Community Empowerment Model for Building a Peatland Fire Disaster-Resilient Village

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Abstract

Peatland fires continue to recur in the Banjarbaru area, South Kalimantan, especially in the dry season. Community empowerment is the key to overcoming these fires and realizing resilient villages from land fire disasters. This study analyzes community empowerment to form a peatland fire disaster-resilient village. Data collection uses questionnaires on fire care communities and people living in disaster-prone lands. There were 37 questions asked to formulate a community empowerment model, with around 382 respondents involved in community empowerment activities to reduce the risk of land fires and the fire care community. Data analysis uses SEM (Structural Equation Model) to formulate a community empowerment model to realize disaster-resilient villages in peatland-prone areas prone to fire.

The study results show that physical capital, human resource capital and social capital significantly influence community empowerment capabilities and the empowerment process. The capital can still not empower the community optimally to form a disaster-resilient village. The community is still not able to independently make decisions to overcome peatland fires and form a peatland fire disaster-resilient village. There is a need for the role of the Government through various empowerment programs to improve the ability and capacity of the community to overcome peatland fires.

Keywords: Community empowerment, disaster resilient villages, fires, peatlands.

Introduction

Land and forest fires have become an environmental issue due to their impact on the ecosystem[1]. Fires have also significantly impacted society and the climate regionally and globally[2]. Peatland fires have increased emissions of gases, particulate matter and chemical content in smoke and environmental and atmospheric impacts due to smog[3]. Peatland fires have caused air pollution that has a long-term impact on health due to fine-sized particles[4]. Efforts to reduce the risk of peatland fires involve understanding the various factors that cause these fires, both from the human and socio-physical aspects of the land[5]. Risk reduction as a multi-hazard approach is directly related to community resilience. This approach involves the community in identifying disaster risks in their areas[6]. Public awareness about the impact of fires and community involvement is an effective way to manage land and forest fires[7]. The community performs various collaborative actions to reduce fire vulnerability including anticipatory actions, preparedness and extinguishing land fires [8]. The community can also take preventive measures to prevent fires, such as clearing land from shrubs that trigger widespread fires[9]. The community can also educate on preventing fires, preparing themselves and the environment, managing combustible materials and rehabilitating forests[10].

Community empowerment can reduce vulnerability and increase community resilience to disasters[11-13]. Community empowerment can improve people's ability to make decisions related to disaster risk reduction[11]. Community empowerment can also improve community knowledge and skills in disaster mitigation[14]. Community empowerment is one of the keys to success in disaster management, especially the values embraced by the community such as local wisdom and religious values[15]. Community empowerment is essential, especially in disaster recovery, as it instills disaster resilience measures[16]. Community empowerment is a method of reducing disaster risk now and in the future[17].

The existence of physical capital, human capital, empowerment capabilities and the empowerment process determines the success of community empowerment. Physical capital includes facilities and infrastructure owned by the community. The existence of these facilities and infrastructure will make the process of empowering the community easier. Social capital is related to the ability of individuals to interact with the community. Social capital is related to norms, care and cooperation between community members. The community's knowledge, skills and attitudes determine the ability to empower. The empowerment process is determined by the quantity and quality of programs implemented by the community[18,19].

Disaster-resilient villages are one of the Indonesian Government's programs through regional disaster management agencies. A disaster-resilient village is a condition where the village is ready and resilient to face disasters that occur in the village. Disaster-resilient villages are community-based disaster management programs [20]. The disaster-resilient village program can increase community

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capacity in dealing with disasters[21]. South Kalimantan is one of the provinces in Indonesia that often experiences fires during the dry season. Banjarbaru is one of the areas in South Kalimantan province that is prone to fires during the dry season. Peatland fires in this area have caused flight disruptions because the location of the fire is not far from Syamsudin Noor Airport[22].

Communities and local Governments have implemented various mitigation efforts in this region to overcome land and forest fires, especially on peatlands [22,23]. The community has a huge role, especially in reducing the risk of peatland fires and creating a resilient village for peatland fires. Through community empowerment programs, the study analyzes community empowerment to form a peatland fire disaster-resilient village by identifying physical, social and human capital, capabilities in empowerment and the community empowerment process implemented in the village.

Material and Methods

This research was carried out in Banjarbaru. Banjarbaru is geographically located between 3°25'40"-3°28'37"S and 114°41'22"-114°54'25"E [23]. The Banjarbaru area is a peatland prone to fires, especially in the dry season. The study of land fires is essential because fire problems continue to occur in the Banjarbaru area. The two sub-districts prone to peatland fires are Landasan Ulin and Liang Anggang sub-district. The two villages studied are Landasan Ulin Selatan village in Landasan Ulin district and Syamsudin Noor village in Liang Anggang district.

The community empowerment model for forming a disaster-resilient village is seen from several aspects including physical capital, social capital, human capital, ability in empowerment and the empowerment process. Thirty-seven questions were asked to formulate a community empowerment model and around 382 respondents were involved in community empowerment activities to reduce the risk of land fires. The data was analyzed using Structural Equation Modeling (SEM). The strength of the relationship between the observed items and their respective latent factors was determined through factor loadings to evaluate discriminant validity. Only items with factor loadings exceeding 0.50 were retained in the model [24].

The hypotheses that will be proven in this empowerment are as follows:

1. Physical capital has a significant influence on the empowerment process.
2. Physical capital has a significant influence on human resources.
3. Physical capital has a significant influence on community empowerment.
4. Human resource capital has a significant influence on social capital.
5. Human capital has a significant influence on the ability to empower.
6. Human capital has a significant influence on community empowerment.
7. Social capital has a significant influence on the empowerment process.
8. Social capital has a significant influence on the ability to empower.
9. Social capital has a significant influence on community empowerment.
10. Empowerment ability has a significant influence on the empowerment process.
11. The empowerment process has a significant influence on community empowerment.
12. Empowerment ability has a significant influence on community empowerment.

Results

The loading factor value was relatively high, with a value of > 0.5 and Cronbach's Alpha > 0.6. In the table, a summary of the measurement model is presented. Based on the value of this loading factor, it illustrates that the loading factor meets and the reliability value is also relatively high.

Physical Capital: Physical capital includes infrastructure in the village including facilities for education, health, transportation, public facilities and information systems. The public has complete and easy access to these facilities which is the capital for building a disaster-resilient village. The existence of educational facilities and infrastructure can be used to educate the community to become a resilient society against land fire disasters. Education can be provided from the lowest level, namely primary education, to the highest level, namely at the university level. Educational facilities are available from elementary to higher education in areas prone to land fires. Teachers in schools and universities have provided formal disaster education for students and students.

Although disaster education is still not included in the curriculum, it can be one of the programs in the project to strengthen the profile of Pancasila students at the elementary-secondary school level. Meanwhile, at the University level, it can be one of the introductory wetland environment course studies. The volunteer group *Masyarakat Peduli Api (MPA)* or Fire Care Community and the Disaster Management Agency (BPBD) carry out community disaster education. MPA and BPBD have actively educated the community not to burn land. Education is carried out directly or through banners containing appeals and prohibitions on land burning. In addition to MPA and BPBD, education is also carried out by the local Government, the forestry service and the South Kalimantan provincial peat restoration team (TRGD).

Formal and non-formal education units can increase the readiness of an area prone to land fire disasters and can increase resilience to disasters. In addition to educational infrastructure, health facilities are necessary to form disaster-resilient villages/sub-districts. Health facilities can

be in the form of community health centers and hospitals. In collaboration with BPBD and community health centers, MPA established health posts when fires occurred widely. Health facilities in Syamsudin Noor village, Landasan Ulin district, are in the Guntung Payung area. Medical equipment and health services are indispensable when a fire occurs. The distribution of masks to protect from fire smoke is necessary for the community.

Table 1
The value of loading community empowerment factors in the formation of resilient villages for peatland fires

Construct	Item	Loading Factor	
Physical Assets (P)	P1	0,607	0,942
	P2	0,684	
	P3	0,739	
	P4	0,627	
	P5	0,866	
	P6	0,815	
	P7	0,834	
	P8	0,853	
	P9	0,810	
	P10	0,849	
	P11	0,841	
	P12	0,687	
	P13	0,711	
	P14	0,650	
Human Assets(H)	H1	0,794	0,912
	H2	0,924	
	H3	0,932	
	H4	0,904	
Social Assets (S)	S1	0,730	0,826
	S2	0,801	
	S3	0,804	
	S4	0,786	
	S5	0,569	
	S6	0,679	
Empowerment Capacity (C)	C1	0,840	0,928
	C2	0,737	
	C3	0,860	
	C4	0,863	
	C5	0,805	
	C6	0,821	
	C7	0,684	
	C8	0,811	
	C9	0,736	
Empowerment Process (EP)	EP1	0,810	0,889
	EP2	0,778	
	EP3	0,848	
	EP4	0,845	
	EP5	0,871	
Community Empowerment (CE)	CE1	0,677	0,917
	CE2	0,913	
	CE3	0,881	
	CE4	0,871	
	CE5	0,883	
	CE6	0,814	

Table 2
The Model Summary

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values	Conclusion
Capacity -> Community Empowerment	0,079	0,081	0,056	1,397	0,163	Not significance
Human Assets -> Capacity	0,182	0,179	0,056	3,237	0,001	Significance
Human Assets -> Community Empowerment	0,007	0,007	0,046	0,161	0,872	Not significance
Human Assets -> Process Empowerment	-0,305	-0,304	0,056	5,471	0,000	Significance
Human Assets -> Social Assets	0,704	0,704	0,024	29,418	0,000	Significance
Process Empowerment -> Community Empowerment	0,515	0,511	0,064	8,061	0,000	Significance
Physical Assets -> Community Empowerment	0,320	0,322	0,073	4,370	0,000	Significance
Physical Assets -> Human Assets	0,681	0,678	0,035	19,616	Significance	Significance
Physical Assets -> Process Empowerment	0,742	0,740	0,045	16,305	0,000	Significance
Social Assets -> Capacity	0,499	0,501	0,044	11,319	0,000	Significance
Social Assets -> Community Empowerment	0,015	0,016	0,057	0,269	0,788	Not significance
Social Assets -> Process Empowerment	0,326	0,326	0,056	5,882	0,000	Significance

In addition, during fires, oxygen cylinders and medicines are also needed for people exposed to smog. Communities and volunteer groups in villages prone to land fires have a good role in proposing health facilities and infrastructure such as health posts and medicines, to local Governments and non-governmental organizations as a form of preparedness for land fire disasters. The ease of access to health facilities increases preparedness in dealing with land fires and increases resilience to disasters.

In addition, transportation facilities and infrastructure are also needed to prepare for when land fires occur. Transportation facilities and infrastructure required for land fire preparation are water transport cars and ambulances. Cars transporting fire extinguishing equipment and vehicles or motorcycles are necessary for the mobility of land firefighters. When land fires occur, water trucks and firefighting equipment are indispensable for volunteer groups. Difficulties in extinguishing fires are caused by the location of water far from the fire site, which causes fires to be challenging to overcome. Volunteer groups and the community around the fire site usually take water from other locations far enough away to extinguish the fire. Ambulances are needed to bring members of the public who are sick from the haze to the nearest hospital or community health center.

In addition, the community also needs transportation facilities and infrastructure for mobility when fires occur, including for evacuation purposes when land fires are spreading and the haze is getting thicker. Communities and volunteer groups in disaster-prone villages have a good role in proposing to local Governments and non-governmental funds to complete transportation facilities and infrastructure. The role of the community and volunteer groups is needed to form a disaster-resilient village.

Public facilities are needed as a form of preparedness for land fire disasters. The types of public facilities and infrastructure that need to be prepared in the context of disaster preparedness include road facilities, evacuation tents, public kitchens, environmental security posts and meeting halls. Road facilities are needed to facilitate mobility, as volunteer teams and firefighters transport water and firefighting equipment. In addition, evacuation tents and public kitchens are required when land fires occur widely.

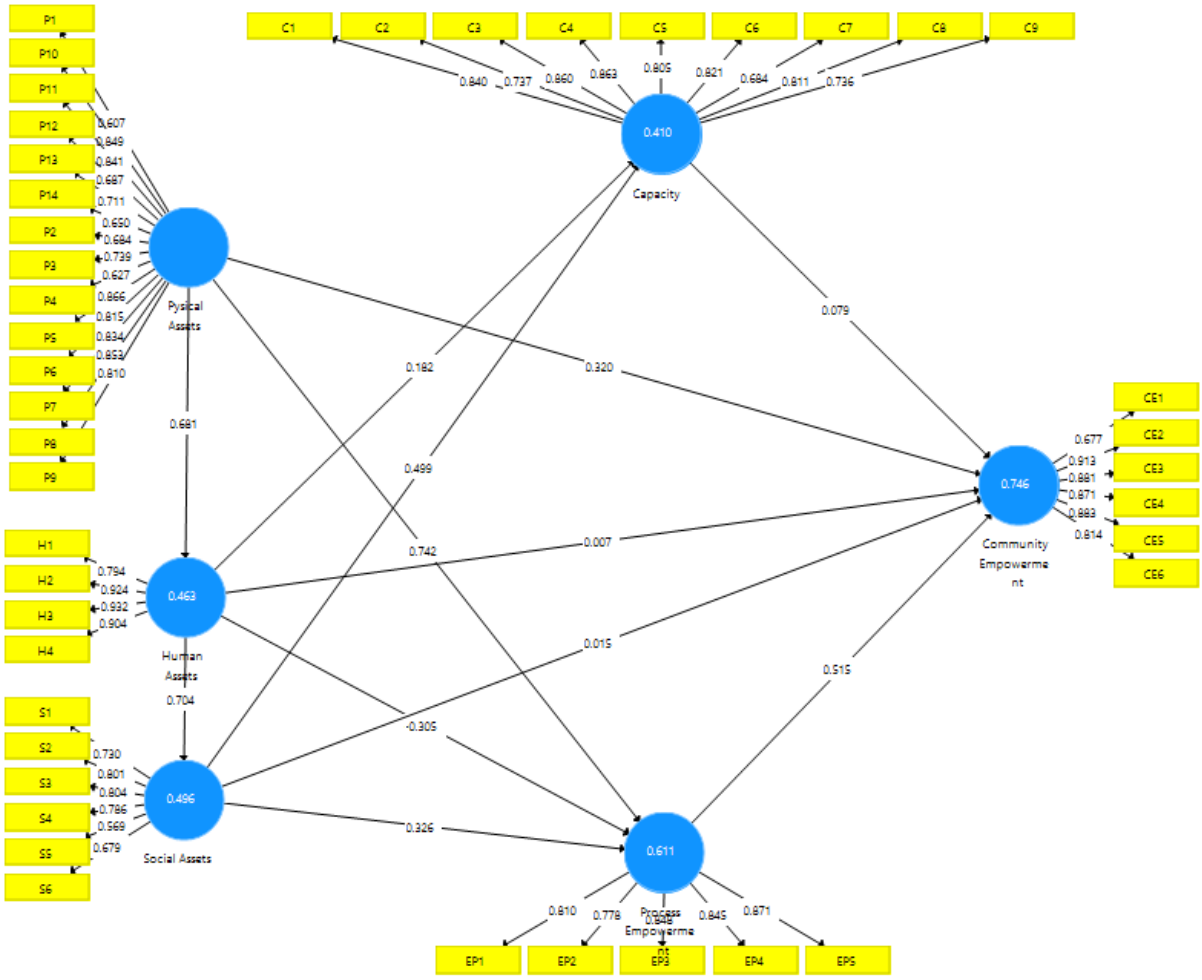

Figure 1: The model of community empowerment for building disaster resilience villages

Environmental security posts are usually found in every village. Communities and volunteer groups can gather at neighborhood security posts when patrolling around fire-prone villages. In addition, alarms at environmental security posts can be an early warning system when land fire disasters occur. Another public facility is the village hall. The hall in the village can be a meeting and discussion place for peatland fire disaster management. The community and volunteer groups can be one of the proponents of proposing the necessary public facilities and infrastructure to overcome peatland fires to the local Government. The problem of public facilities that are still low, is the road to get to the fire site. Road facilities on peatlands are still minimal and difficult to travel, so fires become challenging to overcome. In addition, constructing roads on peatlands also requires a considerable cost, so roads on peatlands are only limited to main roads.

The village also needs Information facilities and infrastructure for peatland fire management. Information facilities and infrastructure such as ease of internet access, the existence of information boards and social media owned by the Government, as well as belonging to community groups and volunteers, are needed to inform about fire disasters that occur. Internet access is effortless for the public and obtaining information about the Peatland fire disaster is easier. The existence of social media can also be a medium for community empowerment and to increase community preparedness for disasters[25]. The existence of information facilities and infrastructure in a village prone to fire can increase its resilience to disasters.

Physical capital has a significant influence on human resource capital and community empowerment. This means that the physical capital owned by Syamsudin Noor and Landasan Ulin Selatan villages has influenced the quality of human resources. The number of trained volunteers, who are members of fire care community groups and those who are in firefighting groups, are increasingly trained with the completeness of advice and adequate physical infrastructure. Physical facilities also support community empowerment towards a resilient village from peatland fires. Strengthening resources can facilitate the resilience of individuals and groups in the face of disasters [26]. The existence of physical infrastructure facilities that the community can use to overcome peatland fires, makes villages more able to deal with them.

Human Resource Capital: Human resource capital is related to the ability of the village to manage quality human resources to increase the capacity of the community in the village. Various community empowerment programs can be

carried out by the village, BPBD, or volunteer groups to produce human resources with knowledge, attitude and ability in peatland fire management. The village can also involve various levels of society to be more prepared for peatland fires. Community empowerment is a process of control by the community, which is obtained through involvement, participation and commitment by the community [27]. Therefore, human capital is significant in community empowerment.

Human resources in land fire management are from volunteer groups, the general public and local Governments. To improve the quality of human resources, especially those from the community, the village can create programs by involving the community, for example, providing training in fire extinguishers, monitoring peatland fires and other programs. Everyone living in areas prone to peatland fires can undoubtedly follow the program. In terms of transparency, the public can find information about programs organized by the village and other parties. Information related to disasters through community networks and local Governments can facilitate the dissemination of disaster program information [28].

Human capital significantly influences empowerment ability and positively affects social capital but does not affect community empowerment. This means that the programs made by the village to form a disaster-resilient village have increased the community's knowledge, attitudes and abilities in creating a disaster-resilient village and can improve relationships between community groups. Empowerment programs can still not make the community independent and the community has been unable to solve problems optimally. Disaster-resilient villages are still unable to be realized independently in this area because the role of the village has not been maximized to form quality human beings who can overcome peatland fires.

Social Capital: Social capital is related to strengthening local and spiritual wisdom in the community to form a peatland fire and disaster-resilient village. This aligns with the opinion of Leong et al[29] that villages, where various community empowerment programs with local solid wisdom are implemented, must be accommodated in disaster risk reduction. The local and spiritual wisdom in the community is that they prepare land without burning and carry out limited burning. The existence of a program from every fire-prone village in Banjarbaru to support the implementation of local and spiritual wisdom in the community encourages the formation of a disaster-resilient village program. Volunteer groups in the village socialize to prepare land without burning it. There are also programs implemented by Government agencies such as the Regional Disaster Management Agency (BPBD), the Forestry Service and the South Kalimantan Provincial Peat Restoration Team. Socialization and education are routinely carried out in several Neighborhood Units in villages prone to peatland fires. Volunteers, the Regional Disaster Management Agency (BPBD) and other Government agencies socialize and educate. Socialization and education are in the form of appeals to the community to protect their environment from burning and cooperation programs involving cooperation between community groups. During the dry season, farmers' lands are cleared and long grasses are cut and cut down to avoid large and fast-spreading fires. Fires in Syamsudin Noor village usually occur in Rukun Tetangga (RT) 40 and its surroundings because there are still many vacant lands that are quite large and allow for fires that are difficult to control.

Assistance from the local Government for fire disasters in the form of fire extinguishing is already available in several RTs. Regular meetings are held once a month for each RT with its residents. These activities follow the village's plan because fires occurring on peatlands have become routine. Therefore, the village is making the most effort to overcome land fires. The involvement of formal and non-formal institutions in community empowerment is a suitable method for disaster management[30].

Social capital has a significant influence on the ability and process of empowerment. This means that there is village support for local and spiritual wisdom related to peatland cultivation and the existence of education and socialization, as well as cooperation activities carried out by the community. Social capital can also affect the sustainability of empowerment programs related to fire management. Social capital still does not affect community empowerment in forming disaster-resilient villages. This means that social capital has been unable to make the community an independent society and can make its own decisions in dealing with peatland fires. The community is still bound by programs created by local Governments and volunteer groups. Although empowerment programs for disaster-resilient villages have been implemented optimally, they have not been implemented optimally.

Empowerment capabilities: The community has a good enough knowledge of fire-prone locations. They cooperated to clean up the bushes that triggered peatland fires. The community also routinely patrols locations that are prone to peatland fires. The Regional Disaster Management Agency then routinely informs the patrol to take action when there is a fire in the area. On land prone to fire, the community has prepared drilled wells and water pipes that can be used to wet and water the land prone to fire. Some drilled wells are built with non-governmental funds and donations from local governments and NGOs. Disaster management is the responsibility of various parties, not only local Governments but also the community's responsibility[31].

Regulations related to land fire management already exist in local Governments. Through the haze contingency document, concrete steps can be taken by local governments and communities when peatland fires occur. However, not all community groups are aware of the regulation. Handling

peatland fires seems still partial, so this problem is complex to overcome [32]. It is still partial, meaning that coordination between the community and local governments is limited and coordination between government agencies is also restricted. The South Kalimantan Provincial Peat Restoration team has held several coordination meetings by inviting various Government agencies and community groups. The coordination meeting is intended, so there will be no more handling of peatland fires that seem partial. This is an excellent step to jointly overcome the problem of peatland fires that routinely occur in this region.

The attitude of community concern for peatland fire disasters has existed in fire-prone peatlands both in Syamsudin Noor village and in Landasan Ulin Selatan village. Many young people aged 17-19 years in the Syamsudin Noor area and Landasan Ulin Selatan village formed the Fire Front community. The volunteer group took advantage of the available facilities by converting private cars into firefighting transportation. The high concern of community members for peatland fire management supports the formation of resilient villages against disasters. The attitude of community care for disasters can increase community preparedness for disasters[33]. The higher are the knowledge and attitude of capacity, the more influential is the ability to respond to and overcome every disaster threat[34].

Local Governments have carried out disaster preparedness training, such as activities carried out by the Banjarbaru Regional Disaster Management Agency. BPBD has formed volunteer groups in each fire-prone urban area such as forming a Disaster Care Community[35]. In addition, the community voluntarily formed various communities, such as the fire brigade and the fire care community, to manage peatland fires and form disaster-resilient villages. BPBD is also actively forming resilient villages for peatland fire disasters.

Various kinds of training are carried out by local Governments, both by BPBD and by urban villages, as well as non-governmental groups, to form a resilient community to disasters. Quality and skilled human resources will improve the community's ability to manage peatland fires. The community will also be more empowered when peatland fires occur. The results of this model show that community ability does not have a significant influence on community empowerment. This means that the training programs made by the local Government and community groups have not made the community more independent and are able to make decisions in peatland fire management. These programs have not been able to help villages that are resilient to disasters. This means there is a need for a more continuous community empowerment program and better involvement of community groups more widely, not only in certain groups, to form villages that are resilient to disasters.

Empowerment process: The empowerment process is related to community empowerment in planning, implementing and evaluating community empowerment programs in peatland fire management to form a resilient village to disasters. Communities in villages prone to peatland fires have been involved in peatland fire management activities. The community has been actively involved in various communities and volunteer groups. They have been able to carry out the most appropriate program planning in their area and carry out these programs by involving people whose areas are prone to fire. The community actively participated in meetings in the village and discussed to discuss peatland fire management. The community also cooperates to clean their environment and monitor areas prone to peatland fires. An evaluation of the program has also been carried out. When their area is still prone to fire, the community is trying to find a solution to the problem.

Quality community empowerment programs implemented continuously can significantly affect the community's ability to make decisions about peatland fire management and independence in overcoming peatland problems. The empowerment process has been implemented in this area. However, it is still not optimal such as cost limitations, limitations of skilled personnel in the use of firefighting equipment, limitations of equipment in fire management and limited water resources in fire management and regulations in peatland fire management that are still not understood by all groups of people [18,36]. Training programs and community capacity building in peatland fire management must be continuously carried out in collaboration with local Governments such as BPBD and village authorities and by community groups. These programs can become a routine agenda implemented by villages prone to peatland fires. This community empowerment program makes the community more empowered, independent and able to make decisions in peatland fire management and makes the village more resilient to peatland fire disasters.

Discussion

Land fires in peatland areas in South Kalimantan continue to occur during the dry season. Various efforts have been made by community groups that are members of the peat care community to overcome this problem. Community groups that care about fire need to be empowered to overcome the problem of peatland fires and reduce the risk of peatland fires[18]. Through community empowerment programs, it is hoped that the community will become more independent and resilient in facing disasters. The existence of natural capital, human resource capital and infrastructure can be used as a basis for community empowerment to reduce the risk of peatland fires[37].

The existence of physical facilities such as education, health, transportation, public facilities and information systems that the community can access, is the capital needed to form a disaster-resilient village. The ease of access to these facilities and infrastructure makes it easier for an area to create a disaster-resilient village. The completeness of infrastructure

facilities also causes the community to be more independent and able to make decisions in peatland fire management.

Physical capital has a significant influence on human resource capital and community empowerment. The physical capital owned by Syamsudin Noor and Landasan Ulin Selatan villages has influenced the improvement of the quality of human resources in the village. The existence of educational infrastructure will make it easier for people to get an education. Information facilities such as discussion forums and social media are educational models that can be carried out for peatland fire management[38].

Human resource capital is related to the ability of the village to form a disaster-resilient village by managing the human resources in the village. Competent human resource capital can overcome landfires in the area[38,39]. Human resource capital significantly influences empowerment ability and positively affects social capital but does not impact community empowerment. Improving the quality of human resources through training, education and communication activities between the government, volunteer groups and community groups has increased community knowledge, skills and concerns and increased cooperation between communities. However, it turns out that they are still unable to make people independently make decisions related to disaster management and have not been able to form a resilient society to disasters.

Social capital is related to local wisdom that applies in the community. Community empowerment through local culture is an effort in disaster management[40]. Local wisdom with the preparation of no-burn land is the right effort for peatland restoration[41]. Social capital is also related to education and socialization carried out by the village government to reduce the impact of peatland fires. Social capital significantly influences empowerment ability and process but not significantly on community empowerment. Social capital can increase knowledge, skills and community concern. Social capital also affects the sustainability of empowerment programs, but communities are still not independent in disaster management. Community participation in decision-making on disasters, using community-derived forces and using social capital are genuine efforts in disaster management[42].

Community empowerment can also increase disaster resilience [43]. Empowerment as a process of social change must be based on a sense of togetherness and mutual care for each other so that a community group can create a more responsive and adaptive environment to emerging threats and risks, as well as to strengthen community resilience in facing future disaster challenges[44].

The community's knowledge, skills and concerns at the research location are good. The community has good knowledge of handling peatland fires. The community has also participated in various trainings to improve skills in peatland fire management. Community involvement in peatland fire management activities can increase independence[45]. Community concern is also quite good; there are volunteer groups for peatland fire management. The problem at the research site is that the training program has not been able to form a disaster-resilient society because it is still limited to specific community groups and must be carried out continuously. The community will also be more empowered when peatland fires occur. The higher the knowledge, care and skills the community possesses, the more empowered they will be to face natural disasters[46].

The empowerment process is related to community involvement in the planning, implementing and evaluating community empowerment programs. The community has become the planners and implementers of peatland fire management activities. The existence of volunteer groups active in fire management activities accelerates the formation of a resilient community against disasters. The fact that volunteers in Disaster Resilient Villages prove that there is good community participation and awareness of the importance of knowing disaster management procedures to reduce the risks obtained rather than before knowing it [47].

Empowerment programs implemented continuously and covering various levels of society are needed to form disaster-resilient villages. The empowerment program can be implemented independently by the community or programs implemented by the local Government. Community empowerment at the research site has been carried out independently by the community and the local Government plans programs. However, it has not made the community more resilient to peatland fire disasters. Therefore, collaboration between community members and local Governments must be carried out continuously and must be integrated to form a resilient society to disasters.

Conclusion

Physical capital, human resource capital and social capital significantly influence community empowerment capabilities and the empowerment process. However, the capital can still not empower the community optimally to form a disaster-resilient village. The community is still unable to have the decision and independence in managing peatland fire disasters to realize peatland fire disaster resilient villages. Some of the problems that occurred were the lack of optimal community empowerment, partial fire management, regulations that were still not understood by all community groups and empowerment programs that were still not continuously implemented in the region. Physical capital is quite supportive because of the availability of adequate infrastructure facilities in this region.

Human capital and social capital have also been continuously sought to be implemented. Various parties have conducted various training to form responsive and skilled volunteer groups. The community has also made efforts through regular meetings, cooperation and patrols to overcome

peatland fires. These efforts must be supported by various parties including local Governments and volunteer groups, to make the community more independent disaster-resilient villages.

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