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Community Adaptation Strategy to Climate Change Based on Socio-Cultural Perspective

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A R T I C L E I N F O

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A B S T R A C T

Climate change affects all societies around the world, with impacts varying greatly depending on the social, cultural and economic conditions of each community. Communities develop adaptation strategies based on their local knowledge and traditions, but the implementation of these strategies is often hampered by inequalities in access to information and technology. Local knowledge, which is rich in disaster survival experiences, is a key foundation for adaptation strategies, but successful implementation is also highly dependent on policy support that is sensitive to local cultural values. While modern technology has the potential to strengthen adaptive capacity, it is often not easily accepted by more conservative communities. Social inequalities in access to resources and knowledge also create barriers that exacerbate adaptation gaps between groups. It is important to create more inclusive policies that ensure all levels of community can participate in climate change adaptation strategies. This study concludes that the integration of traditional knowledge and modern technology, as well as policies that take into account socio-cultural diversity, are essential to increase community resilience to climate change.

INTRODUCTION

Climate change has become a global issue that affects various aspects of human life, including social and cultural patterns. Faced with the impacts of climate change, communities around the world are developing various adaptation strategies to maintain their survival. Extreme weather changes in many regions, such as floods, droughts and unpredictable seasonal changes, have affected agriculture, natural resources and the sustainability of people's lives (Neef et al., 2018). Societies, especially those dependent on natural resources, are trying to adapt to these changes through modifications in their lifestyles, consumption patterns and technologies used. A social anthropology perspective helps to understand how societies adapt to climate change, focusing on the interactions between culture, environment and individuals (Adger, 2003).

Cultural differences and socio-economic conditions affect how each community adapts to climate change. Communities in many areas developing countries face resource limitations that affect their ability to adapt quickly to climate change. More technologically advanced communities may have more options to implement adaptation solutions. It is important to analyze how communities build their resilience to climate change impacts based on existing social and cultural values. This approach provides insight into the role of culture in facilitating or hindering adaptation efforts (Pelling, 2011).

One of the main problems in climate change adaptation strategies is the uneven ability of communities to adapt, both in terms of access to information and resources. In many regions, especially those with limited resources, socio-economic disparities exacerbate community resilience in the face of climate change (Dahar et al., 2022). Poor or marginalized communities often have limited access to education, technology and services that can help them develop effective adaptation strategies (Lemons, 2013). This makes them more vulnerable and requires greater support in adaptation strategies. This means that while climate change is a global threat, its impacts are felt more by already vulnerable social groups, such as small farmers, coastal communities and minority groups (Moser, 2014).

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Many communities still face challenges in integrating traditional knowledge with modern technology-based adaptation solutions. Many local communities, especially those living close to nature, have hereditary knowledge of weather patterns, crop cycles, and natural signs that have proven to help them survive in changing environmental conditions. Local knowledge held by traditional communities is often ignored or considered less relevant in the face of climate change (Brondízio et al., 2021). Such knowledge has important value for building resilience to natural disasters and environmental change. If local knowledge is not accommodated in adaptation policies, communities will be more vulnerable to the impacts of climate change. This shows the importance of the right approach in understanding and addressing adaptation issues, where traditional and modern knowledge needs to be combined to produce more effective and sustainable solutions (Smit & Wandel, 2006). The integration of local and modern knowledge does not mean equating the two, but creating a space for dialogue that respects differences and optimizes the advantages of each. This can make adaptation strategies to climate change more responsive, equitable and durable.

It is important to understand community adaptation strategies to climate change because climate change affects all levels of community and sectors of life, from economic to social and cultural. Changing weather patterns, rising temperatures, and increased intensity of natural disasters disrupt agricultural activities, threaten food security, and affect people's health and well-being. Without effective adaptation efforts, climate change impacts can further exacerbate existing inequalities. A more inclusive approach based on socio-cultural understanding will provide more appropriate and effective solutions, especially for more vulnerable communities. Understanding how communities develop adaptation strategies also opens up opportunities to create policies that are more sensitive to local needs, thereby strengthening resilience and reducing the risk of climate disasters. Building resilience to climate change is about infrastructure, technology, trust, collaboration and respect for local wisdom.

The aim of this research is to understand how communities, through a socio-cultural perspective, develop and implement adaptation strategies to climate change. The main focus will be on how local knowledge and culture can play a role in shaping more effective adaptation policies and practices. The research aims to explore inequalities in access to resources that affect communities' ability to adapt to climate change, as well as how adaptation policies can be more inclusive and based on local needs.

RESEARCH METHOD

Literature review is an approach often used to explore and understand theories, concepts and previous findings relevant to the topic being analyzed. This approach helps to identify pre-existing patterns, theories and practices to analyzing community adaptation strategies. Desk research allows researchers to explore various perspectives on how communities in different parts of the world develop adaptation strategies to climate change. By reviewing relevant scientific journals, books, government reports and policy documents, researchers can understand the different socio-cultural contexts and factors that influence the success or failure of an adaptation strategy (Creswell, 2014). Literature review provides an opportunity to analyze gaps in existing knowledge and seek relevant solutions to address climate change adaptation issues.

One of the strengths of the literature study approach is its ability to integrate a wider range of research results without the need for time- and cost-consuming primary data collection. This approach is also very useful in mapping the development of theories and ideas related to climate change and socio-cultural adaptation. For example, Nunn et al. (2014) used this approach to understand how South Pacific communities are responding to the challenges of climate change. The results of this study provide insights into the importance of local knowledge in developing resilience to climate change. Literature review allows researchers to synthesize existing research, while providing a deeper understanding of adaptation from different cultural perspectives. This means that this approach is very useful in developing a more comprehensive framework for understanding how communities adapt to climate change.

RESULT AND DISCUSSION

Climate change refers to long-term changes in temperature, precipitation and weather patterns on Earth caused by natural factors and human activities, especially greenhouse gas emissions. This phenomenon has become a pressing global issue, affecting various aspects of life, including the environment, economy and health. The impacts of climate change, however, are physical in nature and have significant implications for the social and cultural elements of community.

One of the main impacts of climate change is its effect on food security. Changing weather patterns can disrupt agricultural production, resulting in reduced crop yields and increased food prices. This can lead to social instability, especially in communities that depend on agriculture as a primary source of livelihood.

Communities experiencing food crises are likely to face social conflict, forced migration and increased poverty, which can further alter their social and cultural structures.

Climate change also affects public health. Increased temperatures and changes in rainfall patterns may lead to a wider spread of diseases, such as malaria and dengue fever (Braide et al., 2020). Vulnerable communities, especially in areas with weak health infrastructure, will be more affected (Baker 2012). This inequality exacerbates the impact, as people's ability to prevent, detect and respond to disease is severely limited. These health impacts affect individuals, and can alter family and community dynamics, disrupting cultural traditions and practices related to health and well-being. Adaptation to climate change also needs to include a comprehensive public health approach that is sensitive to the local socio-cultural context (Ford, 2012).

Climate change can also affect people's cultural identity, especially for communities that have a close relationship with the natural environment. For communities with strong historical connections to nature, especially indigenous peoples, the environment is not just a place to live, but part of who they are (Colchester, 2013). For example, indigenous peoples who depend on natural resources for their daily lives may lose access to lands and resources they consider sacred. Biodiversity loss and ecosystem change can threaten cultural practices, rituals and traditional knowledge that have been passed down from generation to generation. This can lead to identity crises and loss of cultural heritage. Climate change adaptation strategies should consider this cultural dimension in the preservation of traditional values and the protection of natural landscapes with deep cultural significance (García, 2019).

Facing the challenges of climate change, it is important for communities to develop adaptation strategies that consider social and cultural aspects. Each community has unique values, norms and ways of life, which influence how they respond to environmental change (Adger et al., 2009). Inclusive and community-based approaches can help communities to adapt to the changes taking place, while still maintaining their cultural values. Education and awareness on climate change is also crucial to empower communities to take the necessary actions to protect their environment and culture. Climate change is an environmental issue, and a social and cultural challenge that requires collective attention and action (Banwell et al., 2012). Collective approaches that strengthen local values while encouraging innovation will create more equitable, resilient and sustainable adaptation.

Communities around the world are developing various adaptation strategies to climate change, taking into account their socio-cultural conditions. Adaptation to climate change can generally be seen as a response to the risks posed by environmental change, which is also influenced by social and cultural factors (McCarthy et al., 2014). The socio-cultural approach views adaptation not only as a technical or economic endeavor, but as a process that involves traditions, values and beliefs that have been inherited in the community. Individuals and communities build resilience to climate change by considering traditional methods that have proven effective and the relevance of culture in dealing with natural disasters (Adger, 2003). This tradition is a foundation in dealing with environmental changes because it has gone through a long process of adaptation to local natural conditions. An approach that combines technical and socio-cultural aspects will be better able to create adaptation strategies that are not only practically effective, but also accepted and supported by the people who experience them directly.

Local knowledge is a key foundation for many communities in designing adaptation strategies. This knowledge usually develops in relation to a specific environment, based on the community's historical experience of extreme weather events or other natural disasters. For example, farming communities in some parts of Southeast Asia rely on traditional agricultural calendars and seasonal patterns resulting from long-term observations to predict weather changes and plan their agricultural activities. The system has been proven to help farmers manage extreme weather risks such as drought or too much rain in a simple manner. This is one example of how local culture and knowledge passed down between generations provide the basis for effective adaptation to climate change (Smit & Wandel, 2006). The existence of such local knowledge shows that culture and historical experience play an important role in strengthening the adaptive capacity of communities to climate change (Hiwasaki, 2017).

The evolution and implementation of adaptation strategies, however, involve local knowledge. New technologies and innovations also play an important role in improving community adaptive capacity (Adenle et al., 2015). Communities that are more open to technological change tend to implement technology-based adaptation strategies more quickly, such as the development of more efficient irrigation systems or the use of crops that are more resilient to climate change (Klein, 2011). Communities that are more conservative in accepting new technologies may rely more on traditional methods despite the potential to improve their adaptive capacity with more modern technologies (Pelling, 2011).

It is also important to note that government policies and international organizations have a huge role to play in supporting community-level adaptation strategies. Governments can provide support through counseling, training, and the provision of resources needed to improve communities' ability to adapt to climate change. For example, in some developing countries, governments have built the capacity of local communities through training on new ways of managing natural resources and adapting to natural disasters. International organizations such as UNDP, FAO, or the World Bank also have a strategic role in supporting climate adaptation programs (Dellmuth & Gustafsson, 2021). They can help strengthen institutional capacity at the national and local levels, promote the integration of adaptation into development policies, and provide grants or soft loans for adaptation projects. The implementation of policies that are sensitive to local social and cultural needs allows for more effective adaptation strategies that are more accepted by communities (Moser, 2014).

The implementation of adaptation strategies does not always go smoothly. Communities with diverse social backgrounds often face challenges in bringing together different views and strategies. These differences create the potential for conflict between individuals or groups with greater access to resources and those who are more vulnerable (Granderson, 2014). Less well-off groups may not be able to access the information or technology needed to adopt improved adaptation strategies, thus exacerbating existing social inequalities (Smit & Wandel, 2006). The development of adaptation strategies must consider social equity aspects to ensure that every group in community can adapt effectively. Adaptation strategies will not only be more effective in reducing climate change risks, but also play a role in building a more equitable, resilient and united society to face future challenges.

The implementation of adaptation strategies to climate change involves practical adjustments to changes in the physical environment, and takes into account broader socio-cultural impacts. Socio-cultural adaptation refers to how individuals or groups interpret and respond to change based on cultural values. For example, in some coastal communities in Indonesia, indigenous peoples who depend on marine products for their livelihoods have developed ways of adapting based on traditional knowledge of weather patterns and fish migration patterns. This shows that local traditions and culture play an important role in strengthening resilience to climate change (Berkes, 2009). Effective adaptation strategies should reflect a holistic understanding of community dynamics, including their values, beliefs and long-held ways of life.

Acceptance of culture-based adaptation is highly dependent on the community's understanding and attitude towards climate change itself. Adaptation requires not only technical changes, but also changes in attitude and mindset (Roaf et al., 2009). This understanding encourages people to modify their way of life while maintaining their identity and local wisdom as part of the adaptation process. Communities that have a high awareness of climate change and its impacts tend to be more open to change and adaptation. For example, in many cases, communities that are more isolated or less exposed to information related to climate change may have difficulty accepting that increasingly erratic climate conditions will affect their lives in the long-term (Veland et al., 2013). They may not fully understand that phenomena such as prolonged droughts or crop failures are part of global climate change, not just natural cycles. Efforts to educate communities on the importance of culturally-based adaptation are crucial to accelerate acceptance and implementation of adaptation strategies at the local level (Feldman et al., 2012).

While climate change is a global issue, the response to it is highly dependent on the local sphere. Factors such as social structure, beliefs and customs have a major influence in determining the extent to which an adaptation strategy can be accepted and implemented (Moser & Ekstrom, 2010). Adaptation strategies that work in one place may not be effective in another without considering local conditions. For example, in some parts of Africa, adaptation to climate change often involves changes in agricultural patterns or migration from drought-threatened areas. These adaptation approaches are influenced by environmental factors and by cultural practices that have evolved over many years in these communities (Nunn et al., 2014). It is important for policy designers and implementers of adaptation programs to take into account socio-cultural dynamics in any strategies developed.

Culture-based adaptation has great potential, but there are many challenges faced by communities in implementing this adaptation strategy. One of the problems that arise is the lack of support from outside parties, both from the government and international institutions. Policies implemented are often not flexible enough to consider socio-cultural diversity at the local level. This can hinder the adoption of adaptation strategies that are more suited to local conditions and cultural values. For example, government policies that favor modern technologies may be less effective if they are not adapted to traditional knowledge and practices that have proven successful in dealing with climate change in the past (Berkes, 2009).

The implementation of climate change adaptation strategies must take into account the social inequalities that exist in community (carmin et al., 2015). Underprivileged or marginalized communities often face barriers in accessing the resources needed to adapt, such as technology, information and financial support. These inequities can exacerbate their vulnerability to climate change impacts, such as natural disasters, reduced agricultural yields and health problems. Non-inclusive adaptation can create new tensions in society. Policies that promote more equitable access to resources and knowledge are therefore crucial. For example, training programs aimed at improving sustainable agriculture or disaster risk management skills can help marginalized communities to be better prepared for the challenges posed by climate change. Providing better access to vulnerable groups can improve their adaptive capacity, and contribute to reducing existing social inequalities (Eriksen et al., 2020).

Increased community participation in decision-making on adaptation strategies is essential to ensure that policies are locally relevant and effective. Active participation from different levels of community, including marginalized groups, can provide valuable insights into the needs and challenges faced at the local level. By involving communities in the planning and implementation process, adaptation strategies can be tailored to local conditions and culture, increasing the chances of success. When people feel they have a stake in decision-making, they are more likely to commit to supporting and implementing the policy (Adger, 2003). Creating space for dialogue and collaboration between government, non-governmental organizations and civil community is critical to building social resilience and increasing the effectiveness of adaptation strategies to climate change. With an inclusive and community-based approach, we can create solutions that are more sustainable and responsive to the challenges faced by communities in the face of climate change.

CONCLUSION

Communities around the world have developed diverse adaptation strategies to climate change that are strongly influenced by their socio-cultural context. Many communities adapt using centuries of local knowledge, including agricultural traditions, migration patterns and natural resource utilization. The implementation of these adaptation strategies is not always smooth, as social factors such as unequal access to information and technology also differences between government policies and community cultural values can create serious barriers. Given this, it is important for government policies and international organizations to pay more attention to the role of local knowledge and facilitate dialogue between modern technologies and traditional cultures to make adaptation strategies more effective.

Many communities do rely on local knowledge to cope with climate change, but major challenges remain, particularly related to differences in adaptive capacity between social groups. Inequalities in access to resources, information and technology are important factors that weaken a community's resilience. Given this, it is important to involve all levels of community in the planning and implementation of adaptation strategies, ensuring that every group can access the resources needed to improve their capacity to cope with climate change. A more inclusive understanding and implementation of culture-based adaptation is necessary to create fair and equitable sustainability in the face of climate change challenges.

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