

The Importance of Forest Conservation: How Forests Affect Climate and Our Lives in Science Education in Primary Schools

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ABSTRACT

Indonesia is a part of the world that has natural wealth and biodiversity that is very important for life, one of which is the forest. Indonesia's forests play an important role in maintaining the stability of the world's climate. The sustainability of the forest is the result of various processes that occur in the life of the forest ecology. A forest ecosystem has a social system consisting of humans, and then there is the ecosystem environment itself. Problems that occur, such as slashing and burning, are one of the factors that can have a significant impact on the existence of the environment and life in it. This article discussed forest sustainability and fostering a sense of environmental love for students in Indonesia by discussing various materials related to 1) The condition of forest sustainability in Indonesia. 2) Maintaining and promoting a sense of environmental love. The type of data used by the author in this research is data obtained from literature studies. In the process of writing this article, the author collects all data related to the topic of discussion, namely about the attitudes and behaviour of a person to preserve the forest and instill an attitude of environmental love. The aim of this article is to promote the values of forest conservation and love for the environment, especially at the level of primary education.

Keywords: Forest, Forest Conservation, Love the Environment, Safeguarding, Primary School



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1. INTRODUCTION

Indonesia is a part of the world that has natural wealth and biodiversity that is very important for life, one of which is the forest. Indonesia's forests play an important role in maintaining the stability of the world's climate. In addition, forests are invaluable natural resources because they contain biodiversity as a source of timber and non-timber forest products and have other functions, namely as a regulator of water management, disaster management and as a protector of flora and fauna, and forests are the lungs of the world that can absorb carbon dioxide and provide oxygen for life on this earth (Ahada & Fuadah, 2020). The existence of forests in the world has countless benefits for human life. Forests as a set of ecosystems that are home to oxygen, forests act as a store of water reserves and as a regulator of climate change in parts of the world.

As more rainwater seeps into the ground, the groundwater supply increases. Some groundwater will emerge as springs in lower areas, and with the increase in groundwater reserves, springs and wells that live in the dry season are also more than without forests. The benefit of forests is therefore to reduce the risk of water shortages in the dry season. Water as a source of life has multiple functions. Water is a natural resource. The function of water as a source of life that can meet the needs for raw water for households, agriculture, industry, events, mining, energy and transport. Water resources must also be conserved so that the availability of water on the surface of the earth can be balanced. By preserving forests, we also preserve the availability of water as a natural resource. The amount of water available on the Earth's surface is very helpful to human life because water provides many economic benefits. In areas with good irrigation, agriculture is no longer dependent on rain and farmers can better plan crop rotations (Windiani, 2010).

All people would like to have a beautiful and sustainable environment, but this expectation is not being met because people themselves are damaging the environment. There are many human activities that can

damage forests, such as illegal logging, which leads to floods, landslides and others. It is also harmful to people and animals in the forest. People tend to damage the forest rather than take care of it. Nakita & Najicha (2022) said that with the increasing population and the higher desire to enrich themselves, many investors have invested in the forestry sector. As a result, the existence of forests is increasingly threatened. Many forests in Indonesia are experiencing forest conversion. Land conversion is a partial change from its original function to another function and affects the environment and the potential of the land itself. Land conversion occurs because people need more land to meet their needs as the world's population grows. Examples of land conversion include the conversion of forest to agricultural land, plantations (such as oil palm), mineral extraction areas, road construction and also settlements (Ngawi, 2022).

In the current situation, it is not surprising to see that big cities are constructing buildings that do not pay attention to environmental ethics, which causes the balance of nature to be disturbed. If we look at the current situation where there is an increase in global warming causing extreme climate change. This is proof that there is an imbalance in the natural environment. If the existence of forests alone is not properly preserved, it will cause damage to nature, which will harm mankind itself.

2. DISCUSSION

The purpose of this article is to explain how important it is to educate children, especially from an early age, to protect forests and the environment. Indonesia is rich in forests and natural resources, and Indonesian forests are the lungs of the world. However, the condition of the forest has been deteriorating over time, so that the forest cover is decreasing due to the lack of people's environmental awareness. Science education in primary schools plays an important role in shaping children's understanding of their environment, including the role of forests in maintaining the balance of the ecosystem and their impact on the climate and our lives. From the results of the research, it can be seen that there is a need to improve attitudes towards environmental protection, to apply environmental ethics in society, and to use environmental education, especially for primary school children as the next generation, to reduce damage and even improve the quality of the natural balance. Below is a discussion of the results of the study, including the following:

Forest Sustainability in Indonesia

Forests are home to a great diversity of flora and fauna and are one of the rich natural resources that play an important role in our lives. Forest is an ecosystem in the form of an area of land containing biological resources containing trees between each other can not be separated. Forests as natural resources can provide many benefits, both direct benefits as a source of various types of goods such as wood, sap, bark, leaves, roots, fruits, flowers that can be used directly by humans, and indirect benefits including environmental protection, water management, providing beauty, comfort, beauty and others. In addition, forests can be used as raw materials for industry and the results can be used to meet almost all human needs. Forests can be managed sustainably and can be renewed or restored. According to Ridhal (2020), forests must be protected. Here is the discussion on why:

1. Forests produce the oxygen human beings breathe.
2. Forests store water.
3. Minimise the occurrence of natural disasters

The depletion of forests can lead to natural disasters such as flash floods, landslides and water shortages during the dry season.

4. Reduce geothermal temperatures.

Global warming is caused by human activities such as deforestation, industrial activities and the construction of greenhouses. Therefore, one of the solutions to global warming is to protect and preserve forests.

Efforts to protect the environment can also be made in the community by doing things such as the following:

- Farming wisely
To get rid of plant pests, we can use natural enemies to reduce the use of pesticides that contain harmful chemicals.
- Use local products
Using local products can reduce the amount of imported goods that can be harmful and pollute the environment.
- Preserve flora and fauna
By preserving the forest and not committing illegal acts, we have preserved rare flora and fauna.
- Maintaining forest sustainability
To preserve the forest, we can plant a million trees, not clear land and burn forests, not cut trees illegally and report to the authorities if we know of illegal logging (Webmaster, 2020).
- Reforestation
The current state of the forest is very alarming due to the high level of illegal logging. As a result, the forest is no longer able to absorb water, leading to flash floods, erosion and landslides. Therefore, we need to carry out reforestation to maintain its sustainability.
- Reduce illegal logging
- Reduce plastic waste
- Report illegal activities that damage the forest to the authorities.
- Participate in environmental activities

3. RESEARCH METHODS

The type of data used by the author in this research is literature review data. Literature review is a method used to collect data or sources related to the topic of a study from libraries and the internet. In relation to theories and ideas related to this research, the author sorts the existing sources of information according to the title. The data collection technique is the literature review technique or known as qualitative descriptive analysis. In the process of writing this article, the author collects all the data related to the topic of discussion, namely about the attitudes and behaviour of a person to preserve the forest and instill an attitude of environmental love. Then, after having enough sources, the writer reads in depth, analyses data from all reliable sources and summarises them into a solid conclusion.

4. RESULTS AND DISCUSSION

Forests are one of the most valuable natural resources for life on Earth. As well as being home to a wide variety of flora and fauna, forests play an important role in maintaining the balance of the ecosystem and the global climate. Therefore, forest conservation is of vital importance, especially in primary school science education. This article discusses the importance of forest conservation and how forests affect our climate and our lives.

1. Biodiversity

Forests are home to millions of species of plants, animals and micro-organisms. High biodiversity in forests provides ecological, economic and social benefits to people. In primary school science lessons, children can understand the importance of maintaining this biodiversity in order to maintain the balance of nature (artikelpendidikan.id, 2023).

2. Oxygen Production and Carbon Dioxide Sequestration

Trees in the forest are oxygen producers through the process of photosynthesis. Children can learn that the oxygen we breathe every day comes from plants, especially trees in the forest. Forests also act as sinks for carbon dioxide, a greenhouse gas that contributes to global warming. Science education can help children understand this relationship and why it is important to maintain the balance of carbon in the atmosphere (Utami & Gischa, 2021).

3. Protection of Soil and Water

The roots of trees in the forest act as soil retainers, preventing erosion and landslides. Science education can teach children how forests protect soil from erosion and maintain water quality by filtering and infiltrating rainwater into the ground. This knowledge is fundamental to explaining the link between forest sustainability, soil quality and clean water sources.

4. Impacts of Climate Change and Natural Disasters

Children can understand that climate change can have a big impact on everyday life. Forest conservation plays a key role in mitigating climate change and protecting us from natural disasters such as floods and landslides. Science education in primary schools can provide a simple but essential understanding of how forests play a role in maintaining climate stability and reducing disaster risk.

5. Environmental education and social responsibility

Through science education, children can be encouraged to understand their social responsibility towards the environment. They can learn how human activities, such as illegal logging, can damage the ecosystem. This education can also raise children's awareness to become agents of change in maintaining the sustainability of forests and the environment.

By understanding the importance of forest conservation through science education in primary school, it is hoped that children can grow up to be individuals who care about the environment and understand that their small steps can have a big impact on the sustainability of the Earth. With this knowledge, future generations are expected to conserve forests and pass them on to the next generation.

If forests are not maintained or preserved, the protective function of forests on the soil will be lost, resulting in erosion and even landslides, as is happening today during the rainy season. Erosion increases with the intensity of rainfall and the steeper and longer the slope. As a result of erosion, soil fertility will be reduced because the top layer has been eroded and carried away by water, which will reduce crop production and farmers' incomes. For this reason, it is important for the whole community to increase their awareness of forest conservation so that disasters that harm the community do not occur later (Hardjati, et al., 2022).

Strategies to Preserve Forests in Indonesia

Some of the activities that cause forest loss are human activities to develop other sectors, timber industry, illegal logging, mining and forest fires. There are efforts, ways and methods to conserve forests, namely preventing shifting cultivation, which does not use the principles of forest conservation, being vigilant and careful about fires, and reforesting bare land and cutting and replanting. The first method is to prevent shifting cultivation; agricultural land should be made permanent by using manure to fertilise land that is no longer productive. The second method is to avoid burning rubbish, littering with cigarettes, making bonfires, burning bushes, throwing torches and so on, which cause forest fires. The next method is reforestation and selective logging. Logging companies have to choose which trees are old enough and big enough to be cut down. After cutting down a tree, some seedlings should be planted to replace the felled trees.

Forests play an important role in life on planet Earth, but lately forest destruction has been happening faster and on a larger scale. So what should we do to preserve the forest? Here are the things that can be done to preserve forests based on the views of Utami & Gischa (2021):

1. Not cutting down trees carelessly
2. Planting trees
Planting trees and other plants is a way of preserving the forest. Planting trees can be done on a large scale and is called reforestation.
3. Caring for the forest
Caring for the forest is also an attitude that can be done to maintain its sustainability. Taking care of the plants in the forest, not throwing rubbish in the forest, not destroying plants and trees, not burning the forest, preventing forest fires and also protecting the animals that live in the forest are examples of caring for the forest.
4. Engaging in selective logging
Selective logging also means cutting down trees that are nearly dead, about to fall or already dead. This allows young trees to develop.
5. Support the conservation of natural resources
Conservation of natural resources includes conservation of forests. Examples of natural resource

conservation include protected areas such as nature reserves and wildlife sanctuaries, and protected areas such as national parks, botanical forest parks and nature tourism parks.

Improving Environmental Awareness for Elementary School Students through Forest Preservation Learning

The lack of understanding of the nature of environmental care makes humans meet their needs by using the surrounding nature as a means of satisfaction, and their attitude is less concerned about the environment. In fact, the surrounding nature as a place of life requires the role of humans to grow sustainably because nature and the environment are very useful for the benefit of human life (Masrurroh, 2018). One form of effort to be able to preserve forests and the environment is to provide environmental character education to all people, who must touch early childhood as the next generation. Primary education (SD) is strategic for instilling character education. If children's character is formed from early childhood, starting from the social environment to primary school, then the generation of Indonesian people will become people with character who can be the successor of the nation and can preserve the natural environment and change the natural damage that has occurred (Jacobus, 2015).

The importance of teaching students how to love and protect their environment through simple things, creating innovative and creative activities from unused items, transport and recycling processes. Morning greeting activities, good and proper hand washing activities, implementing cleaning of desk area before learning, personal tidiness activities and garden and school environment maintenance activities. This programme can create a school environment that supports pupils' physical and mental health and brain intelligence. In addition, it can support efforts to preserve the school environment, attract students' attention in caring for the school environment, and increase students' sensitivity and motivation for the importance of participating in school cleanliness. Learning to improve and conserve the forest and its environment in primary school students is when the methods of storytelling, singing, demonstrating and playing can be used in the learning process.

Storytelling is used to explain the dangers and consequences of deforestation and the effects of pollution, and singing is used to help children remember what they have learned. Demonstration is used to explain ways of protecting the environment, for example by making garbage crafts, so the child can participate in direct practice. Playing with guessing what pictures include a clean and healthy environment and then giving some questions that are answered immediately by the group at the same time, so that it is not boring to learn, because it is an interesting method for children.

Based on the opinion of Masrurroh (2018), educating children in environmental education from an early age can shape the character of environmental care so that later it will form a society that is wise in environmental management and can reduce forest loss in order to preserve forests. Through good environmental management, the environment will also provide good reciprocity, both a natural atmosphere and items that can be recycled to make crafts that have economic value.

5. CONCLUSION

Indonesia is known for its tropical rainforests, which thrive due to the country's equatorial location. These forests are home to a diverse range of flora and large trees, which are the primary producers of oxygen for living organisms. Furthermore, forests serve as the foundation of the ecosystem and support the essential elements of life on earth. Forests play a crucial role in providing clean water, reducing air pollution, controlling temperature and humidity, and preventing natural disasters such as floods, landslides, and tsunamis.

Therefore, it is important to conserve forests, especially in the context of science education in elementary school. This lesson aims to help children understand the significance of forests in protecting soil, maintaining water quality, and mitigating climate change and natural disasters. This lesson aims to educate on scientific concepts while also encouraging social awareness and responsibility towards the environment.

Science education in elementary schools can play a crucial role in fostering a sense of responsibility towards the environment. By understanding the importance of preserving forests, children can become environmentally conscious citizens who actively participate in forest conservation, reduce their ecological footprint, and promote environmental awareness in society. Thus, forest conservation is not only the responsibility of the current generation, but also an important investment for the future of the Earth and human survival.

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