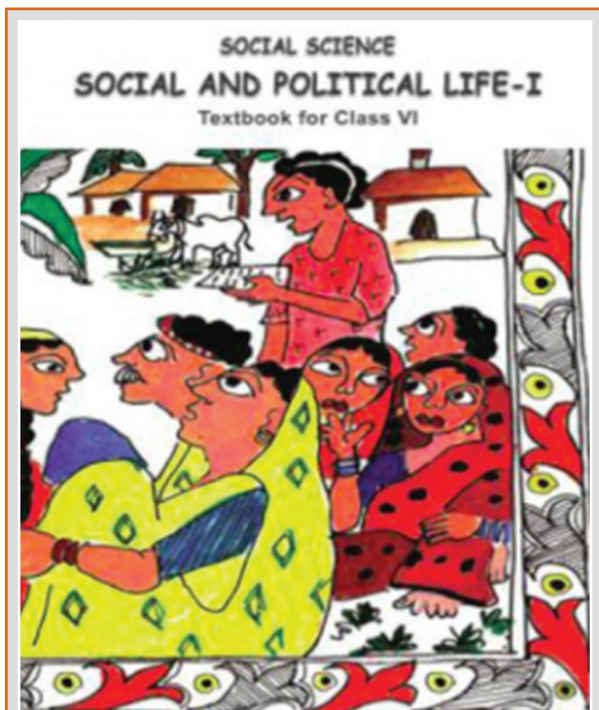
Clearly the “Looking Around” has incorporated the diverse aspects of sustainable practices

endorsed by several scholars in the class 5 textbook of Environmental Studies. The activities described and the skills focused are certainly catering to the environmental, social, and economical aspects of sustainability.

### Class 7

The Social Science book named “Social and Political Life” published by NCERT attempts to create a connection between school home and community. The book includes topics related to values like justice, liberty, fraternity and equality, provided teachers take time to explain these core values. Under the “Introductory note for teachers” Social and Political Life (SPL) subject is explained. The book expects the teachers to avoid using definitions to explain concepts, instead use case studies and situations to explain them. It further urges the need for the students to critically understand the social issues in the light of the values of the Indian Constitution. Teachers are encouraged to relate the text to the student’s life.

**Figure 6:** Social Science book named Social and Political Life- 1 for Class VI



The books part I,II, and III discuss issues regarding equality, dignity and discrimination (gender, social and economic), via various case studies and examples.

The textbook focuses on incorporating local cultures and social groups; thereby makes the teacher’s role even more crucial. It urges teachers to transact the material with a commitment to minority communities, Dalit, and Adivasis. The book directly deals with equality in different areas of life and addresses issues of discrimination against gender, caste, religion, class.

Even though the constitution of India promises equality, the reality is, it is not reflected in the real lives of all the people. The textbook uncovers the income inequality through the example of a maid and her boss, wherein the maid had to borrow an advance salary from her boss for a hospital visit for her sick daughter. “Poverty and the lack of resources continue to be a key

reason why so many people’s lives in India are highly unequal.” Page 6, 2nd column given below, makes students understand how income inequality affects equality in all the other personal and social aspects.

**Figure 7:** Page 6 Social and Political Life NCERT (2020)

But as her day goes on, Kanta becomes less certain about what this equality really means.

What is it that makes Kanta unsure? Let’s take a look at a day in her life. She lives in a slum and has a drain behind her house. Her daughter is sick but she cannot take the day off from work because she needs to borrow money from her employers to take her child to the doctor. Her job as a domestic help tires her out, and finally she ends her day by again standing in a long line. This line, in front of the government hospital, is unlike the one in the morning because most of the people standing in it are poor.

Income inequality discussed through the example of a maid and her employer, indicating that, poverty and the lack of resources continue to be a key reason why so many people’s lives in India are highly unequal.

To address the aspect of **dignity**, Omprakash Valmiki’s “Jhoothan” is quoted in several places, referring to instances where he was asked to sweep, made to sit on the floor and away from everyone. The classroom scenario makes it easier to empathize with the author.

The book provides instances from the real lives of people to help students understand the real situation better and know the role of government while discussing the changes and alternate measures that need to be taken about the issue. The book has a clear take on the need to encourage students to express their views on public issues and have several discussion questions in the form of situations.

The book explores the concept of **gender** through activities, data analysis, photographs,

and the students are encouraged to question and reflect upon their own everyday experiences. It discusses different social situations where girls and boys are socialized differently, making students realize that the roles depend on the way the person is socialized (brought up). These instances are further used to break stereotypes. As society devalues housework, students are encouraged to see this work and caregiving tasks done by housewives, as real work instead of taking it for granted and something that women are supposed to do.

The section on Media and Advertising involves discussions about the agenda of media to shape our perception of certain issues and ignore certain other issues. It also talks about the relationship between media, the business sector and technology. Instead of it being just a section with facts, it has activities and tasks that require the students to scrutinize and critically analyze some news articles and reports. Learn the skill to understand the given perception as well as the reason behind not including certain other perceptions. Activities like analyzing the advertisements as a person belonging to different economic backgrounds encourage students to project themselves in the shoes of a poor as well as a rich person and feel what they would feel upon watching certain advertisements. This gives an in-depth understanding of the motive behind certain ads and helps them understand the actual audience that it is trying to reach. The section on the market- place, discusses the power each stakeholder shares in the production of merchandise by taking the example of a shirt. Students understand and analyze the reason behind the uneven distribution of power by discussing various situations presented in the text. They are brought to the realization that it is the already rich and powerful that feed on the efforts of the ones doing the most of the hard labour to get even more rich and powerful.

The **Geography** textbook named “Our Environment” again urges the teachers to move away from the bookish learning and relate the text to students’ real life in order to make learning a more meaningful experience. The chapters are taken from familiar concepts to unfamiliar concepts, the first chapter is “Environment”, followed by “Inside our Earth”, and “Our Changing Earth”. After that the components of Earth- “Air”, “Water”, “Vegetation” are covered under the natural environment, and “Settlement, Transportation and Communication” is covered under the human environment. The aim of the book of building harmony and unity by bringing together unique identities, is clear by the names of the characters used in the book, for example, “Ravi, Paramjeet, Jessy, Mustafa, Asha were all excited about making the list.” It took care of incorporating the minority groups and avoided imposing the hegemony of one particular religious group. It includes side notes like “On 5 June every year the World Environment Day is celebrated.”, “March 22 is celebrated as World Water Day when the need to conserve water is reinforced in different ways.” giving a window to the teacher to raise awareness and discuss why these days are celebrated and the ways in which water can be conserved, within the school and their home. It also emphasizes the importance of keeping a balance between human needs and nature.

Thereby, the book also discusses the conflict between development and conservation of the environment through a situation where a playground is dug up to build a huge building with many flats. It poses a question to the students, “Why is our environment changing?” to which the teacher replies “It’s all because of our needs. They are increasing day by day; we are therefore modifying and at times even destroying our natural surroundings”. The teacher can use this opportunity to discuss the students’ opinions about these conflicts.

It gives an insight into the devastating effects of the tsunami, attributing it to the lack of monitoring and warning systems in the Indian ocean. Making students aware of how the effects of certain calamities can be controlled if we show vigilance. Students are urged to “Be Prepared- spread awareness amongst your friends and family members and face any disaster confidently”. This makes the students understand the need to be proactive and take responsibility in such situations.

It also poses questions like “*Is global warming a serious issue in today’s world?*” leading to the discussion on the causes of global warming and the need to protect the environment.

The book also involves crosswords at the end of a few chapters, and other activities like drawing an ‘ideal environment’, that involve a lot of reflection on the student’s part and make learning fun. Activities like making a weather calendar, involves skills like recording data, understanding and decoding symbols, representing data, tabulation of data, comparing and analyzing data.

The **Science** textbook for class 7 also includes the preamble, helping students understand the values like justice, liberty, equality, and fraternity. Education being the process of development of personality and character (Gandhiji), these core values must be incorporated in all the subjects so that they become the guiding principles in the life of the students. Even though science is mostly about facts, and skill development-critical thinking, problem-solving, etc. One cannot deny its role in value development. Keeping the focus of developing an attitude for sustainability the book emphasizes how one should not exploit nature to their advantage. It can empower students to question the existing norms and encourage social change. Under the

heading, “A Note for the Students”, students are encouraged to inquire, criticize, explore and rely on their observations. “*..you must make observations yourself and record the results you get.*”

Through the chapter on Nutrition in Plants the book addresses an understanding of how each component is interconnected and each one of us is co-dependant on one another for survival (symbiosis). This would help them realize the importance of keeping a balance between all the systems. “*....They, thus, have a symbiotic relationship. This association is of great significance for the farmers. They do not need to add nitrogen fertilizer to the soil in which leguminous plants are grown.*” (p 7-8, NCERT, Science Textbook)

The chapter on Fibre to Fabric makes students appreciate plants and animals for the fibre we get from them and value them more. It also discusses the different types of fabric and where it is found/ made in the country, along with emphasis on how the production of fabric contributes to India’s economy and is a livelihood for many. This can be used to discuss the fabric used in various traditional outfits, developing an understanding, respect and acceptance for different cultures across the country. It also talks about the hazards that the producers and factory workers face to get the fabric made.

The chapter on Weather, Climate and Adaptation of animals to climate talks about the different elements of weather, weather reports-preparation and meteorological department, climate and what affects the weather. This chapter gives a lot of scope to the teacher to discuss the effects of human activities on the weather as well as other aspects of the ecosystem. It discusses the ways in which animals adapt to the weather in their surroundings, again leaving a window to discuss the effect of these changes on various species on the planet, making the students aware



and sensitizing them towards them. The teacher can take this opportunity to tell students the importance of adapting to this dynamic world in order to lead a successful life. But as found in the observation with teachers, they did not do so. Similarly, the chapter on soil lacks any mention of the quality of soil and changing farming practices. It, however, does talk about polluted soil. The discussion on this in the classroom will make students realize the reason behind the demand to ban plastics and why one should always avoid polluting the soil, instilling care and compassion in them for everyone, including plants and animals depending on the soil for life.

The textbook has an elaborate chapter on Water: A Precious resource where it describes hardships people go through in the rural areas to get safe drinking water, which some, on the other hand, get it running in their taps. Giving a clear picture of the contrasting images of the availability of resources within the country. About the water, the chapter is not limited to factual knowledge, it also encourages students to be proactive and suggests ways to be so by dedicating a section to this called “What Role You Can Play”. Similarly, the book shows the description of a forest through a forest walk providing details of forests produce and the lives depending on the forests. The chapter poses a question, “*What will happen if forests disappear?*”. The consequences of forests disappearing are also stated in the chapter- increasing of earth’s temperature, animals deprived of food and shelter, floods. The chapter ends with a thought-provoking statement and urges students to think of ways to preserve forests- “*Deforestation will endanger our life and environment. Think, what we can do to preserve our forests*”.

Yet another topic included in the book is Wastewater. The chapter explains what wastewater is, and how human activities make

the freshwater dirty, alongside giving a clear picture of the contrasting images of the availability of resources within the country. The chapter encourages students to adopt certain practices that limit the type and quantity of waste produced. The students are left with open-ended and thought-provoking questions at the end of sections.

History textbooks of NCERT for classes 6-8 are titled “Our Past”. The purpose of exploring History textbooks was to see how social relations and the caste system are depicted in the textbooks. The book gives a detailed account of how the differentiation on the basis of occupation started, leading to a society with sub-castes and ranks. The textbook describes the emergence of the market in the thousand years between 700 to 1750, starting from the clearing of forests for agricultural purposes to emerging occupational differences in the societies, leading to complex societies on page 8. This gives scope to the teacher as to how it in turn resulted in income inequality. It also discusses resources obtained by the producers during that time, so the students get an idea of how the “market” worked then. The given statement on page 18 shows how the people in power exploited the producers of goods for their benefit, and in some cases instead of paying for the goods, claimed the produce as “rent”.

Conflict and Resolution between religious communities have been subtly intended in the History textbook by NCERT. It discusses various conflicts over certain prized areas, for example on page 21, it talks about the Tripartite struggle over Kanauj. The resolution of most of which was a war between the two parties, to express their power and gain control over the other. The usual targets while attacking a territory were its temples. While conveying this, it is made clear to convey the actual reason behind attacking

the temples was to acquire the wealth in these buildings instead of conveying it as a religious dispute.

**Figure 8:** Page 65, “Our Past”, NCERT 2019

**Why were Temples Destroyed?**  
 Because kings built temples to demonstrate their devotion to God and their power and wealth, it is not surprising that when they attacked one another's kingdoms, they often targeted these buildings. In the Text conveying the actual reason behind attacking the temples was to acquire the wealth in these buildings instead of conveying it as a religious dispute.

Apart from dealing with the above issues the NCERT textbooks on History touch upon crucial aspects such as environmental aspects and the issues of gender through the struggles of women rulers.

It is evident that, out of several possible topics in science, the NCERT textbook in class 7 has focused on topics related to sustainability. Most

of the topics covered provide scope for further discussion and establishing a connection between students surrounding and environmental degradation.

**Class 9**

The class 9 textbook on **Economics** is all about the sustainability of resources, poverty as a challenge, and food security in India. Chapter 1 on inequality depicts how the small labourers are forced to work for minimal wages and borrow money at really high interest rates, as they do not have any better alternatives. Also, with respect to the land-owners paying little for the effort that goes into farming, the book shows how income inequality is consciously kept intact. The need for availability of loans at lower interest rates is reflected in the text. The chapter describes Poverty as a Challenge and includes social indicators like illiteracy, unemployment, lack of healthcare and drinking water social exclusion, to define it. Various schemes and provisions are also listed in the chapter on pages 45-50.

**Figure 9 (a):** Economic Textbook for Class 9

**Figure 9 (b):** Page 8, “Economics” NCERT 2019

The image consists of two parts. On the left is the cover of the 'Economics' textbook for Class IX, featuring a green background with a farmer and children. On the right is a cartoon illustration of three people in a field. A man says, 'IT IS DIFFICULT TO FIND work these days. Only the large farmers hire us. And that too for very limited number of days.' A woman replies, 'Ghansyam, the large farmer, has just bought a harvester. So we are going to get even less work during the harvest season this year. Last year I worked for less than five months in the whole year.' A third person says, 'We have tractors for ploughing, harvesters for harvesting, threshers for threshing. Even for removing weeds, some farmers spray weedicide.'

Plight of farmers and labourers due to lack of opportunities left in farming as a result of increased use of modern methods is reflected in the text.

It explains the factors of production of goods and services including the land, labour, human capital and physical capital through the Story of a fictional village Palampur. It introduces a constraint of availability of limited land for crop cultivation in Palampur and describes various methods to increase the production by replacing the traditional methods with modern farming methods. Students are made aware of the contrasting situation between small farmers or landless labourers, and medium or large farmers. The situation of the labourers is depicted through a conversation between two farm labourers on page 8 of the book:

The migration of small farmers and labourers to non-farming sectors is reflected in the text, due to lack of opportunities left in farming as a result of increased use of modern methods.

Chapter 1 depicts how access to technology and technical machinery in farming is only available to those who possess the resources to buy that, which is mostly the wealthy farmers. As the poor farmers are forced to borrow money at high interest rates to buy that technology, and that results in an increase in debts.

Attempting to explain Health inequality Chapter 2 includes a tabular representation of the number of hospitals/ dispensaries and the basic amenities that are available in the Indian hospitals, like beds, nurses, doctors from 2011 to 2014. The book presents the fact that the National Policy aims at improving the accessibility of health care, along with discussing the vast health infrastructure that has been set up over the last few years. But, it does not go into the details about the disparities between the quality of healthcare received by the majority of our population. At this point in the text, it could be much more apt to highlight those health inequalities, as well.

The **Geography** textbook of NCERT is titled “Contemporary India.” It includes themes about the current location, demographic details, climate, and population of India. This textbook makes the topic more engaging and by talking about the lives of people under the topic of population. The textbook gives details on the physical features of India, developing a sense of awareness about these features, and the importance of each feature. Awareness would lead to sensibility towards the natural features of India. It also highlights the importance of these features to us humans. The chapter on Climate discusses the factors affecting climate, apart from the human factors. Along with that, there is no mention of climate change in the chapter.

The **Science** textbook of class 9 by NCERT, unlike the elementary classes, focuses largely on pure science subjects. It covers chapters like Matter, Atoms, Tissues etc. The last three chapters, however, focus on health and wellbeing, natural resources and food resources. Chapter 7, Diversity in Living Organisms, to a large extent conveys the importance of keeping the balance between the various forms of life on earth. Chapter 14, Natural Resources, discusses the resources present on Earth, and the effect of human activities on these resources. Including air, water and land pollution, it also includes discussion on the greenhouse effect and ozone layer under separate sections. It specifically discusses the impact of human activities on the atmosphere, water and land, in the context of pollution. Section 14.4, Biogeochemical Cycles, explains the interaction between different parts of the biosphere, discussing further about the ways in which we can manage these resources better. On Page 201 the text promotes sustainable use of resources- “We need to conserve our natural resources and use them in a sustainable

manner.” Chapter 15, Improvement of Food Resources, discusses ways to manage crop production (section 15.1.2) through nutrient management, irrigation, and cropping patterns. Here it includes ways to use the resources in a sustainable manner for crop production. On page 207 students are informed about how technology helps in case of scarcity of resources. Chapter 13, Why do we Fall Ill, explains ‘The significance of Health’. It explains the impact of both personal as well as community or social issues when it comes to health. In that context, it highlights the importance of keeping one’s surroundings clean. It further goes on explaining about different types of diseases, causes and

means of spreading the diseases in general along with preventing principles.

The books analyzed here clearly elucidate that the current NCERT textbooks are very much in sync with the idea of sustainability. Right from primary classes to high school it covered a range of themes regarding sustainability. Right from environmental sensitivity to human and social conditions, all aspects of a sustainable society have been attempted with great deliberation in the textbooks. All the topics are accompanied by the right student friendly approach and suggested activities for the teachers to make the learning effective for the students.

# Teachers' Understanding and Efforts Towards Sustainability

In order to understand teachers' knowledge and motivation, all the subject teachers were interviewed to obtain data about their understanding of the concept of sustainable development and its significance in the curriculum. These were teachers teaching English Hindi, Kannada, Mathematics, EVS, Science, and Social Science subjects, of which a list is attached in the appendix. The interview questions were designed to bring out the understanding of the concept of sustainable development in the staff. In total 35 teachers were interviewed, from both the schools. The interviews were then transcribed, and the data received was further analyzed. The data analysis of the responses was done by finding common themes in the responses given by the teachers and then linking it to the classroom observations, and theories on sustainable development and behaviour psychology. It should be noted that the teachers' names are changed wherever their responses are quoted, for the sake of anonymity.

The following questions were asked to the teachers:

1. Are you familiar with the term sustainable development? How would you define sustainable development?
2. What are the issues that pose a challenge to sustainable development in our school/ city/ country?
3. Is it possible to incorporate it in the classroom? Do you think it should be incorporated in the school curriculum?
4. Should there be a separate subject for sustainable development?
5. What kind of sustainable resources do you have on campus? (Are they used often- only observation)
6. Where in our school curriculum do you feel students learn about the issues about sustainable development?
7. What are the challenges that you feel stop the curriculum from talking about these issues? (why do you think there is a gap?)
8. What are the challenges that stop you from implementing that kind of curriculum?
9. Do you think it will enhance the school curriculum?
10. What are the short term and long term results that you expect from such a curriculum?

**Classroom observations** help us in assessing the pedagogy and content being transacted in the classroom. The inclusion of relevant content in the curriculum is not enough if the classroom transaction does not put enough stress on the content. Also, as observed during the classroom observations as well as interviews, content in the textbooks is and is supposed to be carried forward and related to the student's lived experiences, to inculcate sustainable values. The applications of classroom observations are, to support professional development and to assess the teaching quality (Hora & Ferrare, 2013). Therefore, the method of non-participant observation was used to collect data and cross-check the data collected from textbooks and teacher interviews. The aspects observed during these visits were,

- the relevance of the content, along with
- the effort of the teacher to make it relevant

for the students or the pedagogy applied to transact the content, and

- the student-teacher dialogue.

Visits were made to the schools during which all the aspects of the functioning of the school were observed. For that, classroom practices were observed in order to obtain data on the kind of classroom discourse taking place in schools and to assess the degree to which sustainable development was included in these discussions.

## FINDINGS: TEACHERS' UNDERSTANDING OF SUSTAINABLE DEVELOPMENT

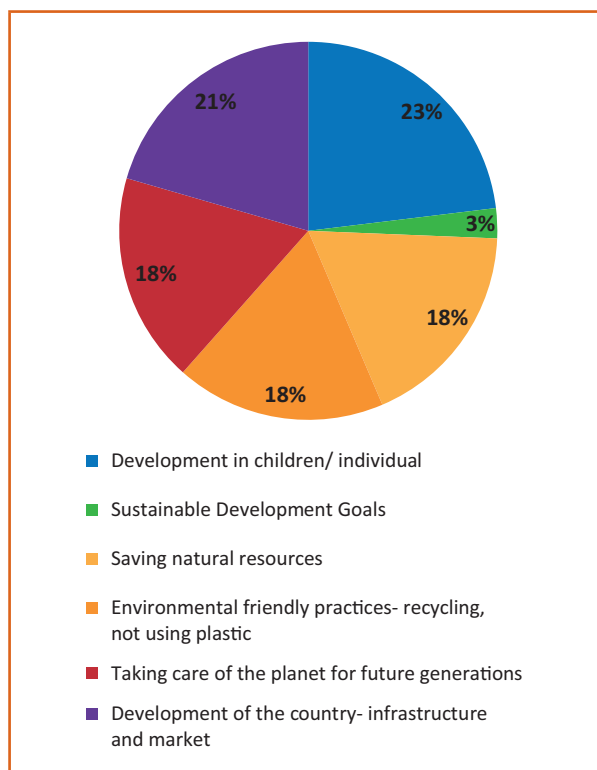
### 1. What is Sustainable Development?

According to Bangay and Blum (2010), education plays a pivotal role in raising awareness about environmental issues and equipping people to face these challenges, but sustainable development cannot be reduced to merely environmental issues. Teachers were asked to share their understanding of sustainable development. As per Brundtland's definition of Sustainable Development, "development that meets the needs of the present without compromising the ability of future generations to meet their needs" (1987). Their responses were assessed against this yardstick. Accordingly, the expected answers from the teachers were kept broad. The responses that included phrases and terms like "overall development" (economic, environmental, social), "preserving for the future generation", "saving resources", "adopting environment-friendly practices", "Sustainable development goals", were considered to be partially or fully correct depending on how many of the terms or how close their definition was to the definition given in the Brundtland Report. Following are the key findings:

**Table 1:** Factors Mentioned by Teachers as Sustainable Development

Terms used to define SD (Teachers used one or more terms to define SD)	Frequency (Percentage)
Development in children or individual	9 (23.1%)
Sustainable Development Goals	1 (2.6%)
Saving natural resources	7 (17.9%)
Environmental friendly practices- recycling, not using plastic	7 (17.9%)
Taking care of the planet for future generations	7 (17.9%)
Development of the country- infrastructure and market	8 (20.5%)
<b>Total answers</b>	<b>31</b>

**Chart 1:** Different factors mentioned by teachers as meaning Sustainable Development



- Out of the 35 interviews conducted, only four teachers could explain at most four important aspects of sustainable development including development, conservation, renovation of resources, and considering the needs of future generations.

- Only one of them mentioned the Sustainable Development Goals.
- Twenty one out of these 35 could relate the term with conserving natural resources and adopting environmentally friendly practices, mostly recycling and abandoning the use of plastic.
- Surprisingly eight teachers were ‘frightened’ by the term and were recorded saying
  - “I am not comfortable, please ask someone else”,
  - “I can’t understand the term”,
  - “Actually i am a Maths teacher, I don’t know what this is”,
  - “ Sustainable development, what to say, i don’t know”,
  - “Very difficult terms you are asking,”.
- Four out of the total respondents refused to answer the question and three of these four admitted to not knowing anything about the term.
- Only 11 out of the 35 teachers mentioned the term development while defining sustainable development, whereas another seven of them included the “needs of future generations” in their definition.
- The most common idea was that of conserving resources especially water, electricity, and planting more trees, along with adopting other environmentally friendly practices like recycling.
- Nine teachers understand the concept of sustainable development in terms of the development of students or an individual in general. Their responses included:

“Its overall development through classroom activities”,  
 “It is basically the development of the child”,  
 “SD means consistency in their (children’s) development”,  
 “It means permanent development of the child”.

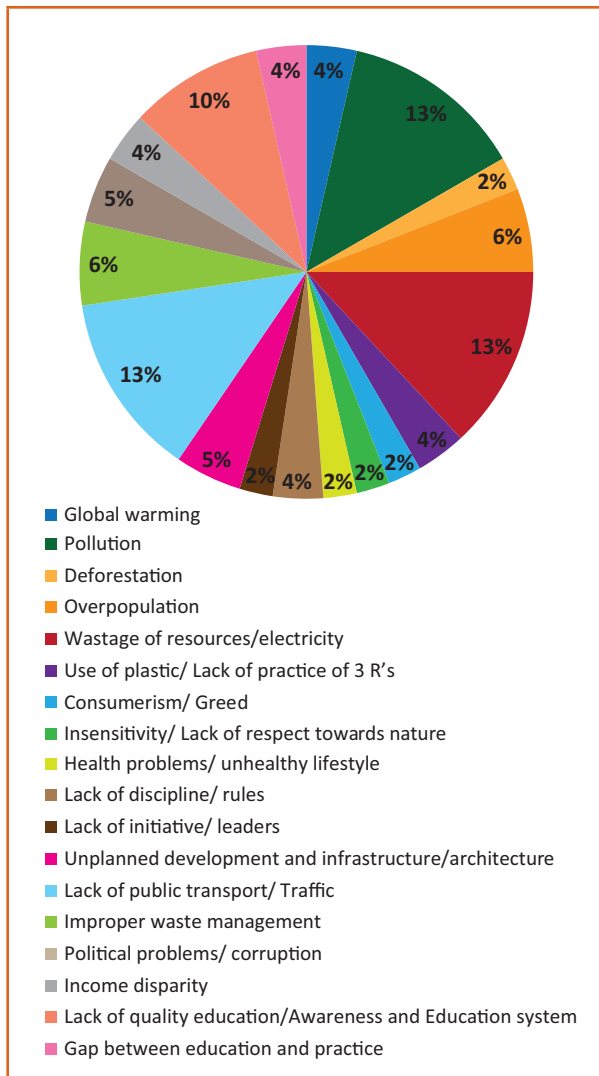
## 2. What are the Challenges to Sustainability?

Teachers were asked about sustainability challenges, in order to understand their perception and awareness of the kind of challenges our country faces when it comes to sustainable development. We obtained the following problems as challenges:

**Table 2:** Challenges to Sustainability  
Factored by Teachers

Factors posing challenge towards SD	Frequency (Percentage)
Global warming	3 (3.6%)
Pollution	11 (13.1%)
Deforestation	2 (2.4%)
Overpopulation	5 (6%)
Wastage of resources/electricity	11 (13.1%)
Use of plastic/ Lack of practice of 3 R’s	3 (3.6%)
Consumerism/ Greed	2 (2.4%)
Insensitivity/ Lack of respect towards nature	2 (2.4%)
Health problems/ unhealthy lifestyle	2 (2.4%)
Lack of discipline/ rules	3 (3.6%)
Lack of initiative/ leaders	2 (2.4%)
Unplanned development and infrastructure/ architecture	4 (4.8%)
Lack of public transport/ Traffic	11 (13.1%)
Improper waste management	5 (6%)
Political problems/ corruption	4 (4.8%)
Income disparity	3 (3.6%)
Lack of quality education/ Awareness and Education system	8 (9.5%)
Gap between education and practice	3 (3.6%)

**Chart 2:** Challenges to Sustainability factored by teachers



The majority of them considered wastage of resources, traffic, and pollution to be a major challenge, followed by a lack of quality education. As we can see in the following pie chart, over 60% of the teachers mentioned factors related to the environment as challenges to sustainability. The fact that challenges like poverty, hunger, dignity, and equality are not included in the list of challenges further helps us in understanding their views on sustainable development. Most of the issues considered by the teachers as a

challenge to sustainable development in the city or country were attributed to stable external factors, for example, pollution, improper waste management, overpopulation, global warming, etc. Even challenges in schools are considered to be mostly external uncontrollable factors that are mentioned above, like, lack of quality education. Only seven teachers attributed the problems to being internal factors, indiscipline, lack of initiative, insensitivity, etc. Three out of the 35 teachers attributed the challenges to the lack of discipline and not following rules. Two of the teachers also attributed it to the greed and consumerist lifestyle of people. Whereas, two of them considered ‘a lack of empathy towards nature’ to be the problem.

Seven, out of 35 teachers believed that sustainable development and school are not connected, hence, there are no challenges to sustainable development in school. Four of them believed that there are no challenges while pursuing sustainable development in school even though they are related. The remaining teachers listed challenges like too much strength, wastage of paper, water, food and electricity. Three of them believed the challenge was to translate theory and instructions into practice and reduce that gap and the lack of continuum between home and school. Two teachers also mentioned the need for the parents to participate in the process to ensure the bridging of this home-school gap.

### 3. Should the Teachers Discuss Sustainability in the Classroom

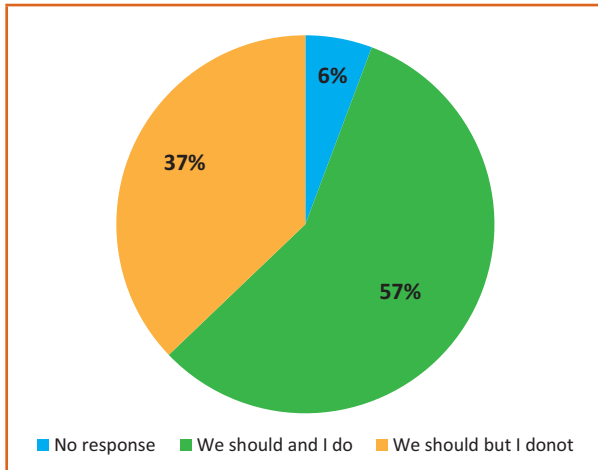
The interviewer sought to obtain data on the emphasis given by teachers during the transaction of the syllabus. The data obtained from the responses was further cross-checked during classroom observations.



**Table 3:** Incorporating Discussion on Sustainable Development in Classroom

Yes, we should incorporate	Yes, I do incorporate	Did not answer
33	20	2

**Chart 3:** Incorporating Discussion on Sustainable Development in Classroom



All the respondents believed that it is important to incorporate the discussions on sustainable development in the classroom, except for one who was doubtful and said that it should be done only if there is time.

Teachers who already discuss the issues in the class claimed to include verbal instructions by directly telling them the do’s and don’ts, day to day activities, and using the chapters in the syllabus to correlate with the issues which are mostly environmental in nature. Teachers also talked about motivating students to be leaders and start by changing themselves and family, followed by the neighbourhood. One teacher said, “I tell them to do it first and others will get inspired from you”. Teachers emphasized different personality and behavioural factors which inspired

Teachers also talked about the need for practical experiences but, in different ways. Four of them

spoke about including it in the extra curriculum through science exhibitions, science projects, guest lectures and skits. These teachers did not yet include it in their classrooms but believed that these issues should be a part of classroom discussions. The other six emphasized the need to include it in everyday practices through common examples.

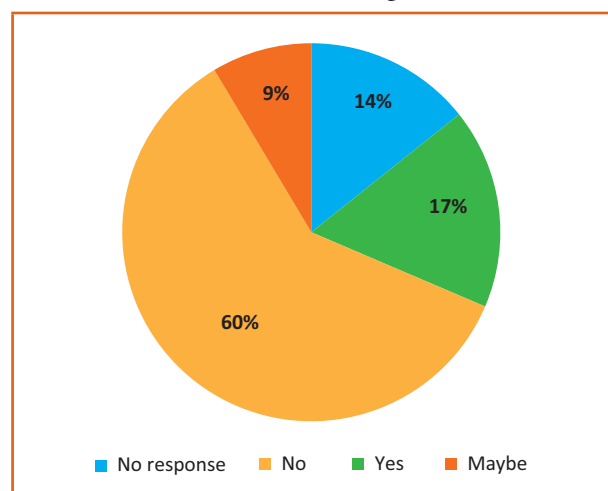
#### 4. Should there be a Separate Subject on Sustainable Development?

Teachers were asked if sustainability should be included as a separate subject in school. This data helped us in identifying whether teachers looked at sustainable development as a concept or as a subject matter which needed separate classes altogether. The findings showed that over 60% of the teachers considered sustainability as an idea that need not be introduced as a separate subject, but their reasons behind being against the addition of a separate subject were different.

**Table 4:** Should there be a Separate Subject on Sustainable Development?

Yes	No	Maybe
6	21	3

**Chart 4:** Should there be a Separate Subject on Sustainable Development



Out of these 21, seven of them felt that it is already somewhere incorporated in the curriculum in the form of Environmental Studies or other subjects. Consider the following statements:

*“We already teach these values through lessons”,  
 “It is a part of our day to day activities”  
 “Part of everything”,  
 “Already in all the subjects”,  
 “Science and Social science covers it”.*

Those who said they did not want a separate school subject wanted to avoid having one more subject for students. They felt there is already too much being on the students’ plate. Some said it *“Can be a part of the curriculum, we can have an exclusive chapter on it”* others said it *“Can be integrated with EVS”*. Yet others believed that it would be impractical to add a separate subject because of lack of time and too many subjects will be a burden on the students as well as teachers. Teachers who were in favour of a separate subject being introduced believed that it will allocate separate time for the discussions on the topic thereby helping spread awareness and solving the lack of time factor. One of the teachers was very sure that *“Separate subject will make people think and come up with solutions”*.

### 5. Does Curriculum have Themes Related to Sustainability?

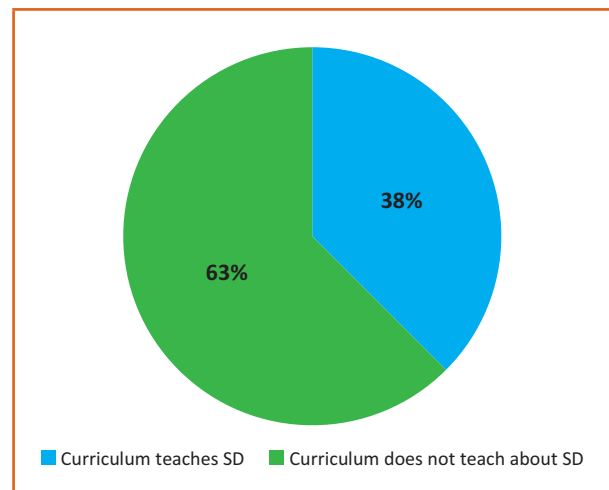
The teachers’ opinions on the curriculum and sustainability were further looked into, through discussions on the existing curriculum. They were asked if they thought sustainability was mentioned in the curriculum.

**Table 5:** Teachers Opinion on Themes Related to Sustainability

Curriculum Teaches about SD	Curriculum does not Teach about SD
9	15

Only 9 teachers out of 35 believe that the curriculum is designed along the lines of sustainable development goals and that the students learn about it through the formal curriculum to some extent, if not fully. They also said that it needed teachers’ expertise to bring those values to the forefront. When asked what issues they thought were covered, most of the teachers mentioned environmental issues. Most other teachers mentioned subjects like EVS and Science.

**Chart 5:** Teachers Opinion on Themes Related to Sustainability in the Curriculum



A majority of teachers believed that students did not learn about SD in the curriculum: *“These things are sidelined”, “I don’t know, till 6th-7th, they have no idea about this”, “Not completely included”*. About 9 teachers reiterated the fact that the information related to sustainability is there in the curriculum but students *“just memorize, and do not put it in practice”*.

Two teachers who mentioned a lack of understanding expressed the need to have teacher training regarding SD. One of them said, *“there should be workshops for teachers to look at the curriculum in this way also.”* Teachers also pointed out the *“extra”* activities done apart

from the formal curriculum, that contribute towards the knowledge of these issues.

It was observed that few of the teachers who understood sustainability only in terms of environment, believed that the concept was included in EVS and few chapters like water, electricity, in science. Whereas two other teachers considered that only when there is a chapter by the name of “sustainable development”, it was there in the curriculum.

To conclude, around 40 percent of the teachers believed that sustainable development is incorporated but needs trained teachers to uncover the concept and bring it to life in the classroom discussion and that is how will it be possible to reflect it in the students’ attitude and thereby behaviour. Also, upon observing the English notebooks of class 9 students, essays and letter writing tasks regarding the treatment of circus animals in Sanjay Nagar were seen. Bad treatment, rigorous practice, lack of proper food, living conditions and treatment, in general, were some of the aspects mentioned in the letters. These exercises inculcate a sense of responsibility towards other species.

### 6. Availability and Knowledge of Sustainable Resources on the School Campus

The respondents were asked about the resources on their school campus that could be used as a tool to teach sustainability principles. Sustainable resources can be considered as resources that are replenished over time and cause no harm to the environment, one of the examples of sustainable resources can be solar energy. These included anything that the teachers saw fit to educate them about sustainability, thereby helping us get a deeper understanding of their knowledge on the subject. Along with the awareness of

teachers about the available resources on the campus, the answers also reflected their will to and motivation to use the variety of resources around them, which in turn shed light on the quality of discourse on sustainable development taking place in school.

Out of the 35 respondents in total, only 16 chose to answer this question. It was observed through the interviews and observations, that most of these resources were in a dormant state- Vermi-compost pit and recharge well, the greenhouse was in the process of being revived after two years. One teacher admitted to not having witnessed the use of these and was doubtful if the students knew about them either. *“I have just heard, yes we do have a rainwater harvesting system in our school. But where it is I don’t know”*. Also, she called the Atal Tinkering Lab a closed window as she said, *“ Specific periods are assigned, specific children are able to go there, And the people who are in charge, they are not letting them use the resources. They are scared that they may spoil it, lose it. So that tinkering thing is there, but there is no freedom to tinker.”*

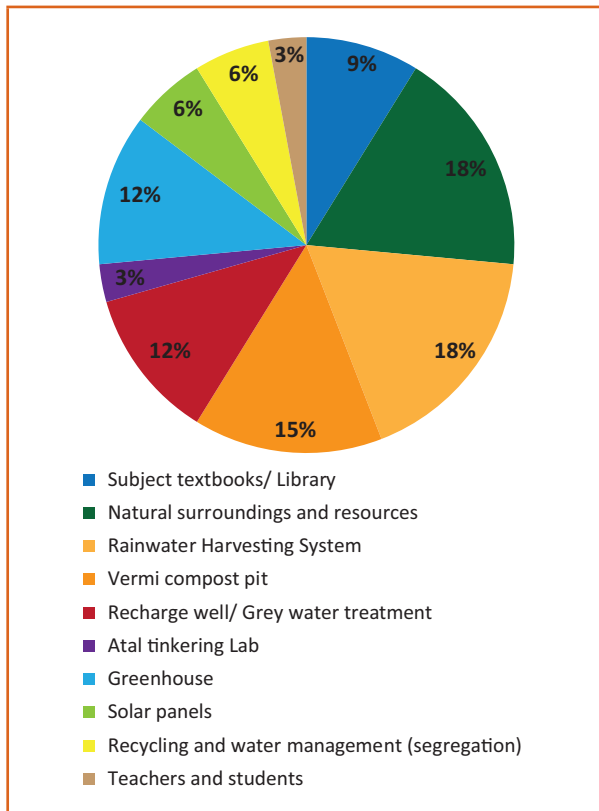
**Table 6:** Sustainable Resources in the School Campus

Sustainable Resources	Frequency (Percentage)
Subject textbooks/ Library	3 (8.8%)
Natural surroundings and resources	6 (17.6%)
Rainwater Harvesting System	6 (17.6%)
Vermi compost pit	5 (14.7%)
Recharge well/ Grey water treatment	4 (11.8%)
Atal tinkering Lab	1 (2.9%)
Greenhouse	4 (11.8%)
Solar panels	2 (5.9%)
Recycling and water management (segregation)	2 (5.9%)
Teachers and students	1 (2.9%)

The majority of teachers were not aware of the resources in the school, let alone using them as

a resource to spread awareness about sustainable development. The answers given apart from the ones shown in the table above were, “*sorry ma’am, we have no such thing*” or *something like “I am not sure about this”*”.

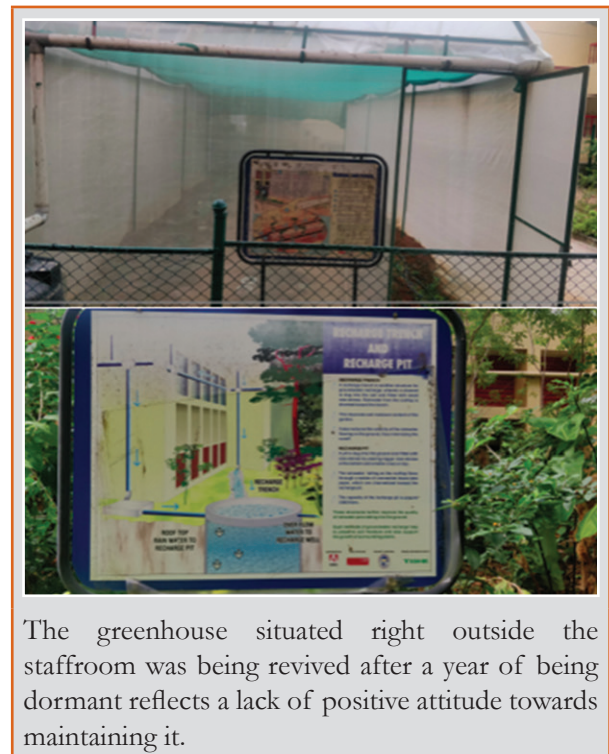
**Chart 6:** Resources Available on the School Campus to Teach about Sustainability



The above answers provided by the teachers reveal their ignorance regarding the subject matter of sustainability. Not just were they struggling to provide a convincing definition of sustainability, they were also seen unaware of the potential that the textbooks they were using have. The teachers who knew something about sustainability were not able to fathom sustainability beyond climate, environment, water, and pollution, etc. They are scantily aware of the teaching resources which are there in the school regarding sustainability. Therefore, they can confidently point out the

sections of the books which talk about these factors, but they can not connect issues like social inequality to the topic of sustainability. Nevertheless, two of 35 teachers were aware of their limitations and shared that there should be teacher training to enable teachers to handle the issues of sustainability better in the class.

**Figure 10:** Greenhouse and Recharge Pit in one of the schools



The greenhouse situated right outside the staffroom was being revived after a year of being dormant reflects a lack of positive attitude towards maintaining it.

## 7. Challenges in Implementation of ESD in the classroom

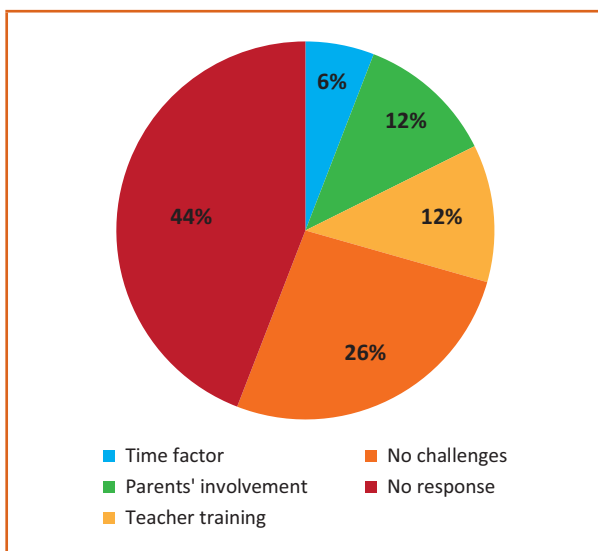
Teachers in both government and private schools are loaded with academic as well as clerical or administrative work, as was also observed in both the schools. Considering their role in educating children, they face various challenges. The respondents were asked about the challenges they face or would face if they have to follow the guidelines of ESD.

**Table 7:** Implementation of ESD in classroom

Do/ somewhat implement in class	Do not implement in class
9	11

Teachers who implemented and discussed sustainable development in class even to some extent had claimed that they faced no challenges that they could not overcome.

**Chart 7:** Challenges in ESD Implementation



*“I have freedom to make my own syllabus, I do include. Even in English, there is a chapter Gulliver’s travel, I am talking about Science there”,*  
*“There are no challenges, if we start at young age”,*  
*“We are free to move beyond curriculum”,*  
*“We go one step beyond the book”,*

Teachers who did not implement considered the education system or curriculum to be lacking the provision and space to practice it.

*“Not a part of the present curriculum, so it becomes difficult to implement”,*  
*“Time, strength and syllabus boundation... There is a set pattern, Everything is predefined”.*

*“I have the freedom to make my own syllabus, I do include. Even in English, there is a chapter Gulliver’s travel, I am talking about Science there.”*

*- Ms. Promila (PRT)*

Four respondents emphasized teacher training and the role of a teacher which was also reflected in the responses of those who did implement it in the classroom.

*“This subject should be included in teacher training”,*  
*“Role of teacher is great, a teacher is responsible to inculcate the habits”,*  
*“Our background matters”,*  
*“Teachers need to be trained, aap jab padhate ho bacho ko toh aap apne paath ko iss angle se bhi explain kariye”.*

Four teachers suggested the involvement of parents to be a crucial aspect to implement a sustainability friendly curriculum and bring sustainability into practice.

*“Parents should be aware”,*  
*“Cooperation of parents is required”,*  
*“Parents’ awareness is important”,*  
*“We teach children, children go and tell their parents, so parents should be aware”.*

# School Observations

The school observations were conducted keeping in mind the three intertwined pillars of sustainability- social, economic, and environmental. These observations reflected the hidden curriculum and agendas of the school regarding sustainability. The themes under which the classroom observations can be analyzed are:

- ESD related pedagogical meetings for lesson planning,
- Professional training and orientation for the future (with sustainability mindset and values),
- Group activities, team building, and development,
- Equal treatment for all students,
- Equal opportunities for participation,
- Representation of minority.
- Bridging the gap between preaching and practice, whether the hidden sustainable values in the text are brought out during classroom interaction or the teacher simply sticks to the overt text.

This will also include connecting the curriculum to student's lives in order to bring about habitual changes. eg: simply teaching a chapter about a boy who wastes water would be less effective than encouraging students to project themselves in place of that child in the chapter and think of ways they can avoid that wastage.

\*use of sustainable resources available in the school.

## OVERT SYMBOLS OF SUSTAINABILITY BUT LACKING IN ATTITUDE

To look at the behaviour of teachers and students closely and to observe classroom transactions by the teachers, observation of two weeks done in the two schools. During school observations, it was observed that the theme that dominated the school display boards was global warming and the practice of environmentally friendly habits.

**Figure 11:** Pictures showing one of the school display boards



Like the one shown above, several display boards were seen across the school and inside the classrooms, despite this 'immersion' into environment conscious content, the environment conscious practice was missing in the students.

In addition to that, each classroom had posters drawn by students stuck all over the classroom boards and walls that said “Save Water”, “Save electricity” and “Plant trees”. Teaching ESD would include, making students environment sensitive, encouraging sustainable friendly actions, and scientific knowledge. The poster making promotes sustainable development by educating students about the judicious use of electricity by using the first model of Sustainable Development in Education (Shohel & Howes, 2011). One of the observed schools conducted tinkering sessions in their Atal Tinkering Lab, encouraging students to innovate and think out of the box instead of exclusively following the given pattern. This includes critical action and thinking along the lines of sustainable development. However, it was found that the teachers were not capitalizing on these avenues. They did have factual knowledge and were conducting the classes factually, but if there emerged any situation of student cross questioning, they would either but ignored or be told to be ‘focus on what is being taught.’ Few classes by one of the Geography teachers (Ms. Ritika (name changed)- TGT) were observed. In one of the classes, she was teaching about canal systems and waterways. Following is the exchange between her and the student:

*S- how canal is made ma’am?*

*T9- land is cut open*

*S- what about the people living there ma’am? if anyone is living there?*

*T9- what do you mean? the land is cut open, the people are replaced and the canal is made.*

The student had a valid doubt regarding what happens to the people in the places where any

development project takes place. The teacher did not carry forward the discussion on the issue. This opportunity could have been used to discuss the issue of displacement thousands of people go through during these development projects initiated by the government. Thereby, enforcing the need to take their livelihood into consideration before initiating these projects. Students should be told about how the marginalized people are further pushed to the periphery. Spreading awareness about the marginalized will ensure their representation in future projects and thereby, dignity and equality for all.

Sometimes, teachers’ values and beliefs were surprisingly blinding students’ queries and thinking. In one of the classes, Ms. Ritika (TGT) was asked about the world landscape:

*Ms. Ritika (TGT)*

*S- why don’t they simply use*

*land ma’am?*

*T9- because it is easier to travel through water ways, no service charge.*

*S- I read on wikipedia that India and Africa were joined*

*T- yes they were, its true. Have you heard of forms of Vishnu? There happens complete destruction and then new beginnings. So, we need not worry about global warming, nature has its own way of restarting. Natural disasters are normal, nature is okay, it is the man made disasters we need to worry about. We need to think about what we’re doing on earth. So that we can sustain the resources and live longer. But destruction and rebirth have been happening since the beginning. We just need to make sure that it doesn’t happen very often.*

To our utter disbelief, as the teacher of class 9 was ignoring global warming and the fact that

it is the danger to our planet that needs our immediate attention.

## PREDOMINANT EXAM-CENTERED TRANSACTION

On several occasions, it was observed that the teacher was focused only on getting the syllabus completed, and the questions and answers done. Another class conducted by Ms. Poonam (name changed) (TGT) was teaching about landslides. She had the following conversation with students:

*T36- I have a question, why is the land getting spoiled?*

*S- constructional and agricultural activities*

*T36- yes human activities, tearing of trees, deforestation, human interference leads to problems or you can say disasters, selfish nature of human only thinking of development and not nature. In your book, there is a small incident on landslides, how it happened and how people reacted, please read that from home. For us it is important to know what are landslides. It is basically mass movement of rocks.*

*S- because there is less humus present in the soil.*

*T36- yes because of deforestation, when the tree is cut loose the soil becomes loose. So how can it be prevented*

*S- increasing vegetation*

*T36- retention of wall, the wall can protect the other parts and people from the landslides, reduced grazing, reduced use of pesticides, mapping hazards. So all that is there in this chapter, we will do QA tomorrow.*

The focus of the teacher while teaching landslides is simply to impart the knowledge about what a landslide is, for the purpose of preparing students for upcoming examinations. She gave no attention to the causes behind landslides and prevention methods. More discussion on the topic would have helped generate more awareness and sensitivity towards the environment. Given the shortage of time and vast syllabus, the teacher gets one day to summarise and introduce the chapter before starting the question and answer process which is done on the board. This one day is not enough to go beyond the text and have a discussion on sustainable development issues, and forces the teacher to stick to the textbook. This is the example of the Type 1 approach of Education for Sustainability given by Vare and

Scott (2007), that is, education about Sustainability, where the students are merely informed about the conditions and not encouraged to think proactively towards the solutions, let alone practice them. Similarly, while observing a geography class, Ms. Saumya (name changed) (TGT) was observed merely reading from the textbook and

stopping only to instruct students to underline important points. Class conducted by Ms. Priya (name changed) (PRT) on Constitution was observed. Apart from the chapter reading and examination discussion, little importance was given to the discussion on constitutional values. Class discussion by Ms. Prisha, about Razia Sultan described as “Woman in a man’s world” in the textbook, broke the gender stereotypes in the society and encouraged students to inculcate the values of gender equality, talked about in SDG 5.

*Ms. Saumya (name changed)- she fought, rode horses,*



*progressive thinker, dressed like a man, because men dressed like warriors, and she was also a warrior.*

She was also observed saying “Don’t write the first question, you will not get it in the exams” putting examination over values.

## ONE TEACHER

Out of all the 35 teachers observed there was one teacher who not only explained the concept well but also involved the class into thinking about the shortage of water and how we can save water. Class discussions on the chapter “Every Drop Counts” in class 5 by teacher Ms. Ruchika (name changed) (PRT) has the following conversation with her students:

*T-...now we'll discuss about water*

*How many of you remember jugs and mugs activity in the class 3 book.*

*So, suppose chirag is brushing, he opens the tap, and what's happening now, he is brushing and the water is being wasted. His mom says it's okay it was just one mug. Like that priya also brushed. Like that 55 mugs wasted from one class.*

*The teacher emphasizes the importance of each individual and the part that each person plays in wasting water in their day to day activities everyday. She also helped them see how each of them can contribute to saving water and do their bit by avoiding certain practices.*

*This will help students realize how significant each of them are and how some of their habits can change their own future and the future of this planet.*

*If one tap is leaking, how much water is wasted?*

*Try and do this experiment at home, don't waste*

*water, but try to put a bucket under a bucket, find how much time it takes to fill drop by drop*

*T- what do we do that wastes water*

*S- spilling for fun, leaking tap, leaving the tap on*

*T- have you seen this TV ad where they fix a shower in a village and in the end it says “poore gao ka paani bhar gya par ek shabar ke aadmi ka nahana nhi khatam hua”*

*Bathing with a shower takes up more water compared to a bucket.*

*Try this at home too, open the shower for the time you take to take bath and compare it with the time it takes to fill one bucket.*

*What else?*

*S- Ma'am the RO waste water.*

*T- Excellent, when we use the RO so much water is wasted. I collect the drain water in a can. So, I know that when 10L of water is purified 20L of it is wasted.*

*If you are reusing that water, excellent \*CLAPS\**

*T- flush water wastes a lot of water, how many of you agree, why?*

*S- ma'am a lot of water is used, we can use mug also.*

*S1 to S2- I up the flush lever*

*T- Do you know the flush can be pushed back up also after a few seconds.*

*Your subject is EVS, it involves Everything in the environment*

*S- Eco warrior*

*T- Yes you are eco warriors also now, you have joined that club.*

*Today morning also I told you to pick up the litter in the class and still it is all there, your class looks so dirty.*

*T wrote the situations that cause water wastage on one side and put the heading “solution” on the other side of the board.*

*T- tell me the solution for each of these problems, eg: if the tap is leaking, we need to fix it.*

*T- what do we do to prevent wastage due to overflow?*

*S1- estimating and checking the time it takes to fill*

*S2- asking the neighbour to keep an eye*

*S3-keeping an alarm*

The teacher had a discussion on how unplanned construction over natural water bodies can cause natural disasters. Thereby, emphasizing the importance of planned sustainable structures. The teacher touched upon all the aspects of our daily lives when we experience water wastage and avoid doing anything about it by considering it a normal part of our life. Leaking taps, wastage of impure RO water, and overflowing water tanks are some of the common sights that we often ignore. The teacher discussed them with the students in great depth along with discussing all the ways that these circumstances can be avoided. Students’ active participation made the class more engaging and interesting as they brought up experiences from their daily lives. These types of discussions while transacting curriculum can make the students more aware of their surroundings and relate their life with the curriculum, which allows them to have a greater understanding of the curriculum, in turn helping them to apply that learning in their everyday practice. This discussion was an example of the Type 2 Approach given by Vare and Scott (2007), according to which they identify that there is a problem in the social or environment order, and critically analyze the other possible options or solutions for that problem, and act critically for sustainable development.

## GAP IN FORMAL KNOWLEDGE EXCHANGE AND PRACTICE

The formal curricula apart from being rigid fails to connect with their real life. The very important factor that is missing in the formal curriculum is the link between practice and words. This gap between the two forms the hidden curriculum. It is the primacy of actions that determine the success of any educational program for sustainability (Robinson & Shallcross, 1998). The words should align with the practice in the school setting. If the formal curriculum involves water-saving concepts, the same should be practiced in schools too. Hidden curriculum gives an idea to students that their real life and school life are not connected, thereby resulting in the conception that school knowledge cannot or need not be applied in real life. It was repeatedly observed that students would move out of the room without switching the lights and fans off. Even though some teachers were teaching the students about the importance of using resources judiciously, it was not being practiced by the students in their daily lives.

Few instances were observed during school observations.

The Art teacher was teaching students to make 3-D origami swans, which requires **tearing plain white sheets into small pieces and fitting them together in the shape of a swan**, while having a casual conversation about environmental issues with the interviewer.

*T- Pollution is a major problem for our planet- air pollution, water pollution. Air is becoming unhealthy for us to breathe, it is causing lung diseases. It is affecting our atmosphere, causing global warming. We should plant more trees to improve it.*

*Q- How many of these (origami units) have you made so far?*

*Student- I think more than 320. (which would be nearly 20 blank sheets of paper)*

**Figure 12:** 3-D origami swan made by a grade 9 student



To make this, one requires 320 units, that is 20 blank sheets of paper

Even though multiple teachers acknowledged that wastage of paper was a challenge to sustainable development at the school level, it was observed that little to no steps were taken at the school level, only a few individual teachers followed the practice of reiterating in class to not waste paper. One of the schools at the school level conducted textbook exchange drives at the end of the session, to reuse the textbooks.

13.1% of the teachers, during interviews, acknowledged the wastage of water in school as a challenge against SD at the school level as mentioned in the findings (Table 2-wastage of resources).

Yet, washroom taps and water cooler taps were seen leaking multiple times in both the schools. One instance was observed in class 5 where a complaint was brought up to the

a student returning from the washroom about a leaking tap in the washroom, and the teacher’s (Ms. Ruchika’s) response to that complaint was a smile and asking the student to take a seat.

**Figure 13 (a):** Water leaking from the roof in the corridor right outside teachers’ staffroom

**Figure 13 (b):** Water collecting into a room with improper electrical fittings, right next to the school library.



The principal was observed crossing these two areas while taking rounds of the school as a part of a regular inspection process, but both of the seemed to have been ignored by the teachers and the students

Teachers were repeatedly observed reinforcing gender stereotypes for students. Even though class 7 NCERT Political science textbook includes a chapter “Growing up as Boys and Girls” and the teacher conducted a chapter discussion in class throwing light on similar issues and giving examples of real life instances faced by several students. The gender discriminatory notions of teachers were also uncovered during informal interactions with them. Ms. Shweta (name changed), was observed appreciating an older pattern of extra curricular branch of

electronics, saying that now due to the absence of that branch, boys students are also “forced” to do these activities. Although she claimed to encourage them by telling them that activities like sewing are also necessary life skills and should be learnt by all.

*“At that time there were more options, boys had options like carpentry, electronics. Girls had cooking, needle work, and sewing. So, that was better.*

*Now we can’t conduct two separate activities for one class. So, the boys also have to do the same activity.”*

This brings into light the gap between formal education and the real life of a child. The school is merely treated as an institution to prove the ability of memorizing the facts in the formal curriculum and present it during the examination. The school is supposed to have walls but it is not supposed to be a barrier between learning and real life, like it is now. The actual learning occurs through the child’s lived experiences and has the maximum impact on them. The curriculum and pedagogy should be linked with the real life of the child and he should be able to apply the learning acquired through formal education at school, in his real life.

# Young Adults on Sustainable Development

Colin Bangay (2016), believed that education could help in behaviour change which could trigger the adoption of sustainable lifestyles and lead us to sustainable development, hence, teachers were asked in what ways they believe the changes in the students' behaviour will take place in the long term and short term. Most of them answered in terms of change in behaviour and attitude (responsible) towards the environment, which further reflected their understanding of the term sustainability. In the long term, they believed that the same type of behaviour will be carried forward and their values will affect their decision making when they get into influential positions in their career.

As the table shows, most of the expected short term changes are along the lines of the environmental pillar of ESD:

*“Adopting environment friendly habits”*

*“Sensitivity and empathy towards environment”.*

Whereas, the long term changes were indicating towards the social pillar of ESD

*“Become better citizens by helping the community and world”*

*“Their professional decisions will be influenced”*

As discussed earlier, 9 out of 35 teachers that is, 25.7% of the teachers believed that the curriculum includes themes related to Sustainable Development (Question 5). two of these teachers were asked if they believed that sustainable habits are in practice by their older students who have passed out of school or anyone who is a product of this curriculum, and responses recorded were:

Ms. Parvin (name changed):

*“Message in the curriculum is reaching, in spite*

*of reaching people do this. One is due to ignorance these things happens, one is due to irresponsibility such things happen, one is due to uncare. They are bothered about their things, their belongings, being selfish, not thinking about the future. In that case, the selfish attitude and uncared attitude towards the future is the reason. Ignorance can be corrected by curriculum measures, but we cannot correct this if it is a deliberate action. Then naturally we have to take a measure of fining people who are wasting the natural resources. Wasting water is a sin, using water is acceptable, misusing the water or wasting national sin. They have to understand that they are people who have to be corrected using strong measures.”*

Ms. Shakuntala (name changed):

*We have to make them follow, only through practical thing we can do. Just if you say overly, it wont make a difference. We have to do the activities only, practical then it's possible. We do through SUPW no. i can see the change, the child will keep all the things clean.*

The responses further indicate the gap between knowledge and practice and suggested that the transaction taking place in the classroom regarding sustainable practices was more inclined towards preaching about saving the environment rather than practices and critically analyzing the situation for sustainable solutions. This aspect of overt preaching leads to a need to better understand the situation of students who might have been a product of this or similar curriculum through a survey on Sustainable Development.

This survey consisted of 127 participants with 43 males and 84 females from Bangalore city. The majority of the sample was from the age group 20 to 26 years. which are ideally young adults freshly out of school, starting new jobs, and moving into new careers.

Participants were asked four major questions

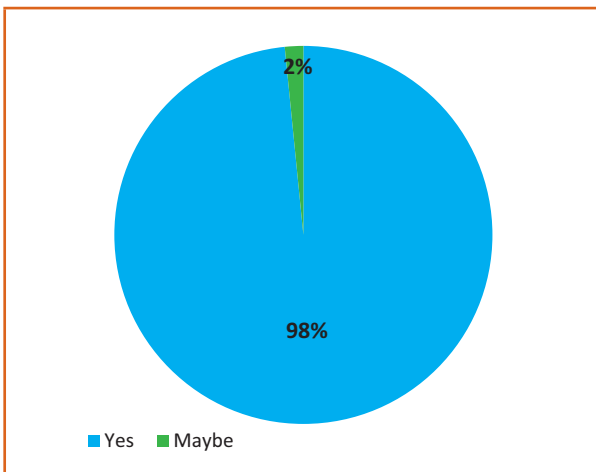
1. Have you heard about Sustainable Development
2. If yes, where have you heard about it?
3. What are the aspects necessary for sustainable development to take place?
4. Do you currently contribute towards sustainable development?

## SURVEY ANALYSIS

### 1. Have you heard about Sustainable Development?

Only two out of the 127 respondents were not sure if they had heard the term sustainable development before and responded with a “Maybe”, whereas the other 125 respondents answered with a “Yes”.

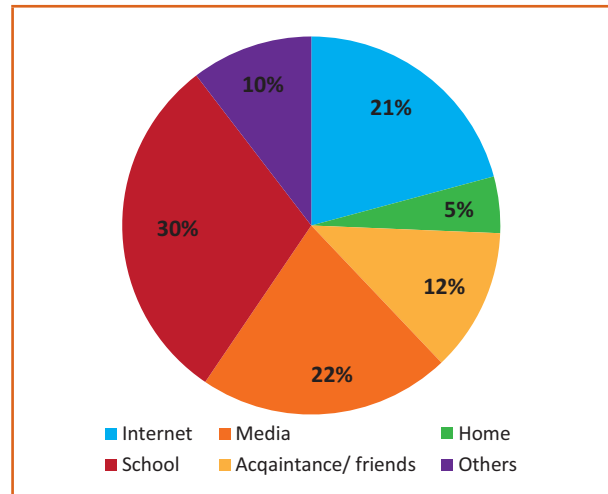
**Chart 8:** Awareness about Sustainable Development among Youth



### 2. If yes, where have you heard about it?

The survey results indicated that almost 81 out of 127 respondents, that is, 30.1% learnt about Sustainable Development while in school, apart from other sources like the Internet and various forms of media (newspaper, radio, TV). This indicated that school plays a major role in spreading awareness about Sustainable Development.

**Chart 9:** Source of information about Sustainable Development for Youth

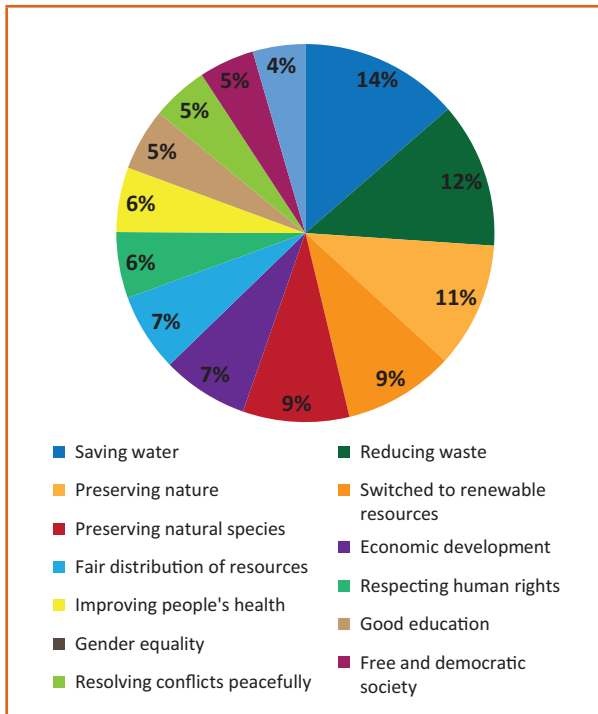


### 3. What are the aspects necessary for sustainable development to take place?

The results to this question showed that out of the three pillars of sustainable development, social, economic, and environmental, majority of the youngsters believed that the necessary aspect to ensure sustainability is the environmental aspects like saving water (13.6%), reducing waste (12.5%), preserving nature and species (10.7% and 9.1% respectively). Followed by economic aspects like economic development (7.4%). The least number of respondents considered social aspects like resolving conflicts peacefully (4.6%), gender quality (5%), and free and democratic society (4.6%) to be a reflection of a sustainable society.

These results were strikingly similar to those obtained from the teachers, as in both cases the social pillars were given little attention. In the words of Green D. and Price D. (2019), out of the three key concepts, Systems view, World view, and Futures view, only a part of the Systems view, that is, ecological and to some extent, economic systems, were seen in the answers. This clearly indicated that indeed, school knowledge passed on during curriculum transactions is being carried forwards by the young adults even after passing out of school.

**Chart 10:** Aspects necessary for a Sustainable Society



#### 4. Do you currently contribute towards sustainable development?

The results to this question reflected how much of the sustainable practices taught in school are being practiced by the youngsters once they are out of school. A total of 41 out of 127 respondents believed that they contributed towards sustainable development, and only four out of these 41 respondents could reason their practices and justify them to be sustainability friendly. Even among the four, the responses were in alignment with the environmental pillar of ESD where the respondents believed to be contributing towards sustainability by “avoiding plastic”, saving water, whereas one response obtained was “by promoting equality”

*“Yes, trying to avoid plastic.”*

*“I am trying to reduce my plastic consumption by replacing them with reusable items. Also, I respect*

*every human irrespective of their race, gender, caste, creed or class.”*

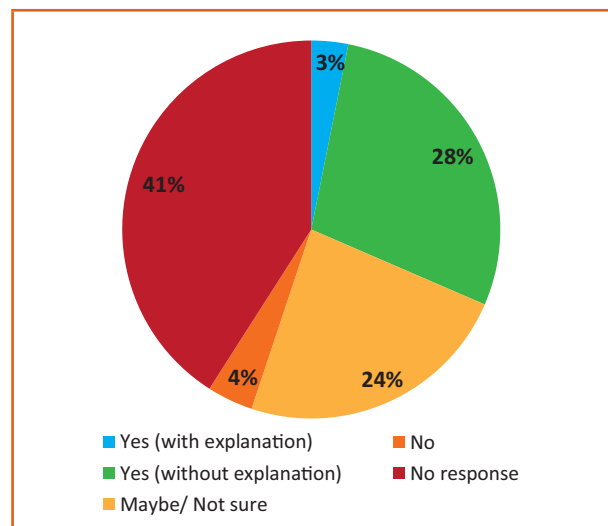
*“By being self conscious about every action I take towards nature and having a deep reverence.”*

*“Promoting equality, reducing waste and saving resources as much as possible.”*

**Table 8:** Contribution towards Sustainable Development by Young Adults

Responses	Number of Respondents (Percentage)
Maybe/Not sure	30 (23.6%)
Yes (with explanation)	4 (3.1%)
Yes (without explanation)	36 (28.3%)
No	5 (4%)
No response	52 (41%)

**Chart 11:** Contribution of Youth towards Sustainable Development



This data further justifies the understanding that a strikingly similar definition and understanding of Sustainable Development is passed on from the teachers to the students who further carry it forward into the adult world.

# Conclusion

To understand sustainability the students should be enabled to examine various facts about the ecological damage, understand various technological legal and policy level solutions to it along with being trained to look for alternatives and solutions for the existing problems. Teachers are ideal sources to develop climate sensible behaviour in students and bring awareness about a sustainable lifestyle. For EfS it is important for the teachers to go beyond just the textbooks and draw linkages from the community and indulge students in educational hands-on activities. It is important to build upon the existing knowledge through lived experiences (Grajal and Goldman, 2012). The review of the selected textbook written by NCERT suggests the curricula have provisions for the teachers to make all the above efforts towards education for sustainability. However, the knowledge and attitude of the teacher do very little justice to it. The present study shows ignorance and lack of effort on the part of teachers to instil the value for sustainability amongst students. On several occasions, it was observed that the teachers brought-in their religious and cultural beliefs while discussing issues around sustainability with the students. On other occasions, some would bring non-scientific information in the discussion about the issues related to climate change and ecology. It is also worth mentioning that these teachers were from two schools situated in a developed city of Bengaluru. The condition of teachers from rural and semi-urban areas can only be conjectured right now. Though the earlier reports have spoken about poor teaching-learning quality, seldom have they discussed the deep and long standing cause of the same. Despite several concrete steps, policies, laws and

textbooks the learning about sustainability is not effective.

Not being able to connect with the scientific knowledge and ignoring the bigger consequences of human actions is a learned apathy which can be attributed to the socialization, long-term belief and experiences of the teachers. In Bourdieu's term, it is the limitation imposed by the habitus of the teachers. Habitus can be explained as deeply ingrained habits, skills and dispositions, which are a result of past experiences and are historically designed. It is built by accumulated symbols, meanings and schemata (Bourdieu, 1977). The existing social capital of the teachers limit their understanding and make them model non-sustainable behaviour. They are unable to fully capitalize upon the ethos provided in the school textbooks. This prevents the curriculum from reaching the third stage of ESD, that is, Critical Education towards Sustainability, and leaves the students stuck between the first two stages, where they are merely being educated about sustainable development.

During the school observations it was found that teachers and students ignore lights, fans and leaking taps, etc. despite teaching and learning about it. One can assume that students are learning it from adults and imbibing the habits available to them. When a teacher ignores a leaking tap, or explains global warming with mythological anecdotes, she is manifesting her habitus. Her lack of necessary knowledge, predispositions and choices towards a sustainable lifestyle indicate a lack of habitus for the same and limit her ability to address the issues of sustainability. In her inability to do so, the teachers represent



a society that is overly consumerist and largely has a commodified perception of success and achievement. In the existing economic structure, the dominant forms of economic production are based on damaging the conditions of production. Besides, this form of economy is not able to meet the needs of millions of people. To meet this misbalance many of us believe that producing more goods and technologies will solve the problem. Consequently, the education system trains children for the market and specializes in various fields that will help economic growth. In the process it ignores the increasing gap between the rich and the poor, resource depletion, ecological deterioration among other things that lead to non-sustainability (Orr,1992). We are all part of this disorganized capitalism (Huckle 1996). Though we all realize that we need to 'preserve nature', 'water' or 'natural resources'

like the teachers said in their answers, we do not see ways in which we continue to do this damage increasingly. Though these conditions are historical, they are very much acquired through formal and informal education (Bourdieu, 1977).

The optimistic part about the seemingly permanent and habits is that education has the power to regenerate a new one. Since the unsustainable 'needs' are learned a transformative education can replace them (Fien and Trainer, 1993). It requires a fundamental transformation and break-through from the existing habits and social capital which maintain these economic and social conditions and habits. This will require the teacher to be what Giroux and McLaren (1986) would call 'transformative intellectual'. In their description, "Teachers who assume the role of transformative intellectuals treat students



as critical agents, question how knowledge is produced and distributed, utilize dialogue, and make knowledge meaningful, critical, and ultimately emancipatory”. They are the bearers of critical knowledge and transformative intellectuals who can guide others towards EfS through critical pedagogy. This would mean that the teacher is able to follow critical pedagogy. In a critical pedagogy, learning is experiential with the active participation of students. Classroom discussions encourage students to think critically by engaging students in reflection about ideological and structural forces. Value education is deep-rooted which enables students to even transmit their belief into practice (Huckle, 1996). Such a restructuring of the education system will face a lot of challenges including exploring the various meanings of sustainability, justifying education to be the reason for non-sustainability, and coming up with alternative pedagogy as well as curriculum. We can see part of the problem in the data presented in the previous pages. But the only way to achieve the education of sustainability is to re-cultivate the habitus of the teacher which has knowledge, values and dispositions towards the same.

### INFERENCE AND SUGGESTIONS

Education has the potential to cultivate the habits of sustainability by replacing the needs which are learned. One would naturally assume that this requires working with teachers. However, teachers appeared to be under informed about the various ways and resources to teach about sustainability. They consider sustainability to be an ad-on aspect of education by the teachers

and thus receives less attention and effort. Teachers’ knowledge and motivation are more of a systemic limitation. In Bourdeau’s terms, it is a lack of habits for sustainability. Teacher training, therefore, becomes a crucial aspect of ESD as Trained teachers would use the extensive knowledge they have and provide it to students using effective pedagogy. The kind of pedagogy put to practice determines the effectiveness of the lesson and further helps students to inculcate the required skills and apply the knowledge acquired. This is an entire transformation of teachers’ origination and their outlook to success growth and achievement (Fien and Trainer, 1993).

Though, further research and implementation are required regarding teachers’ knowledge and attitude regarding ESD. It is imperative to plan an action based programme to understand the concrete efforts required to work on the teachers’ efforts and students’ preparedness for education for sustainability with the following approaches:

The method for initiating new habits can be in the form of deep discursive workshops with teachers. The discursive workshops engage teachers in the reflection about their ecological footprints and their unconscious ways of impacting the environment (Archer et al., 2018). Formal and non-formal means of education should be used in order to provide rich knowledge about the problems (Shaw & Uitto, 2014). Problem based learning or PBL can be an efficient tool in teaching about climate change as it helps them focus on one problem, look for solutions and imagine the consequences in the future if that problem continues (Dickinson et al., 2013).

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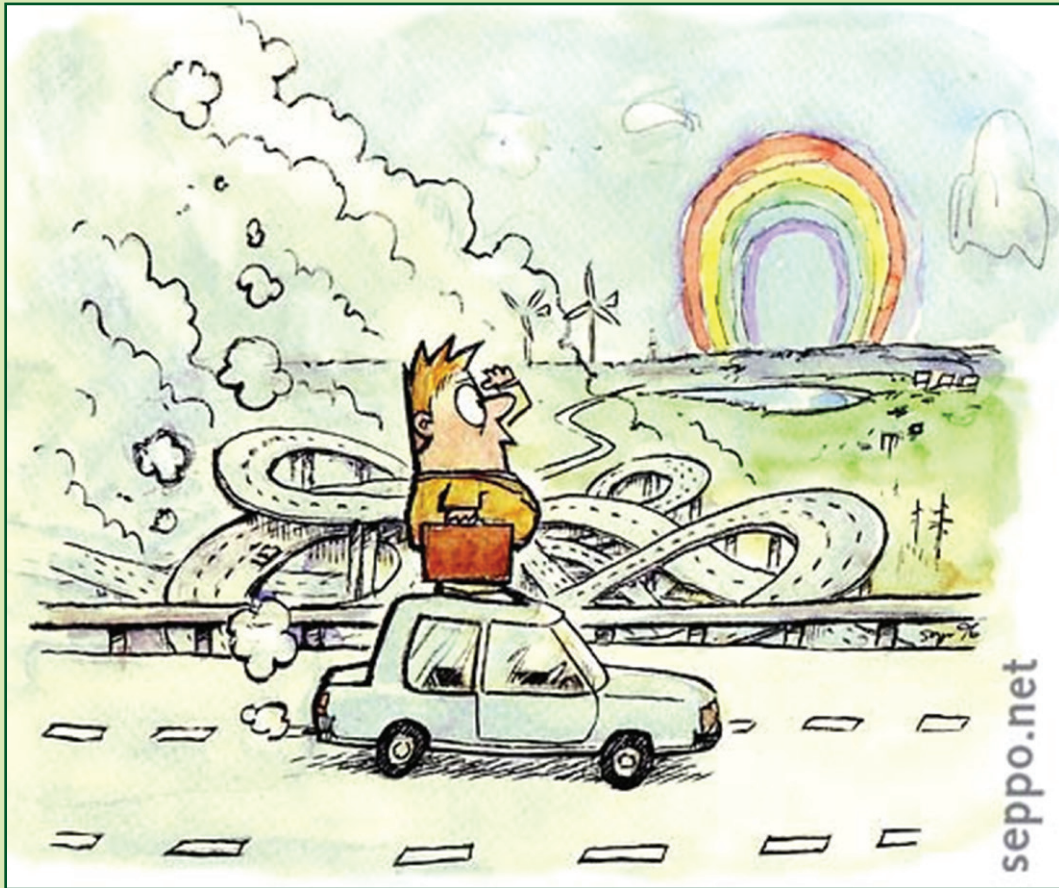
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## Document control sheet

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The study reported in this document reviewed textbooks and observed 35 teachers from two different schools in Bengaluru. Findings suggests that the school curriculum has provisions for teachers to talk about sustainability in a meaningful way. However, teachers appeared unprepared to teach about sustainability. Using Bordieuan analysis the study proposes that teachers do not possess a habitus for sustainability and suggest ways to build the same.
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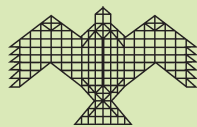




Cartoon by Seppo Leinonen

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