

# Analyzing the Climate Change and Deforestation Education Discourses at Social Studies Grade Eighth Sindh Textbook Board: A Content Analysis

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## Abstract

*Climate change and deforestation education play a crucial role in raising awareness of environmental issues, fostering eco-literacy, promoting environmental responsibility, and enabling young minds to take action. It has a broader scope across the globe, and many research studies have been carried out worldwide to provide awareness of environment-related consequences. Textbooks are the primary sources of information for students. How these topics are presented can significantly influence their understanding and awareness of climate change and deforestation. The discourse in textbooks can shape public opinion on these issues, impacting policy discussions and societal actions. For this purpose, the study was conducted to analyze climate change and deforestation. This research methodology was qualitative, and the content analysis method was used for this study. The data was collected through document analysis and criterion sampling and one book of social studies Sindh textbook for grade 8th has been used as a sample size for this research. Thematic analysis was used, where coded data was analyzed thematically to identify recurring themes, topics, patterns, and points related to environmental education discourses within the textbook. The findings revealed that the textbook highlights the influence of climate change and deforestation on human health, migration patterns, and economic activities. It is recommended that the state take immediate measures to protect the environment from all forms of pollution and practices that directly or indirectly impact global climate. Social studies textbooks should include Projects and activities that foster hands-on and problem-solving skills to prepare students for natural disasters.*

**Keywords:** Climate Change, Deforestation, Textbook.

## Introduction

Environmental education is a multidisciplinary field that aims to provide awareness and understanding of environmental issues, including climate change, global warming, pollution, destruction of habitat, loss of biodiversity, etc. With that, it integrates ideas from different subjects, including humanities, social, natural, and physical sciences, to explore environmental issues from diverse perspectives. Monroe et al. (2008) suggested that a variety of terms offers various perspectives on ecological Education; concepts such as adaptive management, environmental

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justice, social capital, civil society, and sustainability can be used to create diverse and effective programs that teach about and promote care of the environment. Bercasio (2022) argued that in more than four decades, climate change has been reconceptualized, studied, and implemented worldwide to what it is now. In this result, the concept of greening curriculum, green literacy, and creating environmental Education as a separate field of study under the umbrella of teacher education programs has emerged in academia (Fayyaz et al., 2023). Textbooks or curricula play a pivotal role in the first-hand knowledge of any concept (Lashari et al., 2023). Suppose we look at our social studies textbooks combined with ideas and concepts from different fields of studies, including the discourses of climate change and deforestation education, to produce informed and environmentally responsible citizens (Bushra et al., 2024; Ahmed et al., 2023). With that, climate change is not only a subject that can be learned but an essential foundation of primary Education focused on our connection with the environment (Sauvé, 2002).

According to Busi et al. (2023), it helps to raise awareness about climate and deforestation-related issues, support people to conserve it and teach them how to utilize the environment responsibly for the benefit of everyone in the present and future. However, those who possess environmental knowledge and are environmentally literate act in an environmentally positive manner and remain concerned about the environment (Seker, 2023; Buriro et al., 2023); it is learning for the environment and learning about or in the environment (Glackin & King, 2020).

The environment's integrity is at risk due to anthropogenic activities that cause climate change and deforestation. According to Taj (2011), problems such as deforestation, environmental pollution, greenhouse gas impact, and acid rain are all products of harm caused by human activities. If humans continue the same practices and do not realize the loss of the environment, the world will face the worst climate change consequences, and survival on Earth will be challenging (Buriro et al., 2023; Fayaz et al., 2023). This can be proved by consecutive disasters Pakistan faced, like floods (2010-22 & 24) and heatwaves (2015-24), Etcetera. Formal or informal environmental Education has a significant contribution to students and public awareness. It can influence the environmentally responsible behavior of individuals. This study aims to analyze the climate change and deforestation education discourses from the social studies Sindh textbook for grade eight.

### **Statement of the Problem**

Climate change has significantly affected the world in the form of floods, increasing temperature of the earth, extinction of biodiversity, acid rains, etcetera. Jannah (2023) argued that as international production of goods and services continues to develop, ecological issues like environmental degradation, deforestation, and climate change are becoming increasingly marked. However, Pakistan is one of the most affected countries in Asia due to low awareness of climate change, environmental pollution, coastal waste, and having negligible recreational/green spaces in the country. Pakistan lost huge capital, assets, cattle, infrastructure, and lives of people in overall Pakistan in 2010, 2022, and now in 2024 floods, especially in upper Sindh, Gwadar, and Khyber Pakhtoon Kuwah. It is essential to analyze climate change and deforestation education awareness discourses in our textbooks to check how we know our generations about the earth.

### **Research Objective**

- To analyze the climate change and deforestation education discourses in social study Sindh Textbook Board Jamshoro for Grade 8th.

## Literature Review

### Climate Change Education

This rapid climatic change in the south and north, with a ratio of 0.6 and 0.8, respectively (UNDP, 2006), is costing the economy 5% of GDP, or US\$5 billion annually. Over 10 million people have been displaced by climate change in the previous two years (Climate emergency institute, 2017). The vulnerability index<sup>1</sup> placed Pakistan 12th out of 193 nations for economic losses of US\$4.5 billion, and agriculture and livestock are expected to suffer more due to deforestation, climate change-induced temperature rise, and surface water shortages (Ahmed & Schmitz, 2011). Over 60.78% of Pakistanis reside in rural regions and are directly affected by climate change due to their livestock, agriculture, and clay brick manufacturing jobs (Pakistan: rural population, 2016). Due to the reasons above, Pakistan needs to work on climate change education to stabilize the country and save it from future unexpected disasters.

However, Education is the backbone of any country, where it helps to make environmentally responsible and informed citizens. The countries having high literacy rates are the most advanced in sustainability practices, science, information technology, Agriculture, research, economy, infrastructure, and health sector, as compared to those which have in literacy rate (Fayyaz et al., 2023; Bushra et al., 2024). With that, Education helps to maintain the social order of the state and helps to promote sustainable development goals to preserve the natural functioning of the ecosystem. Britannica suggested that Education is a field concerned with methods of teaching and learning in schools or school-like atmosphere as opposed to various non-formal and informal means of socialization (Pervaiz et al., 2024). Education is a multidimensional process of different strategies to follow for the teaching and learning process. Biesta (2015) argued that the number of rambling changes, such as the ability to refer to students, kids, and even adults as 'learners;' to redefine instructing as 'facilitating learning,' 'creating learning opportunities,' or 'delivering learning experiences;' or to discuss the school as a 'learning environment' or 'place for learning.

According to the World Bank, the global population was nearly 8 billion in 2022 and has since expanded. Thus, many global environmental issues stem from this (Yalmanci & Gozum, 2019). Climate change, ecological degradation, cutting of trees, natural disasters, drought, pollution, population, etc., are all well-known issues included at the education policy level and school curricula level (Yashlam, 2014; Bushra et al., 2024). Swaminathan (2016) claimed in his book that climate change-related education equips students with knowledge of ecological systems, cause-and-effect relationships, biodiversity, and the threats various species face. It enables an understanding of natural and artificial disasters like floods, earthquakes, landslides, and cyclones and measures to mitigate their impacts (Buriro et al., 2023). It also makes capable individuals to evaluate alternative responses to environmental issues before deciding an alternative course of action. The scope of climate change and deforestation education can be defined as education about the environment, education about the climate, and education for the climate (Buriro et al., 2023). Climate change educators must develop new skills and knowledge to meet the needs of a changing social and technological landscape and keep climate change education relevant to the community as we enter a new century and millennium. These difficulties in climate education demand us to rethink research, training, and public outreach (Hudson, 2001; Fayaz et al., 2023). It is hindered by poverty, illiteracy, and lack of awareness in developing nations like Pakistan, Afghanistan, Myanmar, Nepal, Fiji, etc.

### Deforestation Education

The consequences of deforestation have raised various issues across the globe. Most of Pakistan, especially Sindh and Baluchistan, is arid to semi-arid and at drought risk (Siddiqui, 2017). Due to deforestation and climate change, Sindh has experienced repeated droughts (Atif & Mahboob, 2016; Bilal et al., 2017). Sindh receives only 20% of the yearly monsoon precipitation from June to September. It receives less than 300 mm of rainfall annually, although winter rainfall is nearly nonexistent (Hanif & Ramey, 2014). Drought devastated Tharparkar in 2014. 182 children under 5 and 149 adults (91 males and 58 females) died from diseases, dehydration, starvation, and fever/malaria. For unclear reasons, 4,446 children and 3,910 adults suffered from abdominal diarrhoea and fever/malaria. This calamity in Tharparkar District killed 37,101 sheep, goats, cows, and other large animals. Natives dug wells and used brackish water due to water shortages (Jaggarta Organization, 2014). Drought reduces soil moisture, resulting in saline and sodic soil, threatening food security, socioeconomic conditions like livestock and income loss, and food crises, leading to starvation and famine until mitigation measures are taken. Sindh Relief Department classified Tharparkar disaster-affected in February 2014. The lack of rain in 2013 and 2014 caused drought, but the administration's carelessness in providing amenities and forecasting disasters also contributed (Hassan & Murtaza, 2012). District Thatta and Sijawal are the most vulnerable areas of Sindh due to the rise of seawater; fertile land has changed into barren due to salty water, and the Arabian Sea has swallowed hundreds and thousands of acres of fertile land in the past decade.

The political will is unavoidable for any advancement in any country. Same as Pakistan Tahreek Insaf Government took an initiative for the Green Pakistan Program to secure the funds needed for promoting reasonable environmental policies (Nazeer et al., 2018). This was the revolutionary initiative taken in Pakistan at the governmental level to promote biodiversity, save loss of habitat, overcome climate change-related issues, etcetera.

The Khyber Pakhtoon Khowah billion Tree Tsunami venture began in 2015 (MOOC, 2021) and is also one of the critical projects for the conservation of the environment. The country held various plantation campaigns under "the 10 billion Tree Tsunami" to grow 10 billion trees by 2023. Under the plan, 30 million trees were planted in June 2020, and new nurseries are operating at "top speed" to reach 1 billion by June 2021.

### Research Design

Qualitative methodology was used for this research. Qualitative research methods are crucial in providing valuable insights into complex phenomena, tracking unique or unexpected events, illuminating the experience and interpretation of events by actors with widely differing stakes and roles, giving a platform to underrepresented voices, conducting initial explorations to develop theories and to generate and even test hypotheses; gaining a deeper understanding of why things happen (Sofaer, 1999).

Content analysis method was used for this research as the researcher is analyzing the written content of the textbook. The main goal of content analysis is to classify and extract the meaning from the data collected and to draw realistic conclusions from it (Bengtsson, 2016). The population of the study is a social studies textbook for grade 8th. Criterion sampling and one book of social studies Sindh textbook for grade 8th have been used as a sample size for this research. Content analysis of social studies textbook for grade 8th. The data was collected through document analysis.

In this research study, data was analyzed through thematic analysis. Themes, sub-themes, and codes are produced from the collected rough data. This is called a splitting procedure of data analysis. “Thematic analysis is the process of discovering the patterns or themes within qualitative data” (Braun & Clarke, 2006). The whole data at the initial stage is scrutinized to classify likenesses and unlikeness in the concepts. This process is completed manually. While following this method, the researcher can separate the work systematically and make a judgment at each level (Charmaz, 2008).

Thematic analysis was used, where coded data was analyzed thematically to identify recurring themes, topics, patterns, and points related to environmental education discourses within the textbook.

### Document Analysis of Social Studies for Grade 8th Sindh Textbook Board

All the chapters of the social studies textbook for grade 8th were analyzed. The overarching theme was derived from the objective, and the theme was discussed below in detail.

### Theme One: Concept of Climate Change and Deforestation Education in Social Studies Textbook grade 8th

**Figure 1: Codes, categories, and themes from document analysis**



Source: Self design

Figure 1 indicates the process of generating codes, categories, and themes from document analysis. *Climate Change*: According to Rawat et al. (2024), climate change is an outcome of man-made activities, specifically the burning of fossil fuels, cutting down trees, and industrial waste that led to major and long-lasting impacts on global climate patterns over time. Throughout history, these climate changes have led to disasters that killed many people and caused serious injuries, caused hurdles in economic development destroyed the environment, and led to migrations of communities in overall the world (Iyke, 2024). Social studies textbook rightly points out that it is necessary to understand climate change, its causes, and effects. However, the concept of climate change is mentioned in the social studies textbook for grade 8<sup>th</sup>.



It is mentioned in chapter two “due to moderate climate in Europe people remain fit and energetic the whole year round” (p.15), which means fair and moderate climate better contributes to human health and keeps people energetic throughout the year.

It is discussed in chapter three "due to excessive rainfall and heat the climate of this region is not good for health" (p.35), which means the excessive rainfall and heat can create health issues for communities living in a particular area. It also affects the day-to-day economic and social activities of people.

Chapter four highlights that “they migrate immediately when there is a change of climate” (p.47), which means climate change plays an important role in the migration of people when the climate of a specific area is not favorable for agriculture, cattle rearing and other related activities for human survival.

It is mentioned in chapter five “regions where the climatic conditions are good and the rain falls on time people stay healthy and work very hard” (p.57) it means when the climate is comfortable and food is in abundance due to reliable rainfalls, people face less suffer from malnutrition or other diseases that are caused by extreme weather. Similarly, when they have the energy, they are motivated to work hard and contribute to the development of the states.

### **Deforestation**

Deforestation can disturb the water cycle, making the climate drier, desiccated soils, and increasing the flood risks in downstream areas (Walker, 1993). However, these consequences include degradation of habitat and loss of biodiversity, decreased water quality and quantity regulation services, air pollution, emissions of climate change, and the release of greenhouse gases due to the loss of trees (Foley et al 2011). Thus, the concept of deforestation is available in the social studies textbook for grade 8<sup>th</sup>.

It can be concluded from chapter five “with six billion people in the world and more to come, we will have a greater demand for geographic spread, demand for natural resources, and ways of disposing of wastes which will give a more direct cause for plant and animal extinction” (p.62). It can be concluded that it's an alarming situation for our planet. Overpopulation requires more space to live and demands natural resources to fulfill basic needs and as a result, it will generate the waste at the highest quantity that can directly or indirectly contribute to the extinction of plants and animals.

### **Findings**

The textbook highlights the influence of climate change on human health, migration patterns, and economic activities. However, the usage of the topic is shattered and lacks in-depth knowledge of the concepts. It acknowledges the cutting of trees as a consequence of population growth and resource consumption. However, it does not explicitly discuss the causes and impacts of deforestation.

### **Conclusion**

Most of the chapters rightly point out that deforestation and the increase in population create major hurdles in the quality of life and smooth functioning of the ecosystem. With that, many factors are leading to biodiversity extinction like urbanization, use of pesticides, and (water, soil, air, noise) pollution. The concept of climate change and deforestation education is available in the Social Studies Sindh textbook for grade 8<sup>th</sup>.

The main components of climate change education are the skills to identify the solutions to climate challenges, attitudes towards climate change, knowledge and understanding of the environment etcetera. Climate change and deforestation education aims to provide public awareness, explore the solutions to climate-related issues, and establish the foundation for informed and active citizens to protect the environment.

Climate change education, biodiversity, environmental pollution, ecosystems, deforestation, and natural resources security awareness should be introduced at all levels of education in Pakistan to save the planet. Climate change education encourages all the students regardless of any discrimination to participate in sustainability and green practices. It should only be realized when it becomes universal climate education, shifted in societal values, integrated with another field of studies, and strong partnerships in government, environmental organizations, and industries. To realize the current climate-related disasters, the education system should provide sustainability education through the concept of climate change education.

### Recommendations

Integrate and connect environmental education key concepts in various chapters and disciplines. The state should take immediate measures to protect the environment from all forms of pollution and practices that are directly or indirectly impacting on environment. It is recommended to bring real-life examples related to environmental education into the social studies curriculum to aware our generations about the consequences of environmental degradation. Environmental education requires sustainable efforts and it should be demanded from the curriculum, theories, and practices of the government and non-governmental organizations. There is a strong need to introduce case studies of successful environmental initiatives to inspire students. There should be the inclusion of projects and activities that foster hands-on and problem-solving skills to prepare students for natural disasters.

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