

The Role of Youth in Maintaining Mangrove Trees and Nature in Kedah, Malaysia
(*Peranan Belia Dalam Menjaga Pokok Bakau dan Alam Semulajadi di Kedah, Malaysia*)

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ABSTRACT

This article's primary goal is to emphasise how crucial it is for people to preserve the health of mangroves and their surrounding natural habitat. It strives to inform people about the enormous adverse effects of youth activity on mangrove ecosystems and how individuals, communities, and society may actively contribute to their preservation and sustainability. The article examines many dangers to mangroves that youth bring, such as deforestation, pollution, overfishing, coastal development, and climate change. The article focuses on successful conservation and restoration programs that have benefited mangrove ecosystems. Mangrove ecosystems along the coast are significant habitats that offer numerous ecological and economic advantages. This literature review evaluates recent discoveries and expert opinions to understand better how youth preserve these essential ecosystems and conserve mangroves. Significant research on youth dangers, conservation and restoration initiatives, sustainable practices, community involvement, political lobbying, and individual activities are all included in the study, along with research on the ecological significance of mangroves. According to numerous studies, Mangrove forests play a significant role in biodiversity preservation, carbon sequestration, and coastal protection.

Keywords: Mangrove, nature, youth role, maintaining, respondents, ecosystems, communities, resilient

ABSTRAK

Matlamat utama artikel ini adalah untuk menekankan betapa pentingnya orang ramai memelihara kesihatan bakau dan habitat semula jadi di sekelilingnya. Ia berusaha untuk memaklumkan orang ramai tentang kesan buruk aktiviti belia yang besar terhadap ekosistem bakau dan bagaimana individu, komuniti dan masyarakat boleh menyumbang secara aktif kepada pemeliharaan dan kemampuan mereka. Artikel itu mengkaji banyak bahaya kepada bakau yang dibawa oleh belia, seperti penebangan hutan, pencemaran, penangkapan ikan berlebihan, pembangunan pantai, dan perubahan iklim. Artikel ini memberi tumpuan kepada program pemuliharaan dan pemulihan yang berjaya yang telah memberi manfaat kepada ekosistem bakau. Ekosistem bakau di sepanjang pantai merupakan habitat penting yang menawarkan banyak kelebihan ekologi dan ekonomi. Kajian literatur ini menilai penemuan terkini dan pendapat pakar untuk memahami dengan lebih baik cara belia memelihara ekosistem penting ini dan memelihara hutan bakau. Penyelidikan penting tentang bahaya belia, inisiatif pemuliharaan dan pemulihan, amalan mampan, penglibatan komuniti, lobi politik dan aktiviti individu semuanya dimasukkan dalam kajian, bersama-sama dengan penyelidikan tentang kepentingan ekologi bakau. Menurut banyak kajian, hutan bakau memainkan peranan penting dalam pemeliharaan biodiversiti, penyerapan karbon, dan perlindungan pantai.

Kata kunci: Bakau, alam semula jadi, peranan belia, mengekalkan, responden, ekosistem, komuniti, berdaya tahant

INTRODUCTION

Youth play a crucial role in maintaining mangrove trees and the overall nature of mangrove ecosystems. Mangroves are unique coastal forests that thrive in the intertidal zones of tropical and subtropical regions. They provide a wide range of ecological, economic, and social benefits. Mangrove forests, situated at the critical intersection of land and sea, play a vital role in preserving the ecological equilibrium of coastal regions. Rich in biodiversity, these unique ecosystems offer invaluable benefits to both local communities and the environment (Primavera & Esteban, 2008). However, they are threatened by various factors, such as pollution, deforestation, and the effects of climate change. Consistent efforts to preserve mangrove trees and wildlife are critical to ensuring the continuation of these vital areas (Barbier et al., 2011)

Mangrove forests encompass 15.62 Mha of the planet's surface, 3.7% of which are in Malaysia (Kasturi Devi Kanniah et al., 2015). Mangroves have primarily been formed along Peninsular Malaysia's west coast and in the Malaysian Borneo states of Sabah and Sarawak. The mangroves in Peninsular Malaysia make up roughly 17% of all the mangroves in Malaysia (0.58 Mha), with the remainder being found in Sabah (58.6%) and Sarawak (24.4%), both in Eastern Malaysia. According to Kasturi Devi Kanniah et al. (2015), Malaysia is home to several species of the Rhizophoraceae family of mangrove trees. However, this nation has at least 70 mangrove species from 28 groups (Hamdan Omar et al., 2012). Malaysian mangroves assist the country and its people in various ecological, economic, and social ways (Hamdan Omar et al., 2012). Mangroves are essential in coastal ecosystems, providing habitats for marine life, protecting shorelines from erosion, and mitigating storms and tsunamis. They maintain biodiversity, support local fisheries, sustain tourism, and offer resources like timber and medicinal plants. They also contribute to community livelihoods by providing food, employment, and protection against natural disasters.

Youth activities significantly impact trees and mangrove ecosystems. Deforestation, illegal logging, pollution, climate change, invasive species, overharvesting, poor agricultural practices, lack of awareness and education, inadequate management and regulation, and rapid urbanisation all contribute to the destruction of these vital ecosystems (Seto et al., 2012). Deforestation and habitat loss result from agricultural, urban, and industrial development, while illegal logging depletes tree populations, disrupts biodiversity, and negatively impacts local communities. Pollution

from youth activities contaminates soil, water, and air, negatively affecting trees and mangroves. Unrestricted youth leisure practices contributing to pollution include littering, inappropriate waste disposal, and using non-biodegradable materials in coastal areas. The trash from beach parties and other recreational activities frequently winds up in mangrove forests and coastal ecosystems. These plastics not only contaminate the water but also prevent sunlight and nutrient exchange, which stunts the growth of mangrove trees. Climate change, invasive species, overharvesting, and poor agricultural practices further stress these ecosystems (Allen et al., 2010). Awareness, proper management, and regulation are essential for ensuring the long-term health of trees and mangroves (Dudley et al., 2005).

The primary purpose of this article is to underline the significance of people protecting mangrove trees and the integrity of the local natural ecosystem. It aims to raise awareness of the significant impacts of youth activity on mangrove ecosystems and how individuals, groups, and society may take proactive measures to ensure their conservation and sustainability. Exploring the youth's impact on mangrove ecosystems, supporting conservation and restoration, and promoting sustainable practices in the youth's role in maintaining trees and nature are a few of them.

OBJECTIVE

This article's primary goal is to emphasise how important it is for people to protect mangrove trees and the integrity of the surrounding natural ecosystem. It seeks to educate people on the substantial effects of youth activity on mangrove ecosystems and how people, communities, and societies may actively work to ensure their protection and sustainability.

Exploring Youth Impact on Mangrove Ecosystems

The article will explore the different threats to mangroves caused by youths, including deforestation, pollution, overfishing, coastal development, and climate change. The effects of these actions on mangrove health will be examined, and the urgency of taking immediate action will be emphasised.

Advocating for Conservation and Restoration

The article will focus on effective conservation and restoration initiatives that have benefited mangrove ecosystems. It will stress the value of preserving existing mangrove habitats, participating in replanting

initiatives, and guarding already-degraded natural environments.

Encouraging Sustainable Practices

The article will go through sustainable behaviours that people and communities can adopt to lessen their detrimental effects on mangroves. This can entail encouraging ethical travel, eco-friendly fishing techniques, and lowering pollution and plastic waste in coastal areas.

LITERATURE REVIEW

Coastal mangrove ecosystems are essential habitats that offer numerous ecological and socioeconomic advantages. However, the challenges posed by youth activity in these distinctive settings are growing. To better understand how youths contribute to preserving these priceless ecosystems and maintaining mangrove trees, this literature review will examine current findings and expert opinions. The evaluation will encompass pertinent studies on youth-induced risks, conservation and restoration activities, sustainable practices, community involvement, policy advocacy, individual actions, and studies on the ecological significance of mangroves.

Ecological Importance of Mangroves:

Mangroves are critical coastal ecosystems known for their remarkable ecological value. Mangroves serve as vital nurseries for numerous marine species, providing a sheltered and nutrient-rich environment for fish, crustaceans, and molluscs during their early life stages. This aspect is crucial for maintaining biodiversity and supporting commercial fisheries.

Moreover, these ecosystems play a pivotal role in carbon sequestration and storage. Through their dense root systems and high organic matter content in sediments, mangroves capture and store substantial amounts of atmospheric carbon dioxide, mitigating the impacts of climate change (Donato et al., 2011). The literature underscores their capacity to sequester carbon at rates higher than many other tropical forests per unit area.

Also, mangroves are a natural buffer against coastal erosion and storm surges. Their intricate root systems stabilise shorelines, reducing the impacts of waves and protecting coastal communities from the destructive forces of hurricanes, tsunamis, and high tides (Hamilton & Casey, 2016).

Youth-Induced Threats to Mangroves:

Mangroves, vital coastal ecosystems, face increasing threats from unregulated youth activities, posing substantial ecological risks. Studies have revealed that leisure pursuits of young individuals, including beach parties, water sports, and camping, often result in substantial littering and indiscriminate waste disposal. Plastics and non-biodegradable materials discarded during these activities accumulate in mangrove areas, disrupting their delicate ecosystems. Such debris impedes the growth of mangroves by blocking sunlight, hampering nutrient exchange, and adversely impacting flora and fauna reliant on these habitats.

The economic repercussions of these youth-induced threats extend beyond environmental concerns. Research highlights that mangroves support valuable fisheries and tourism sectors, which are crucial for local economies. However, excessive recreational activities by young individuals contribute to water pollution, affecting fish populations and compromising the sustainability of fishing industries. Additionally, the degradation of mangroves diminishes their ability to act as natural barriers against coastal erosion and storms, heightening vulnerability in communities dependent on these ecosystems for protection and resources.

Addressing these threats requires a multifaceted approach that considers the social dimensions intertwined with mangrove conservation. Studies emphasise the importance of community engagement and education initiatives targeting youth to foster awareness about the significance of mangroves and the adverse impacts of irresponsible activities. Encouraging responsible behaviour among young individuals through educational campaigns and involving them in conservation efforts not only aids in mitigating immediate threats but also cultivates a sense of stewardship toward preserving these invaluable coastal ecosystems for future generations.

Conservation and Restoration Efforts:

Efforts to conserve and restore mangroves have gained prominence in recent years due to their crucial ecological significance and the increasing threats they face. Studies emphasise the effectiveness of community-based conservation initiatives in safeguarding mangrove ecosystems. Engaging local communities in conservation programs enhances awareness and ensures the sustainable management of these fragile habitats. Collaborative projects involving governmental bodies, non-governmental organisations (NGOs), and community stakeholders have successfully

implemented measures to reduce pollution, regulate recreational activities, and promote responsible behaviours among youth, safeguarding the integrity of mangrove ecosystems.

Restoration programs play a pivotal role in reviving degraded mangrove areas. Research highlights the importance of strategic planting efforts and habitat restoration projects. Replanting native mangrove species in areas affected by human activities or natural disasters aids in the recovery of these ecosystems. Moreover, implementing innovative techniques, such as bioengineering and utilising biodegradable materials for coastal infrastructure, has shown promising results in restoring mangrove habitats and mitigating the impact of youth-induced threats on these sensitive environments.

Effective conservation and restoration of mangroves depend on policy measures and global collaboration, highlighting the importance of policy frameworks that prioritize protecting mangroves and promoting sustainable management practices. International agreements and collaborations among countries are essential for addressing transboundary issues and ensuring comprehensive protection for mangrove ecosystems across regions, bolstering global conservation efforts.

Sustainable Practices and Community Involvement:

Sustainable practices and community involvement play pivotal roles in preserving mangrove ecosystems. The research underscores the significance of implementing sustainable resource management strategies within local communities near mangrove forests. Encouraging alternative livelihoods that do not harm mangroves, such as eco-tourism initiatives or sustainable fishing practices, fosters economic stability while reducing the reliance on activities that threaten these delicate ecosystems. Moreover, empowering communities through education and capacity-building programs equips them with the knowledge and tools to participate actively in mangrove conservation efforts.

Community engagement is fundamental for the success of sustainable mangrove conservation. Studies highlight the positive impact of participatory approaches, where communities are involved in decision-making processes regarding mangrove management. Engaging residents in monitoring, restoration, and protection instils a sense of ownership and responsibility, leading to more effective and long-lasting conservation outcomes. Additionally, initiatives incorporating traditional ecological knowledge passed down through generations prove valuable in

understanding the intricate dynamics of mangrove ecosystems and devising conservation strategies aligning with local practices and beliefs.

Furthermore, partnerships between governmental organisations, NGOs, and local communities are integral in promoting sustainable practices. Research showcases successful collaborations integrating scientific expertise with indigenous knowledge, fostering a holistic approach to mangrove conservation. These partnerships leverage diverse perspectives and resources to implement comprehensive conservation plans that balance ecological needs with the socioeconomic well-being of communities reliant on mangrove ecosystems.

Policy Advocacy and Individual Actions:

Policy advocacy serves as a crucial tool in advancing mangrove conservation efforts. Studies emphasise the importance of advocacy campaigns to influence policymakers to prioritise mangrove protection in environmental policies. Advocacy initiatives often involve scientific research, community input, and collaboration with stakeholders to raise awareness about the value of mangroves and the threats they face. Through these efforts, advocating for legislative measures and policy frameworks that enforce sustainable management practices and mitigating anthropogenic pressures becomes feasible, providing legal support for mangrove conservation.

Individual actions also contribute significantly to mangrove conservation. The research highlighted the impact of grassroots movements and individual initiatives in fostering a culture of conservation. Simple actions such as reducing plastic usage, participating in beach clean-ups, and supporting eco-friendly products contribute to reducing pollution and preserving mangrove habitats. Moreover, individuals advocating for responsible tourism practices and spreading awareness about the importance of mangrove ecosystems among their peers amplify the collective impact of individual actions in safeguarding these vital coastal forests.

The synergy between policy advocacy and individual actions is crucial for effective mangrove conservation. Studies showcase instances where individual efforts complement policy advocacy, creating a bottom-up approach reinforcing top-down policies. Engaging individuals in conservation activities amplifies the voice for mangrove protection and holds policymakers accountable, ensuring the implementation and enforcement of policies to safeguard these ecosystems.

This literature review highlights the multifaceted role of youths in maintaining mangrove trees and nature. It demonstrates the ecological importance of mangroves, the threats they face, and the various avenues through which individuals, communities, and societies can actively contribute to their preservation. By synthesising existing research and expert insights, this review provides a comprehensive understanding of the significance of mangroves. It underscores the urgency of collective action to ensure their long-term survival and ecological resilience.

METHOD

Secondary Data

Secondary data is collected, organised, and analysed for purposes different from those of the original researcher or organisation. This data comes from existing sources, such as books, reports, databases, or other research projects, rather than being generated by the researchers themselves. Secondary data can provide valuable insights and support for research without collecting original data (Bell et al., 2022).

Article

An academic article published in a journal includes original research, reviews, or discussions on specific subjects. Before being accepted for publishing, it is peer-reviewed and published in scholarly or professional publications. Journal articles serve as the primary information source in the academic world and offer in-

depth insights into various subject areas. They aid in the communication of new information, the development of research, and the discussion of concepts within a given discipline.

Primary Data

Primary data is referred to as authentic information that is gathered by the researcher directly from the source for a particular research objective. This information is first-hand and obtained via questionnaires, surveys, interviews, experiments, and observations. To address their study concerns and aims, researchers gather primary data. Compared to secondary data, it is regarded as more specialised and pertinent to the research subject (Leedy & Ormrod, 2014).

Questionnaires

A set of structured questions designed to elicit information from respondents make up a questionnaire, a research tool, or an instrument. It is frequently used in research and surveys to gather information from people or groups on their beliefs, attitudes, actions, preferences, or other pertinent factors. There are many ways to deliver questionnaires, including paper-based forms, internet polls, telephone interviews, and in-person meetings (Dillman et al., 2014). Data are gathered directly from real-world settings or situations during field research, commonly called fieldwork, as opposed to controlled laboratory or simulated conditions. With this approach, researchers visit the site at Sg. Limau Yan, Kedah, or setting of the study in person to watch, speak with people, collect data, and understand numerous occurrences. Field research is frequently used in

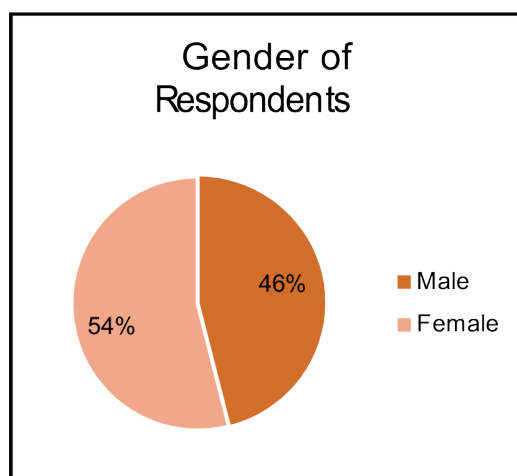


FIGURE 1.0: Pie chart on gender respondents

anthropology, sociology, geography, ecology, and other social and natural sciences (Denzin, 2018).

Cluster sampling and quantitative approaches applying questionnaires were used in the pilot project, which was an overview study. Questionnaires are used to gather quantitative data. The researcher gave 50 respondents aged 18 to 25 years old who had completed at least one (1) year of study in Kedah a series of questionnaires. Johanson and Brooks (2010) claim that a minimum of 30 respondents are required to examine the preliminary study's validity and reliability.

Results and Discussion

Based on Figure 1.0, 46% were men who answered the questionnaire, while 54% were women. Some

studies have found that women may be more interested in specific survey topics or issues, such as health, environment, family, or social relationships, leading to higher participation rates.

Observation

A qualitative research method called observational research involves watching participants' continuing activity in a real-world setting. The market researcher will have varied levels of participation in the study, depending on the observation research being conducted and the study's objectives. Sometimes, a researcher would actively participate in the environment; other times, the researcher would observe from afar or in a controlled context. This kind of research aims to collect



FIGURE 2. A researcher involved with plantation



FIGURE 3. Commemorative picture

more trustworthy insights. In other words, as opposed to what participants claim to do, researchers can record data on what participants do. Based on Figure 2.0, the researcher and the team have participated in a mangrove tree planting program to observe the goodness and growth of the tree to protect the coastline.

A researcher planted 500 trees as part of the

Sentuhan Komuniti Santuni Alam program in Sg. Limau Yan, Kedah. The Kedah Forest Service, Kedah Chief Minister Intercom, and Emerald Putri Hotel collaborated on the initiative. About 30 people sign up to participate in the Sentuhan Komuniti Santuni Alam to learn about planting mangroves. The researcher joined the program to observe the plantation area.

TABLE 1. Table of respondents on conservation and protection

Classification	Number of respondents	Percentage (%)
Agreed	44	88
Neutral	6	12
Do not agree	0	0

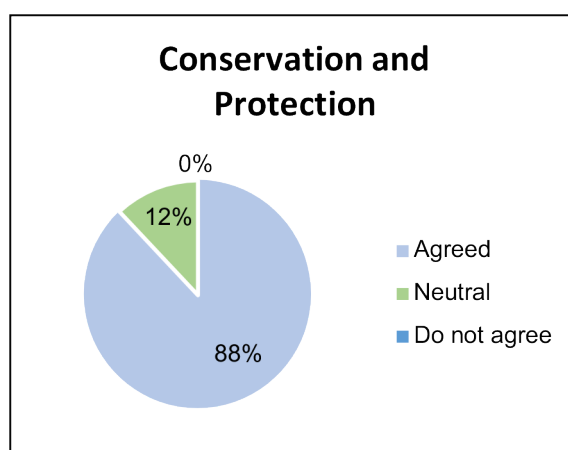


FIGURE 4. Pie chart of conservation and protection

DATA ANALYSIS AND INTERPRETATION

Conservation and Protection

Youths play a crucial role in conserving and protecting mangrove ecosystems. This involves establishing protected areas, national parks, and reserves where mangroves are safeguarded from destructive activities such as deforestation, illegal logging, and land conversion. Conservation efforts often involve local communities, governments, and environmental organisations working together to enforce regulations and implement sustainable practices.

According to Table 1 and Figure 4, 88% of respondents think that mangrove ecosystems should be conserved and protected, and the reasons for their agreement are coastal protection, biodiversity and habitat preservation, and carbon sequestration.

Mangroves are natural barriers that shield coastal settlements from tidal waves, storm surges, and erosion. These ecosystems serve as nurseries for various species thanks to biodiversity and habitat, and carbon sequestration is incredibly effective at removing and storing carbon dioxide from the atmosphere, making it crucial for preventing climate change (Donato et al., 2011).

The respondent's lack of awareness, competing interests, and media impact are demonstrated by the six and zero respondents, who are indifferent and disagree across a sample size of 50. The individual could not be knowledgeable about the value of mangrove habitats, their advantages, or the dangers they are subject to. Conflicting interests among some people or organisations regarding mangrove ecosystems could exist. Public opinion can be influenced by media

coverage and messaging. People might not have strong views about mangrove conservation if media coverage

is sparse or presents it in a neutral light (Shing Yip Lee et al., 2014).

TABLE 2. Table of respondents on reforestation and restoration

Classification	Number of respondents	Percentage (%)
Agreed	11	22
Neutral	20	40
Do not agree	19	38

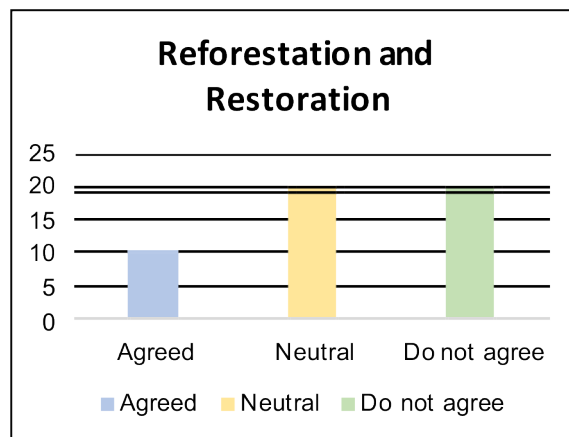


FIGURE 5. Bar chart for reforestation and restoration

Reforestation and Restoration

Referring to the journal entitled *Restoration Ecology: Repairing the Earth's Ecosystems in the New Millennium*, written by Hobbs and Harris (2001), the term "restoration" refers to a broader concept that includes a variety of acts intended to restore ecosystems that have been damaged or altered by youth activity to their original state of biodiversity, structure, and function. Restoring an ecosystem's health and resilience can involve a variety of treatments, such as habitat restoration, wetland restoration, and not just planting new trees (reforestation).

Table 2 and Figure 5.0 indicate that 22% of respondents support reforestation and environmental restoration. People support efforts to reforest and restore the environment for various reasons, including environmental health. Degraded or deforested ecosystems benefit from this by becoming healthier. Reforestation is more likely to receive support from those who are future-focused and concerned about the sustainability of the environment in the long run. Reforestation initiatives can encourage environmental care, increase public awareness of ecological problems, and inform people about the value of sustainable land

use. Respondents mentioned long-term sustainability and educational awareness as key factors.

For reforestation and restoration, the percentages of neutral and disagree are 40% and 38%, respectively. Those who wish to use a piece of land for reforestation may have opposing interests property rights in cases when reforestation can be viewed as impeding resource extraction or economic development. People who put economic growth ahead of environmental protection may oppose these initiatives. The opposition may result from scepticism about the efficacy of reforestation efforts, uncertainty about the motives of those advocating restoration, or a lack of faith in the government or environmental organisations. Motivations of those promoting restoration or lack of trust in government or environmental organisations can lead to opposition.

Sustainable Resource Use

Mangrove ecosystems and their resources should be used sustainably to preserve their ecological integrity and ensure the long-term survival of these priceless coastal habitats. This entails balancing youth requirements

TABLE 3. Table of respondents on sustainable resource use

Classification	Number of respondents	Percentage (%)
Agreed	31	62
Neutral	17	34
Do not agree	2	4

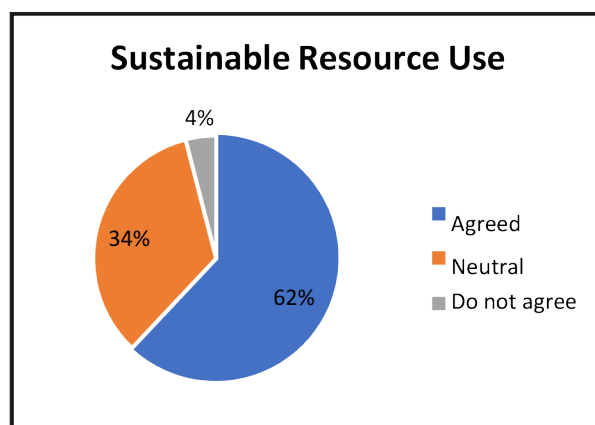


FIGURE 6. Pie chart on sustainable resource use

and the need to protect shoreline stability, preserve mangrove biodiversity, and keep up the environmental services mangroves offer (Shing Yip Lee et al., 2014).

The sustainable use of resources for ecological preservation is agreed by 62% of respondents. Utilising resources sustainably can help prevent the boom-and-bust cycles linked to overexploitation, promoting long-term economic stability. Sustainable management of ecosystems and natural areas boosts their appeal for tourism and recreational activities, boosting the economy of neighbouring towns and fostering a connection to nature. The use of sustainable resources is frequently required by laws and regulations to protect the environment and maintain ethical corporate operations (Nagelkerken et al., 2008).

Additionally, Table 3.0 and Figure 6.0 demonstrate that 34% of respondents are indifferent, and 4% disagree with using sustainable resources. People may be sceptical or differ because they need to trust the information sources that support sustainable resource usage. Some people could be more concerned with their immediate demands or personal interests than long-term environmental issues. Adopting new technology or tactics may be necessary for sustainable practices, yet doing so can be unpredictable and risky. To minimise future disturbances, people might favour the status quo (Osbaldiston & Schott, 2012).

Education and Awareness

Mangrove education and awareness refers to initiatives to inform and enlighten people on the ecological significance, value of conservation, and sustainable usage of mangrove ecosystems. One aspect of this is raising knowledge about the value of mangroves for coastal protection, biodiversity, fisheries, and climate change resilience among local communities, policymakers, students, visitors, and the general public (McLeod et al., 2009).

Table 4.0 and Figure 7.0 show that 94% of respondents support mangrove education and awareness. The public can support money and resources to maintain and conserve these ecosystems by being made aware of the value of mangroves, which is one of the reasons why respondents agree. Education about mangroves can also assist individuals in understanding the importance of these ecosystems on a global scale and how they relate to other environmental and social problems. By spreading awareness of the importance of mangroves, people may begin to see them not as disposable resources but as essential parts of healthy coastal ecosystems (Gelcich et al., 2014).

Regarding education and awareness about mangroves, 6% and 0% of respondents are neutral and disagree. Mangroves may be linked to negative

TABLE 4. Table of respondents on education and awareness

Classification	Number of respondents	Percentage (%)
Agreed	47	94
Neutral	3	6
Do not agree	0	0

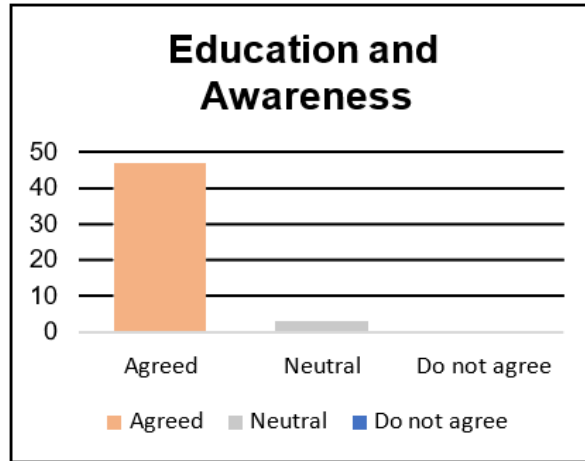


FIGURE 7. Bar chart on education and awareness

perceptions or misunderstandings in some areas, making it challenging to spread knowledge and awareness. People may feel less linked to natural habitats, such

as mangroves, in urban or industrial settings, which could result in a decrease in interest in their protection and how well people comprehend and interact with

TABLE 5. Table of respondents on collaborative management

Classification	Number of respondents	Percentage (%)
Agreed	45	90
Neutral	5	10
Do not agree	0	0

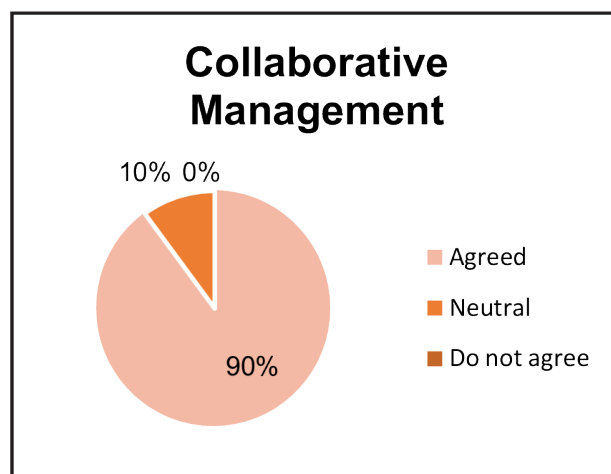


FIGURE 8. Pie chart on collaborative management

instructional materials might vary depending on their education and reading skills (Dahdouh-Guebas et al., 2000).

Collaborative Management

According to Berkes et al. (2000), collaboration between stakeholders, including local communities, governments, NGOs, and scientists, is crucial for effective mangrove conservation. Youths can actively participate in collaborative management initiatives, working together to develop and implement strategies for the sustainable management of mangroves. This can involve participatory decision-making, knowledge-sharing, and capacity-building activities.

Based on Table 5.0 and Figure 8.0, 90% of respondents concur that stakeholder management should involve local communities, governments, and other entities. Economic scales may rise because of the increased efficiency and cost-effectiveness of conservation efforts due to collaborative efforts. The skills, information, and experiences that each stakeholder contributes are distinctive. These resources can be combined through collaboration to create more potent strategies and solutions. Due to the complexity and interconnectedness of mangrove ecosystems, a thorough and multidisciplinary approach is necessary (Borrini-Feyerabend et al., 2000).

The percentages of those who are neutral toward and opposed to stakeholder collaboration are 10% and 0%, respectively. Uneven power dynamics between stakeholders can make it challenging to establish agreements, which is one of the reasons why neutral and disagree. Some parties may believe their opinions are being ignored or not valued. One neutral and disagreeable aspect is suspicion or mistrust, which can prevent stakeholders from working together. Collaboration can be improved by good or effective communication. Misunderstandings may result from variations in language, terminology, or communication techniques.

DISCUSSION AND CONCLUSION

The primary purpose of this article is to highlight how important it is for youths to protect the integrity of mangroves and the surrounding natural ecosystem. It aims to educate people about the significant impacts of youth activities on mangrove ecosystems and how people, communities, and societies can actively participate in their conservation and sustainability. The article examines various youth-induced threats

to mangroves, including deforestation, pollution, overfishing, coastal development, and climate change. The article focuses on effective conservation and restoration initiatives that have benefited mangrove ecosystems. Coastal mangrove ecosystems are important habitats that provide many ecological and socioeconomic benefits.

This literature review examines current findings and expert opinions to understand better how youths contribute to maintaining these irreplaceable ecosystems and conserving mangroves. The assessment includes significant research on anthropogenic risks, conservation and restoration efforts, sustainable practices, community participation, political advocacy, individual actions, and research on the ecological importance of mangroves. Many studies have shown that mangrove forests are essential for coastal protection, carbon sequestration, and biodiversity conservation. Barbier et al. (2011) emphasise the importance of estuarine and coastal ecosystem services, mainly the central function of mangroves to act as natural barriers against storms and erosion. These studies underscore the urgent need to address these challenges, highlighting the adverse effects of deforestation, pollution, coastal development, and overfishing on mangrove health.

Mangroves serve as vital natural barriers for coastlines, underscoring the need for conservation strategies to protect their habitats and the wide range of benefits they deliver. Additionally, successful case studies of community-led efforts highlight the importance of local involvement in conserving mangroves. Research shows how vital political campaigning is to protect mangroves. Existing mangrove areas can be covered, and sustainable management practices are encouraged (Barbier et al., 2011). This literature review highlights the multifaceted role of youths in conserving mangroves and nature. It shows the ecological importance of mangroves, the threats they face, and the various ways individuals, communities, and societies can play an active role in protecting them.

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