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Social Capital and Economic Resilience: Perspectives of Communities Affected by Deforestation in Pelalawan Regency

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ABSTRACT

One aspect of the concept of sustainable forest management focuses on community well-being. However, current forest management policies have yet to have a positive impact on community well-being. Massive deforestation driven by the expansion of forestry industries, oil palm plantations, and recurring forest fires has led to severe environmental degradation and threatened economic resilience of communities in Riau Province. Therefore, this research aims to explore how to enhance community economic resilience by analyzing social capital and integrating this concept into forest management policies. Data were collected through in-depth interviews with 15 informants using a qualitative case study method. These were complemented by participant observation and literature review, with the data analyzed thematically using NVivo 12 Plus. The results showed that social capital functioned as an adaptive mechanism to strengthen community capacity in coping, adapting, and diversifying economic strategies to reduce vulnerabilities caused by the loss of forest resources. social capital was reported as a critical factor in ensuring economic sustainability, consists of resources and networks that can be strengthened through local institutions, financial institutions, government, and the private sector. This research contributed theoretically by connecting social capital, community empowerment, and economic resilience, while offering practical recommendations to integrate the concept into local development and resilience policies.

1. INTRODUCTION

Deforestation is a serious problem faced by many tropical countries, including Indonesia [1]. The province of Riau is among the regions with the highest rates of deforestation, largely driven by the expansion of the forestry industry, oil palm plantations, and recurring forest and land fires [2]. Landscape changes due to deforestation cause ecosystem damage and loss of biodiversity, as well as a direct impact on social and economic lives of local communities [3]. For years, communities in Riau have depended on forest resources to meet daily needs through timber and non-timber products. Economic resilience of communities is threatened by reduced access to resources [4]. Community economic resilience is defined as the ability of a group to maintain, adapt, and recover in economic conditions amid pressures or shocks [5]. In the context of Riau, these shocks take the form of the loss of traditional livelihoods, declining land productivity, and reduced access to natural resources, forming the basis of economy. This situation is complicated by government policies on natural resource management, which often favor the interests of large-scale industries over the protection of local communities [6]. Therefore, communities affected by deforestation are in a vulnerable position and need alternative mechanisms to support economic sustainability [6]. Concerning these limitations, social capital provides resilience for communities. The concept refers to the networks, norms, and trust that enable cooperation [7]. In the tradition of Riau community, the values of mutual assistance, solidarity, and kinship-based social relationships are important assets for the survival of external pressures. Community is able to build economic resilience mechanisms outside of formal state intervention through the practice of mutual assistance, collective resource management, and social network support. Previous research has shown that social capital can play a significant role in increasing adaptive capacity and strengthening economic resilience, specifically in communities facing structural and environmental pressures [2, 7-9]. However, research that specifically examines the principle of social capital is still limited. Understanding the role in supporting economies of communities affected by deforestation is very important for theoretical development and the formulation of inclusive policies. This research aims to explore the role of social capital in improving economic resilience of communities affected by deforestation in Riau Province, with a focus on answering the following questions.

1. Why is social capital underutilized?
2. What factors influence economic resilience of

communities in facing deforestation?

3. How can communities affected by deforestation improve economic resilience?

A theory-based conceptual model and practical strategies have been implemented by local communities and government agencies through an integrated method. Therefore, this research contributes academically to the development of literature on social capital and economic resilience, as well as providing practical policy recommendations for local and central governments to design more sustainable and responsive community-based development strategies to address the impacts of deforestation. The research location was Riau Province, Indonesia, which ranks highest in terms of annual deforestation. In 2023 and 2024, the area of deforestation reached 20,689 and 22,172 hectares, respectively. The impact faced by communities living near forests is the loss of traditional livelihoods, which also leads to economic vulnerability due to deforestation. The insights gained are expected to contribute to strengthening policies and practices at the national level as well as providing valuable lessons for communities affected by deforestation. By offering a contextual and participatory model, this research supports broader efforts to build economic resilience systems.

2. LITERATURE REVIEW

2.1 Deforestation and the impact on local communities

Deforestation is a global issue that continues to attract attention because of the impact on environmental damage and the livelihoods of local communities. According to Anshari and Permata [3] deforestation is triggered by a combination of direct factors such as agricultural expansion, infrastructure development, and logging, as well as indirect factors including government policies, market pressures, and demographic dynamics. In Riau, deforestation occurs on a massive scale due to the expansion of oil palm plantations, industrial timber plantations (HTI), and the practice of burning peatland ecosystems [10]. This phenomenon has various ecological, social, and economic consequences for local communities. From an ecological perspective, deforestation causes the loss of forest cover that serves as an ecosystem buffer. Furthermore, peatland degradation increases vulnerability to forest fires to produce transboundary haze. Wirawan and Amrifo [1] reported that forest fires in Riau had local impacts and affected regional air quality. For local communities, the haze triggers health problems such as acute respiratory infections (ARI) and reduces work and educational productivity because daily activities are affected. Deforestation often triggers land conflicts between local communities, companies, and the government. Savari and Khaleghi [11] explained that indigenous and rural communities dependent on forests lose traditional living spaces due to claims by large plantations. From economic perspective, deforestation changes the livelihood patterns of people. Local communities relied on non-timber forest products, such as rattan, honey, fish, and medicinal plants. However, forest loss has drastically reduced these economic resources. Many people have turned to labor on oil palm plantations or work in the informal sector for low wages [12]. This condition creates a high dependence on fluctuations in global commodity prices, increasing the vulnerability of the local economy [13]. Ecological disasters such as floods and droughts caused by forest degradation lead to significant material losses, ranging from damage to agricultural land to increased health costs. This literature review shows that deforestation has a multidimensional impact on local communities. Forests serve as economic resource and ecological and social space that supports the identity and sustainability of communities. The loss of forests represents a weakened ecological resilience, increased social conflict, and fragile household structures. In this context, efforts to address deforestation must combine environmental conservation strategies with the empowerment of local communities, including recognition of customary rights, economic diversification, and the integration of local wisdom in natural resource management. This method is important for ecosystem sustainability [14] and ensures the welfare of communities living in and around forest areas. In Riau, deforestation is a crucial issue closely related to the expansion of oil palm plantations and industrial forestry. Research [15] showed that Riau was among the provinces with the highest rates of forest loss since the early 2000s. The impacts are not ecological, such as loss of biodiversity, soil degradation, and haze disasters, as well as social and economic impacts [10]. Communities that depend on non-timber forest products, inland fisheries, and shifting cultivation lose the main sources of livelihood. This loss of access leads to increased economic vulnerability, social inequality, and labor migration. Therefore, deforestation creates a complex situation where ecological degradation is connected with socio-economic vulnerability of local communities.

2.2 The concept of community economic resilience

Community economic resilience is a concept increasingly used in development research, particularly in the context of vulnerability due to environmental change and socio-economic shocks. Research [16] defined community economic resilience as the capacity to resist, adapt, and recover from economic pressures or shocks. This concept is particularly relevant for communities whose livelihoods depend on natural resources affected by deforestation. In the case of deforestation, community economic resilience reflects the extent to which communities can maintain livelihoods when the forest resources are degraded. According to Adger [17], community resilience is determined by the availability of material assets such as financial capital, land, or infrastructure, as well as non-material factors including social networks, cultural norms, and local institutional capacity. Even though intervention from the government or external parties is important, the internal strength of community remains the main pillar in supporting economic sustainability. Further literature review shows that community economic resilience has three important dimensions, namely 1) productive asset management capacity, which is the ability to use and maintain assets such as agricultural land, plantations, or livestock to remain productive despite environmental changes [18]. In the context of deforestation, the loss of forests allows communities to switch to new forms of land management. 2) Diversification of income sources, where resilience increases when communities rely on different economic sectors. This diversification serves as an adaptive strategy in the face of global commodity price fluctuations and local environmental damage. 3) Social and institutional adaptive capacity, which refers to the ability to organize, build solidarity, and use social networks to reduce economic vulnerability [19]. The literature review confirms that community economic resilience is a multidimensional phenomenon including material, social, institutional, and cultural aspects. In communities affected by deforestation, economic resilience depends on the ability to access resources and economic opportunities, as well as the strength of social capital and local institutions to support solidarity and adaptive innovation. Therefore, development strategies aimed at improving community resilience need to pay attention to the balance between external intervention and strengthening the internal capacity of communities.

2.3 Social capital as an adaptive mechanism

Social capital is a concept widely used to understand the dynamics of cooperation, social cohesion, and reciprocal relationships in society. The study [20] defines social capital as networks, norms, and trust that facilitate coordination and cooperation to achieve common interests. Meanwhile, the study [21] emphasized that social capital was obtained from interactions between individuals to generate obligations, expectations, and mutual trust. This concept includes social relationships and functional value used to improve community welfare. In the context of communities affected by deforestation, social capital functions as an adaptive mechanism that supports economic resilience [22]. The loss of forests as a source of livelihood allows communities to rely on internal strengths, including social networks, norms of cooperation, and mutual trust. For example, social networks enable the sharing of information related to business opportunities, access to employment, and more adaptive agricultural technologies [13]. The norm of cooperation also promotes collective practices in land management, resource sharing, or helping community members experiencing economic difficulties [18]. Meanwhile, social trust strengthens solidarity and creates a sense of security in the face of uncertainty caused by environmental change and economic pressure [23]. Musavengane and Simatele [5] emphasized that social capital played an important role in reducing the vulnerability of poor communities by increasing access to resources. In this context, bonding and bridging social capital have also been distinguished. Bonding capital refers to strong social ties among community members, such as kinship-based relationships, friendships, or shared cultural identities. These ties serve to provide emotional support, solidarity, and direct assistance when individuals or households face difficulties. In Riau, bonding capital is evident in the solidarity among members of extended families or certain ethnic groups when facing crises caused by deforestation or forest fires. Bridging capital relates to the relationships of local communities with external actors, such as non-governmental organizations (NGOs), indigenous organizations, and government agencies [24]. This relationship opens up access to broader resources, including financial assistance, skills training, and policy advocacy support. For example, communities in Riau that have networks with environmental NGOs often receive training in business diversification or market access for local products. Therefore, bridging capital helps to expand economic opportunities and increase bargaining power in the face of pressure from extractive industry expansion [16]. The literature also adds the concept of linking social capital, which refers to relationships between communities and actors or institutions with greater political and economic power, such as the government or companies. This capital serves to fight for community rights through formal channels, such as policy advocacy or compensation programs for areas affected by deforestation. In many cases, the success of communities in defending or restoring living spaces is largely determined by the ability to build and use cross-level social capital. Social capital can be understood as an adaptive mechanism that enables communities to survive and transform in the face of environmental and economic pressures [20]. Bonding capital maintains internal cohesion and solidarity. In contrast, bridging and linking capital expand access to external resources and strengthen bargaining position. The combination of the three makes social capital social network and strategic asset that supports the resilience of communities affected by deforestation [25].

2.4 The relationship between social capital and economic resilience

Different research shows a close relationship between social capital and economic resilience. Aldrich and Meyer [26] found that communities with high levels of social capital were better able to recover from natural disasters because of social support networks, collective coordination, and mutual trust, facilitating the distribution of aid and recovery. Social capital acts as a glue and functions as an important resource mobilized during shocks. In the agricultural sector, the role of this concept is even more apparent. Purwantiningsih and Puryanto [8] asserted that social capital promoted business diversification, expanded market access, and strengthened the bargaining position of small farmers in the agribusiness value chain. Farmers can exchange information, access technological innovations, and collaborate in marketing products through social networks and local institutions. Therefore, the concept contributes significantly to building community-based economic resilience, specifically in rural areas. In the context of deforestation, the relationship between social capital and economic resilience becomes more complex and increasingly important. The loss of forests as a traditional source of livelihood creates new economic mechanisms. Social capital, through bonds, external relationships, and connections with influential institutions, becomes an adaptive instrument supporting the transformation [27]. For example, local community solidarity is often manifested in the formation of cooperatives or joint business groups to access resources collectively. Strong social bonds also support mutual aid mechanisms, in which households help each other when experiencing economic difficulties due to reduced forest yields or land fires [28]. The norms of cooperation and practices of helping can strengthen economic sustainability of households. In many cases, informal social networks such as gatherings, family loans, or rotational work systems on agricultural land maintain economic stability despite facing material asset constraints [29]. The trust built between community members increases the adaptation process to facilitate coordination and collaboration in creating alternative businesses. In addition, social capital also expands access to external economic opportunities. Communities affected by deforestation can obtain skills training, funding support, or new market access for local products through relationships with NGOs, indigenous organizations, and government agencies. Bridging and linking social capital paves the way for economic diversification while increasing the bargaining power of communities in the face of structural pressures from extractive industry expansion [13]. Therefore, social capital is a crucial non-material asset in building community economic resilience in areas affected by deforestation [10]. Social networks, norms, and trust built among community members strengthen internal solidarity and open up access to external resources that expand the adaptive capacity of society. The development strategies oriented towards increasing economic resilience must integrate the strengthening of social capital to survive crises and develop sustainably [23].

3. METHODOLOGY

This research used a qualitative exploratory method with a case study design to understand social dynamics and economic practices of communities affected by deforestation The method was selected to provide a contextual and holistic perspective on the contribution of social capital to sustaining economic resilience concerning community, environment, and policy frameworks. The research was conducted in three subdistricts in Pelalawan Regency that experienced widespread forest fires: Kerumutan, Langgam, and Kuala Kampar. The study took place over approximately three months, from February through April. Data were collected through in-depth interviews lasting 60 to 90 minutes with each of the 15 informants, including community and customary leaders, village officials, economic empowerment program managers, local economic actors, women, vulnerable groups, and relevant local government officers. These interviews were complemented by participant observation of social practices and collective economic activities, as well as the analysis of supporting documents such as village reports and policy records. Data analysis was conducted using thematic analysis, and the research data were processed in NVivo 12 Plus software across several stages, including compiling interview scripts and exporting them to NVivo 12 Plus. Then, several sentences were coded and grouped into nodes. Nodes were formed based on the research sub-indicators, namely Social Capital and Community Economic Resilience. Furthermore, the coding data were presented in the form of charts as supporting data for the analysis.

4. RESULT

4.1 Social capital for economic resilience: Access to resource, community support, networks, norms and solidarity, and trust

Social capital plays a key role in building economic resilience of communities affected by deforestation and determines the effectiveness of post-deforestation policies [14]. In social context, this concept becomes the foundation for collective solidarity in the form of networks, norms, and trust. Strong social bonds enable families and local groups to support each other when livelihoods are disrupted due to the loss of forest ecological functions [18]. Communities can survive by relying on resource exchange, mutual assistance, and diversification of non-timber forest products such as honey, rattan, and medicinal plants through the mechanism. Social bridges built by communities with cooperatives, NGOs, or local governments open access to markets and economic development programs, expanding opportunities for post-deforestation prosperity. This research was conducted in Riau Province Indonesia, focusing on the Pelalawan Regency with the highest rates of deforestation. The results of interviews show that communities are greatly helped by the existence of support and mutual trust to survive deforestation (Figure 1).

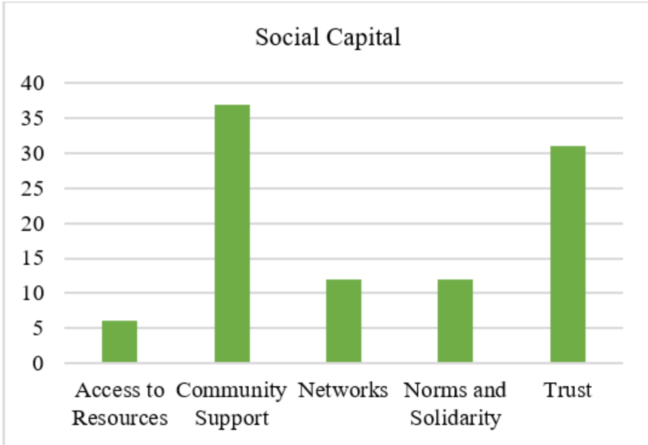

Figure 1. Social capital
Source: Result of data processing with NVivo 12 plus

Research on the role of social capital in supporting economic resilience of communities affected by deforestation show a diverse distribution of contributions across support, access to resources, community support, networks, norms and solidarity and trust. The interview results indicate that Communities affected by deforestation in Pelalawan Regency survive by leveraging social capital, including access to resources, community support, social networks, norms and solidarity, and trust. The first theme, access to resources, reveals that deforestation has hindered communities' access to forest resources the cornerstone of their livelihoods and economy. Informants reported that deforestation has prevented them from harvesting wood, rattan, and other natural resources. “Because so much of the forest has been cleared, we struggle to meet our basic needs. We used to be able to use the wood, rattan, and plants found in the forest.” (Informant 1).

“In the past, we could still hunt or gather wood; we could also use rattan because there was plenty of it. But now there’s nothing left the forest is gone and it’s hard for us to survive if we rely solely on the forest” (Informant 2).

The interview results reveal that the community struggles to access forest resources. To cope, they've turned to government aid and institutional loans as economic adaptations. However, access to these resources is unevenly distributed within the community:

“Government assistance is available, but it’s hard for us to access it, so we take out loans from the cooperative” (Informant 5).

“Those who can obtain capital assistance usually do so through groups” (Informant 4).

The analysis shows that access to government aid and cooperative loans is limited; capital assistance is channeled through existing community groups, leaving those outside these groups struggling to access support.

The second theme, community support, highlights mutual aid as a key survival strategy amid economic hardships triggered by deforestation. This support manifests as labor assistance, shared information, and solidarity reflecting the community's collective resilience, Interviews revealed that community members rally around each other during tough times, offering support when economic hardships.

“When someone is in trouble, we help each other out for example, by inviting them to help in the garden, and the garden's produce can help meet their needs." (Informant 15).

"Likewise, when a forest fire broke out near our area, we worked together to protect the village." (Informant 7).

The interview findings underscore community support as a vital force in tackling deforestation, fostering mutual aid, info-sharing, and cooperation that bolster social resilience. This collective strength empowers communities to adapt to environmental shifts, safeguarding their livelihoods and way of life. The third theme, social networks, reveals that both formal (cooperatives, farmers' groups) and informal (family, personal connections) networks are lifelines for accessing info, aid, and economic opportunities. These networks underpin the community's economic resilience and way of life.

"It's easier to get information about assistance or training if you join a farmers' group" (Informant 15).

"We usually get assistance or work from people we know; we rarely get it from outside sources" (Informant 11).

The community finds their social networks invaluable, gaining access to crucial info on capital and farming techniques through these connections. The fourth theme: Norms and Solidarity. Communities in Kerumutan Subdistrict, Kuala Kampar Subdistrict, and Langgam Subdistrict still rely on mutual aid and solidarity to survive.

"If there's a forest fire, we work together to put out the fire and prevent it from spreading to other people's lands" (Informant 10).

"We look out for one another, especially the community gardens that serve as our source of income" (Informant 8).

To survive, the community works together to protect their economic resources. Trust, the next theme, is pivotal in strengthening social bonds and emotional ties, particularly amid deforestation's challenges. This trust shapes the effectiveness of cooperation and aid distribution within the community.

"We just trust the group leader; he's the one handling the aid, so we just go along with it." (Informant 7).

"Without mutual trust, it's hard to cooperate, especially now that conditions are already difficult." (Informant 4).

In the face of shifting income sources, community members rely on mutual trust to navigate challenges collectively. Trust functions as a social bond that sustains social interaction, strengthens relationships, fosters cooperation, and underpins community stability and cohesion.

4.2 Factors affecting community economic resilience: Adaptation, diversification, income stability, policies and regulation

This section presents the research results on the key factors influencing community economic resilience in the context of deforestation. Individual livelihood capacities determine economic resilience and shape adaptability, diversification, income stability, and supportive government policies. The factors interact dynamically, creating adaptive mechanisms that enable communities to endure, adjust, and develop new strategies for sustaining economic welfare. Understanding the determinants provides insights into the mobilization of local potential and leveraging of social networks to reduce vulnerabilities and improve sustainable economic resilience. Figure 2 shows that the factors affecting community economic resilience when social capital is used are adaptation capacity, diversification, income stability, and policies and regulations.

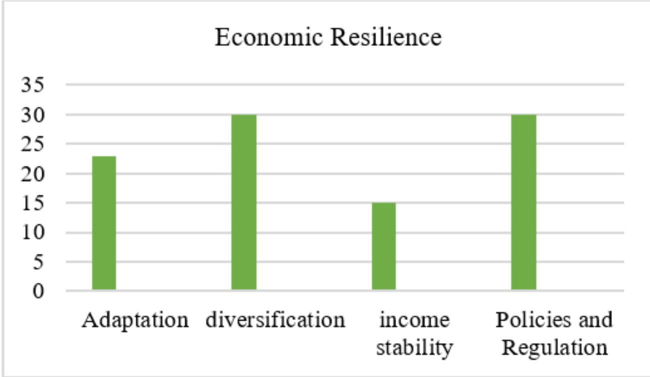

Figure 2. Community economic resilience
Source: Result of data processing with NVivo 12 plus

In conditions of deforestation that reduce forest resources, communities continue to strive to maintain economic resilience through a combination of internal and external factors. Data shows that income stability and diversification are two dominant factors. These two factors confirm that economic resilience is strongest when communities are able to maintain a stable income stream.

This is evident in the following excerpt from an interview with Informant 5:

"The forest can't be relied on like it used to, so we have to be resourceful in finding other sources of income. Some people still work on oil palm plantations, but they also run small side businesses to earn extra money." (Informant 5)

"If you only have one job, it's hard to get by these days. We usually keep our main job, but also look for side work like raising livestock or selling goods, so our income doesn't dry up." (Informant 9).

Income stability creates economic security, while diversification is an adaptive strategy for dealing with market uncertainty and environmental degradation. The combination shows that communities are sticking to old patterns and actively seeking new solutions. The factor of income stability is important to ensure that basic needs are met [30]. Communities rely on agriculture, plantations, or permanent jobs to keep household economies from being disrupted, even when the environment changes. Income diversification through small businesses, local trade, fishing, or crafts helps to reduce the dependence on a single source of income [28]. This strategy is effective in dealing with market risks and the impacts of ecosystem degradation. Further analysis shows that internal factors are short-term strategies and long-term dimensions needed to strengthen economic base. A more resilient economic foundation is developed in balancing stability with innovation [15]. This is important because deforestation often creates permanent changes to ecosystems, making community-based adaptive capacity crucial. Adaptive capacity is an important factor in maintaining economic resilience of communities affected by deforestation in Riau. Deforestation occurs on a massive scale due to the expansion of oil palm plantations, the forestry industry, and recurring forest fires [6]. The loss of forests as a source of food, timber, medicine, and ecosystem support has caused local communities to face drastic changes. In this context, adaptive capacity includes new skills, simple technological innovations, and the use of social networks in adjusting to post-deforestation conditions [31]. In terms of new skills, affected communities in several villages have begun to shift skills from forest-based sectors to other sustainable sectors.

Some farmers have switched from relying on non-timber forest products to mixed plantations or local food crops more resistant to climate change.

"We used to rely heavily on forest products like rattan and honey, but now those resources have dwindled, so we've started growing vegetables and other food crops that mature faster." (Informant 4).

"Now we don't just rely on the forest; we've started mixed-crop farming rubber, fruits, and other crops so that if one fails, we still have others." (Informant 7).

This shows that adaptation is reactive to change and proactive in opening up new economic opportunities [18]. Simple technological innovations are part of the adaptation mechanism. Several communities in Pelalawan have implemented environmentally friendly agricultural methods, such as small-scale agroforestry systems or the use of organic fertilizers to reduce dependence on expensive chemicals. These innovations help maintain post-deforestation land productivity and increase household cost efficiency. The use of simple information technology has also begun to be used to expand the market for local products such as handicrafts and traditional food products. The ability to adapt is not fully optimal due to limited policy support. Government programs related to post-deforestation economic empowerment are still partial and have not addressed the root causes of the problem, such as land security and access to capital. Informants reported that the assistance they've received hasn't effectively addressed their economic challenges.

"We have long been affected by deforestation, but no assistance has ever really reached us. Sometimes there are programs, but the information is unclear and we are not involved." (Informant 1).

The community's expectations of government aid are notably low

"The government talks about assistance and training, but we rarely see it implemented. We've ended up fending for ourselves because we can't rely on them too much." (Informant 8).

Policy support can strengthen local adaptation efforts by providing a clear legal basis and incentives [15]. Regulations that support sustainable agricultural diversification or access to microcredit increase economic transformation of affected communities [15]. Adaptation capacity is the main driver in maintaining economic resilience amid environmental degradation. New skills, simple technological innovations, and the use of social networks are important strategies [19]. This adaptation capacity risks becoming unsustainable in the long term without stronger and more inclusive policy support. Therefore, economic resilience is largely determined by the synergy between local initiatives and structural interventions from the government and other stakeholders [16].

4.3 Social capital and economic resilience in facing deforestation

Social capital is the first line of defense when natural resources decline as the foundation of livelihoods. This section presents the research results on the function of social capital as a glue binding relations and an adaptive strategy to confront risks, reduce vulnerabilities, and create space for new economic initiatives.

Figure 3 highlights how Pelalawan Regency's communities tap into social capital, networks, trust, bargaining power, support, resource access, norms, and solidarity, to sustain economic resilience amid deforestation. This fuels adaptive strategies via collective action and info-sharing. Essentially, social capital cuts costs and bolsters cohesion. With formal resources scarce, internal strengths take center stage. Strengthening social capital is key to boosting community resilience.

The role of social capital in post-deforestation economic resilience is understood through six main dimensions, namely trust, networks of norms and solidarity, community support, access to resources, and economic bargaining power. These dimensions are interrelated and play a direct role in determining the extent to which communities can withstand structural, ecological, and market challenges after deforestation. The first dimension, trust, is the foundation for social interactions.

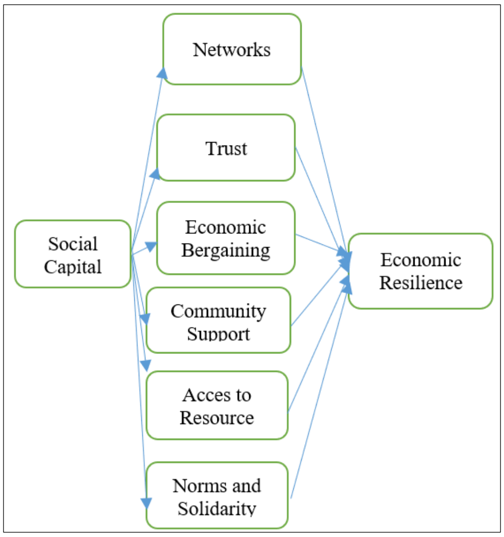

Figure 3. Social capital and economic resilience model
Source: Result of data processing with NVivo 12 plus

"Without trust, it's hard for us to work together. Here, we simply trust one another, so when there are activities or opportunities for assistance, we can work together so that we can all make ends meet." (Informant 3).

"We trust our fellow residents, especially those we've known for a long time. So when there's a problem or we're working together, there's no need for a lot of talk—we just help each other right away to make money." (Informant 7).

This dimension enables openness in sharing information, providing mutual feedback, and minimizing the risk of conflict. Trust is formed in technical discussions and within group institutions, even though emotional closeness varies. Building collective institutions capable of improving economy is difficult without solid trust. The second dimension is networking. Social capital includes internal environment and external parties such as cooperatives, financial institutions, or trade associations.

"We once received help from an acquaintance at an organization that helped us access loans and invited us to a seminar, so we gained some additional knowledge. But since there are no cooperatives here, we still sell our produce to middlemen, so we have no choice but to depend on them." (Informant 2).

"Having connections outside the village does help; we can get information and capital. But in our village, there aren't any strong groups or associations yet, so we go it alone and end up still depending on the middlemen." (Informant 9).

In some communities, there are networks with capital agents that help obtain financing. The weakness of networks is evident because the absence of associations or cooperatives promotes complete dependence on middlemen. The potential of social capital only circulates in a small sphere without external networks. The third dimension, norms and solidarity, shows the function of mutual assistance and cooperation as an adaptive mechanism. The practice of cooperation is evident in various activities that report strong family solidarity. These social norms create a sense of security and certainty that individuals will not be left to face difficulties.

"If anyone is in trouble, we'll definitely help, whether it's with labor or food. Here, mutual aid is the norm, so no one is left to fend for themselves." (Informant 2).

"When a resident gets sick or there's a fire, we immediately gather to help. We don't need to be told to do it, because it's been a tradition for a long time." (Informant 6)

During harvest time or when there's heavy work, we take turns helping each other. So even though things are tough right now, we still feel safe because we have our neighbors." (Informant 10).

The fourth dimension is community support. Community acts as a "social buffer" during crises or disasters. In this context, support is present during forest fires that reduce production.

"During the forest fires, much of our harvest was destroyed, but we weren't alone. The people here helped each other—some helped put out the fires, while others pitched in so we could start over." (Informant 13).

"Whenever there are programs or activities organized by outside groups, we usually participate together. The groups here support one another and keep each other informed, so we can join in and benefit from them." (Informant 7).

However, this support is not systematic since the concept is not followed by government policies or formal protection schemes. The fifth dimension, access to resources, is crucial to economic sustainability. Many communities struggle independently without any assistance from the government. Social capital cannot improve long-term economic capacity without access to external resources. This variable supports economic resilience of post-deforestation communities. The dimension of bonding is relatively strong, but bridging and linking are still weak. Even though social solidarity is maintained, communities remain vulnerable to price fluctuations, limited access to resources, and the absence of policy support. The integration of the dimensions of social capital is key to strengthening economic resilience more sustainably. Overall, the relationship between social capital and community economic resilience can be seen in Table 1.

Social capital comprising trust, networks, norms, and community support is a pivotal driver of economic resilience. These elements shape communities' capacity to stabilize income, diversify economies, and navigate deforestation's impacts. While internal bonds are robust, external bridges and links to formal systems are lacking. This imbalance sustains solidarity but leaves communities exposed to price volatility, resource gaps, and policy voids. Harmonizing these dimensions is crucial for lasting resilience.

Table 1. The relationship between social capital and economic resilience

Main Component	Sub-Dimension	Relationship with Social Capital	Contribution to Economic Resilience	Analytical Explanation
Social Capital	-	Core variable	Influences all dimensions of resilience	Serves as the foundation of social relations and access to resources
Trust	Trust among individuals and groups	Part of social capital	Economic stability	Facilitates cooperation and reduces social transaction costs
Networks	Social and economic networks	Part of social capital	Income diversification	Provides access to information, job opportunities, and markets
Community Support	Social and collective support	Part of social capital	Economic stability	Acts as a coping mechanism during crises (shock absorber)
Norms and Solidarity	Mutual cooperation and social values	Part of social capital	Stability and adaptation	Maintains social order and collective support
Access to Resources	Assistance, capital, programs	Influenced by social capital	Economic adaptation	Access improves through networks and social relationships
Economic Bargaining	Price negotiation and market access	Influenced by networks and trust	Income diversification and growth	Strong networks enhance bargaining power against middlemen
Economic Resilience	Main outcome	Influenced by all variables	Stability, diversification, adaptation	Final outcome of interactions among social capital dimensions

5. DISCUSSION

These results report that economic resilience of communities is influenced by social aspects in shaping cohesion and adaptive capacity. Community support is the main foundation for maintaining economic sustainability after deforestation [32]. This support is manifested in the form of mutual assistance among members, information sharing, and collective work in facing economic pressures [14]. There is reliance on internal solidarity to maintain livelihoods when forest resources are lost or limited [14]. Therefore, community support acts as social mechanism and a concrete economic safety net. High social trust also reflects strong relationships between individuals and between groups. Trust facilitates cooperation, reduces transaction costs, and speeds up decision-making in economic activities [8]. A high level of trust enables the management of shared capital with low risk. Communities can take advantage of cooperatives or informal loans with mutual trust. In the context of deforestation, trust facilitates adaptation through collaboration in managing new resources or alternative livelihoods. Norms and solidarity function as unwritten rules binding members to continue supporting each other. The values of mutual assistance and a sense of togetherness are important assets in maintaining productivity even though natural resources are becoming increasingly limited [1]. In contrast, social networks expand access to information, markets, and economic opportunities. Training, capital assistance, and broader market access can be obtained through networks with external parties, such as NGOs, the government, or business groups [33]. Even though the contributions are relatively smaller than community support and trust, the existence of norms, solidarity, and networks remains essential to support economic diversification strategies. In addition, direct access to physical resources, such as land or financial capital, is still limited. This is understandable since deforestation has reduced the natural resources as the mainstay of economy. The lack of access to formal resources also indicates that external interventions from the government and the private sector have not been optimal in strengthening economic resilience. Economic resilience continues to face limitations even though social capital has been proven to be important, without policy support that expands access to productive resources [26, 34]. Overall, this analysis shows that social capital through support and trust plays a significant role in sustaining economic resilience. Other dimensions complement and strengthen the adaptive capacity of communities. These results confirm that sustainable economic development in areas affected by deforestation must integrate the strengthening of social capital with increased access to resources and policies. Therefore, economic resilience can be better ensured amid ecological pressures and global market uncertainty. Thus, the findings of this study confirm that these elements already exist at the community level but have not yet been transformed into productive forces in economic activities. In this study, although social capital already exists within the community, it has not been fully utilized, so economic resilience is not yet clearly evident. Consequently, this study underscores the need for institutional processes and capacity-building through policy measures to enable social capital to serve as a driving force for economic resilience. Thus, government policies on sustainable forest management, which currently do not fully support communities affected by deforestation, can be designed through participatory community engagement.

6. CONCLUSION

In conclusion, this research has explored the types of social capital used to improve economic resilience of communities by gathering information through interviews, stakeholders and the government. The result focuses on understanding untapped social capital in community economic resilience. The first question is addressed by the key result, where the existing social capital remains underused by community. Limited access to resources and networks is an obstacle to improving economic resilience. In response to the second question concerning the factors influencing community economic resilience amid deforestation, this research identifies several interrelated elements, including government policies that do not favor affected communities. The third question is addressed through a conceptual model grounded in social capital. The model outlines measures such as strengthening local institutions to establish cooperatives, improving connections with financial institutions and universities for support, enhancing collaboration with the government and private sector to improve access to resources, and building community capacity. This model serves as a guide for policy making improving economic resilience by maximizing the use of social capital.

Policy recommendations therefore include: (1) Strengthen local economic institutions via village cooperatives, microfinance access, and integration with initiatives like social forestry, (2) Embed social capital into development plans (RPJMD) by leveraging trust, networks, and solidarity; foster tripartite partnerships for market and resource access, (3) Shift to inclusive, community-driven policies through participatory planning, incentives for vulnerable groups, and cross-sector partnerships.

This approach aims to boost income stability, diversification, and adaptive capacity amid forest degradation.

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