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THE PARTICIPATION OF THE FIRE CARE COMMUNITY (MPA) IN THE CONTROL OF FOREST AND LAND FIRES IN AWANG BANGKAL BARAT VILLAGE OF SOUTH KALIMANTAN, INDONESIA

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ABSTRACT

This study aims to analyze the factors causing forest and land fires in Awang Bangkal Barat Village and analyze the role of MPA Putrabulu in efforts to control forest and land fires. Collecting data using a questionnaire by conducting interviews in the field. Data analysis and data processing in this study were grouped into 2, namely the factors causing forest and land fires using tabulation analysis which will be discussed descriptively, while for quantitative data to measure the factors causing forest and land fires using the chi square test. MPA participation uses descriptive qualitative methods and quantitative analysis. The activity of analyzing the participation of MPA using a Likert scale. Factors causing forest and land fires in Awang Bangkal Barat Village are cultivation activities by 64.70%, unknown cause by 17.64%, camping and hunting by 11.80%, grazing by 5.90%. The results of the research on the Participation of the Putrabulu MPA show that Putrabulu has actively participated in controlling forest and land fires, this is based on the Putrabulu MPA questionnaire getting a high score and category, which means that every activity is carried out well.

KEY WORDS

Forest and land fires, fire care society, public service.

Forest and land fires in South Kalimantan are one of the major threats that occur every time the dry season arrives. The Sultan Adam Forest Park, which is located in South Kalimantan, is also not spared from forest and land fires so that it can disrupt the existence of conservation areas and ecosystems of living things. According to Manggala Agni (Indonesian Forest Fire Control Brigade) forest fires in the Sultan Adam Tahura from 2013-2017 were recorded at 519.5 ha, while 2014 was the most extensive fire at 370 ha in the Sultan Adam Tahura (Manggala Agni). The impacts of forest and land fires include disturbing health, damaged ecosystem functions, disruption of the atmosphere layer, disruption of the carbon cycle and others.

Efforts to control forest and land fires that are often carried out are forest fire suppression activities that occur. Forest and land fire control is carried out in an integrated manner with Manggala Agni from the Ministry of Forestry, the South Kalimantan Provincial Forestry Service (Technical Implementing Unit for the Sultan Adam Forest Park) assisted by other organizations and the surrounding community. However, these efforts are sometimes not optimal results. Efforts to control forest and land fires will be effective if the factors that cause forest and land fires are known. During the dry season in 2019, several forest and land fires occurred in the Tahura area, including Awang Bangkal Barat Village. Based on the information above, it is very important to know the factors that influence forest and land fires in Awang Bangkal Barat Village. The information obtained is expected to be material for policy makers in tackling forest and land fires that occur. The role of MPA in Awang Bangkal Barat Village is important to know as the basis for taking policies and work programs for related parties to determine the effectiveness of MPA's work in controlling forest and land fires.

The problem that is often faced in Awang Bangkal Barat Village during the dry season is forest and land fires which cause damage to ecosystems in forest and land areas. Based on the decision of the director of forest and land fire control no: SK.9/PKHL/PKHL/PPI.4/2/2018 stipulates that a number of villages in South Kalimantan are



potentially prone to fires every year, including the location studied, namely Awang Bangkal Barat Village. The purpose of this study was to analyze the factors causing forest and land fires in Awang Bangkal Barat Village and to analyze the role of MPA in Awang Bangkal Barat Village.

METHODS OF RESEARCH

This research was conducted for \pm 3 months in Awang Bangkal Barat Village, Banjar Regency, South Kalimantan which includes research activities, data processing and writing research reports. The tools and materials used in this study were cameras/mobile phones, research questionnaires, laptops. The object of this research is a member of MPA Putrabulu, Awang Bangkal Barat Village.

This research data uses 2 types of data, namely primary and secondary. Primary data is data obtained from activities in the field directly through respondents who are sampled in the field. Primary data collection using a questionnaire by conducting interviews in the field. Secondary data is data obtained from agency documents such as those related to this research. Secondary data was collected through related agencies such as Manggala Agni, Timber Tangi Forest Management Unit (KPH), UPT. Tahura Sultan Adam and the Regional Disaster Management Agency (BPBD) of South Kalimantan Province.

Data analysis and data processing in this study were grouped into 2, namely the factors causing forest and land fires using tabulation analysis which will be discussed descriptively, while for quantitative data to measure the factors causing forest and land fires using the chi square test. In the MPA's participation using descriptive qualitative methods and quantitative analysis. The Likert scale is used to analyze the data so that the results obtained are clearer and more detailed (Satriani et al, 2013). The activity of analyzing the participation of MPA using a Likert scale with a scale range as follows: Low 1.00-1.66, moderate 1.67-2.33, and high 2.34-3.00.

RESULTS AND DISCUSSION

Based on the results of the study, the average age of respondents in MPA Putrabulu with the oldest being 65 years old and the youngest 20 years old. This age can be classified as productive age because from the results of this study the respondents of MPA Putrabulu still have physical health and strong physical abilities and enthusiasm for life at work.

Forest and land fires are events that burn something that can cause danger or bring disaster. The percentages of factors causing forest and land fires in Awang Bangkal Barat Village are presented as in Table 1.

Table 1 – Percentage of Factors Causing forest and land fires in Awang Bangkal Barat Village

N	Factors that cause forest and land fires	Number of Respondents' Answers	Percentage (%)
1	Farming	11	64.70
2	Unknown cause	3	17.64
3	Camping and Hunting	2	11.76
4	Grazing	1	5.90
5	Fire from other regions	0	0
Total		17	100

The percentage of factors causing forest and land fires is also presented in the form of a diagram as shown in Figure 1.

Based on the results of the recapitulation of the factors causing forest and land fires in Awang Bangkal Barat, it was found that the biggest cause of forest and land fires was cultivation activities. Communities often use fire to prepare land clearing. Land clearing by burning is still entrenched in the community because it is cheap and effective. PPLH Law article 69 paragraph 2 which reads "everyone is prohibited from clearing land by burning". Currently, if the community wants to clear land by burning, they must first ask permission



from the village government and MPA so that burning activities can be controlled. Burning time is usually carried out in the afternoon or early morning to avoid drying out the fuel,

Forest and land fires in Awang Bangkal Village also occurred without known causes. Forest and land fires suddenly occurred on unoccupied land and in the rehabilitation area for watersheds (DAS). Usually these fires occur in forest areas.

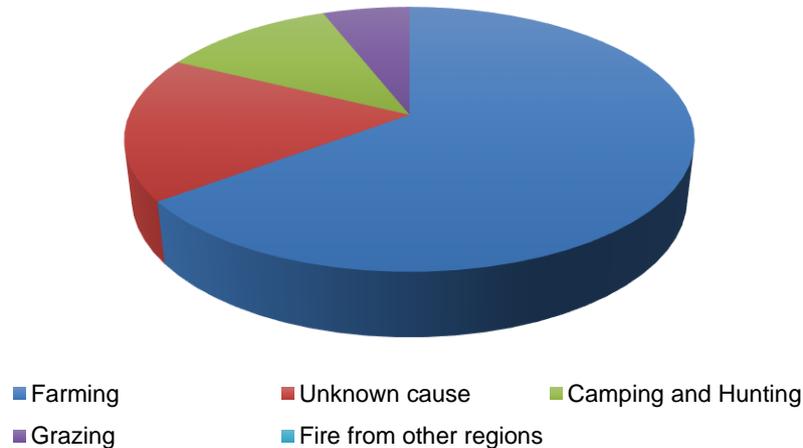


Figure 1 – Factors causing forest and land fires in Awang Bangkal Barat Village

Camping and hunting activities are the 3rd cause of forest and land fires in Awang Bangkal Barat Village. This is because these activities are closely related to the use of matches, cigarettes and bonfires. The village of Awang Bangkal Barat has a lot of charm for nature tourists to visit.

The hunt was still going on where the hunter fired a rifle and sparks arose around the village land, causing forest and land fires. According to Widnyana & Kurniadi (2010), people use fire to force game animals out of the forest and then catch them, the fire used often causes forest fires. Although the number of perpetrators of this poaching is small, it has the potential to cause extensive forest and land fires. The location for illegal hunting is along the Putrabulu hill, Awang Bangkal Barat Village and the animals that are the target of hunters are birds.

Campgrounds are also a factor in forest and land fires because their activities leave bonfire marks carelessly and cigarette butts to cause sparks around the campsite. Currently, camping is prohibited in hilly areas and land in Awang Bangkal Barat and it is forbidden to light bonfires, if you want to enter the area, you must ask for permission from MPA Putrabulu to avoid things that result in forest and land fires and other damage. The hills that are usually used as campsites in Awang Bangkal Barat Village are Putrabulu Hill, Sianjal Hill, and Artha Hill.

Table 2 – Chi Square Test Factors Causing Forest and Land Fires In Awang Bangkal Barat

N	Factors Causing Forest and Land Fires	O _i	E _i	O _i -E _i	(O _i -E _i) ²	$\frac{(O_i - E_i)^2}{E_i}$
1	Campground/Hunting	2	3.4	-1.4	1.96	0.58
2	farming	11	3.4	7.6	57.76	16.99
3	grazing	1	3.4	-2.4	5.76	1.70
4	Fire from another area	0	3.4	-3.4	11.56	3.4
5	Unknown Cause	3	3.4	-0.4	0.16	0.04
	Total	17	17	0	77.2	22.71

Herding activities are one of the factors causing forest and land fires (5.90%). The grazing that causes forest and land fires here is caused by the herders burning the land for their livestock feed where the newly growing grass vegetation is of high quality for their livestock feed, the cattle that are cared for are cows. According to (Syamani, et al. 2021) the



need for forage forage and grazing areas is one thing that must be met. To get grass with good quality, people usually burn grassland areas that are no longer productive. After the grassland area is burned, new grass will grow with better quality and high nutritional content. But of course, it is also prone to the surrounding forest to catch fire. The cho square factor test that causes forest and land fires in Awang Bangkal Barat Village can be seen in Table 2.

Based on the results in Table 2, the results of the calculated X^2 value are 22.71 and when compared to the X^2 table ($dk = 4, \alpha = 5\%$) of 9.487, the analysis results get X^2 count X^2 table, then H_0 is rejected and H_1 is accepted. This means that there is a difference in the respondents' answers regarding the factors of forest and land fires.

MPA Putrabulu Awang Bangkal Barat Village was formed in 2019 with 15 members with Decree No. 522/32/Tahura/Linhut/VII/2020 concerning the determination of the Fire Care Community (MPA) group in Awang Bangkal Barat Village, Karang Intan District. MPA Putrabulu collaborates with 2 company vendors to carry out watershed rehabilitation activities. MPA Putrabulu also takes care of the watershed rehabilitation plant in Awang Bangkal Barat Village.

The main purpose of establishing a village-based Putrabulu MPA is to prevent the forest and land around Awang Bangkal Barat Village from being burned either in the watershed rehabilitation area or community land itself and to overcome the dangers of forest and land fires so that there are no excessive forest and land fires in Awang Bangkal Barat Village. Their technical work is without shifts and is divided individually for each post in the forest and land area in Awang Bangkal Barat. The work program of MPA Putrabulu itself can be seen in Table 3:

Table 3 – Putrabulu MPA work program

N	Work program	Information
1	Protect land from the dangers of forest and land fires.	MPA
2	Assist in socializing forest and land fires to the community.	MPA and related agencies (Tahura Sultan Adam, Manggala Agni, Forestry Service
3	Assisting Watershed Rehabilitation activities	Company, MPA, Polhut and Forestry Service

The work program in point 1 can be described as conducting patrols in forest and land areas, extinguishing and preventing forest and land fires in those areas. At point 2 in collaboration with the department, namely Tahura ultan Adam, Manggala Agni, socialization is usually held before the dry season. In point 3 assisting watershed rehabilitation activities in collaboration with companies, forest police and forestry services, land rehabilitation activities follow the planting/maintenance schedule initiated by the company.

The MPA Putrabulu facilities and infrastructure for extinguishing activities are supported by the company. Actions to prevent forest and land fires at the Putrabulu MPA have been prepared by making firebreak areas in each watershed rehabilitation area. The benefits of forming an MPA that are felt by MPA members include:

1. Keeping the land sustainable;
2. Gaining new knowledge in terms of handling forest and land fires;
3. As additional work.

MPA as a cooperative organization which is a means and a place to build relationships in order to meet the needs in terms of management and prevention of forest and land fires run by its members. For members of the Putrabulu MPA organization, they must be able to strengthen, uphold integration for the realization of beneficial cooperation, both between organizations or other parties. The results of the participation of the Putrabulu MPA group in Awang Bangkal Barat Village as a vehicle for collaboration between MPA and related agencies can be seen in Table 4.

Table 4 shows that all indicators are in the "High" category, which explains that all MPA Putrabulu members have carried out cooperative activities among members, other MPA members and other stakeholders. MPA parties cooperate with each other to help with land and forest fires that occur, not only in cooperation within the Putrabulu MPA itself, but with all MPAs who are members of the Sultan Adam Tahura Village to extinguish, prevent and



protect forests and land from unscrupulous elements. responsible and forest and land fires due to natural factors.

Table 4 – Vehicles for Cooperation between MPA and Related Stake

N	Indicators	Score	Category
1	Creating an atmosphere of cooperation within the MPA	3.00	High
2	Conducting deliberations/meetings between other MPAs and related stakeholders to discuss forest and land fire control	2.87	High
3	Conducting cooperation and other partnership activities with other MPA or related stakeholders.	3.00	High
Average		2.95	High

Deliberations/meetings between other MPA and related stakeholders to discuss forest and land fire control are included in the high category, because in the MPA work program when entering the dry season, a meeting will be held for deliberation to arrange forest and land fire control strategies in their respective villages around Tahura as well as in the context of strengthening the MPA institutions to regulate the coordination system, provide legal protection and socio-economic security to MPA members.

Cooperation activities and other partnership activities with MPA or related stakeholders get 3.00 points in the high category because MPA Putrabulu with other MPAs and stakeholders such as UPT Tahura Sultan Adam and Manggala Agni cooperate in overcoming forest and land fires, including socialization, extinguishing activities.

Providing information on forest and land fires is one of MPA's roles as an organization originating from the local community. Information provided regarding forest and land fires so that these incidents can be prevented quickly. The results of this MPA participation can be seen in Table 5.

Table 5 – MPA has a role in providing information on forest and land fires

N	Indicators	Score	Category
1	Provide information about forest and land fires in this village and the events that occurred	2.93	High
2	Provide information about the elements of forest and land burning	2.62	High
3	Provide information to stakeholders related to forest and land fires in this village	3.00	High
Average		2.85	High

Table 5 shows that all indicators have an average of 2.62 with the category "High" which means that the MPA has done a good job by providing information to fellow members and related parties regarding forest and land fires. At the point of providing information about forest and land fires in the village and the events that occurred they got a score of 2.93 and the high category this is because residents also have to know information about forest and land fires that occur and their causes. MPA also provides information on forest and land fires to relevant stakeholders (UPT Tahura Sultan Adam, Manggala Agni) so that appropriate preventive measures can be anticipated.

The provision of information regarding the elements of land forest fires received a score of 1.93 and was in the sufficient category, this is because the MPA was difficult to know who the perpetrators of land burning occurred because of the absence of clear evidence, and therefore the MPA did not provide information on which the arsonists were forest that happened.

At the point of providing information to the forest police and Manggala Agni related to forest and land fires, they got a score of 3.00 with a high category, this is because MPA always coordinates with related agencies such as UPT Tahura Sultan Adam, Forestry Service and Manggala Agni to take steps to handle forest fires, and the land itself. In the category of providing information with related agencies, MPA Putrabulu gets a "high" category, which means MPA Putrabulu has actively participated in providing information about forest and land fires to related agencies.



One of the tasks of MPA as part of the community is to disseminate information on forest and land fires regarding the causes, prevention, control and impact of forest and land fires that occur so that forest and land fires can be handled efficiently. The role of MPA in disseminating information related to forest and land fires can be seen in Table 6.

Table 6 – MPA's Role in Disseminating Information on forest and land fires

N	Indicators	Score	Category
1	Disseminate information on the causes of forest and land fires in Awang Bangkal Village	3.00	High
2	Disseminate information on forest and land fire prevention in Awang Bangkal Village	3.00	High
3	Disseminate information on forest and land fire prevention	3.00	High
4	Disseminate information on the impact of forest and land fires	3.00	High
Average		3.00	High

Table 6 shows all indicators "high", this shows that MPA Putrabulu members always inform local residents about the causes, prevention, control and impact of forest and land fires in Awang Bangkal Barat Village. MPA Putrabulu always coordinates with relevant stakeholders regarding forest and land fires so that all parties are aware of these problems.

In the category of disseminating information, MPA Putrabulu gets a "high" category, which means MPA Putrabulu has actively participated in collaborating in disseminating information about forest and land fires with relevant stakeholders.

MPA Putrabulu plays a role in assisting socialization activities related to forest and land fires, the aim is to help the people of Awang Bangkal Barat Village to increase public awareness not to burn. The role of MPA Putrabulu related to socialization activities can be seen in Table 7.

Table 7 – The role of participating in helping outreach activities

N	Indicators	Score	Category
1	Assist with socialization activities with other MPA/related agencies (UPT Tahura Sultan Adam, Manggala Agni)	3	High
2	Assist in the socialization of the introduction of extinguishers and methods of extinguishing fires to the public	2.79	High
3	Help explain to the community the causes of forest and land fires and how to control them,	3	High
4	Explaining sanctions/criminal acts for arsonists to the community	3	High
Average		2.94	High

Table 7 shows that all indicators are in the "high" category, this shows that MPA is active in helping to disseminate information about forest and land fires to the village community. At the point of conducting outreach activities with other MPA/related agencies (Manggala Agni, Forestry Service, KPH) and the community regarding forest and land fires, the score was 3.00 and was in the high category because MPA routinely assists in socialization which is carried out before the dry season to anticipate forest and land fires. . The socialization held can be between MPA and related stakeholders, fellow members or with the surrounding community. The purpose of socialization is to change the mindset of the community so that it is in a better condition as aspired.

The role of MPA in helping the socialization of extinguishers and fire extinguishing methods to the community has a score of 2.79 (high category) because this MPA also participates in the introduction of extinguishers to the community. Residents and MPA members both learned how to extinguish the fire wisely from an early age so that the fire did not expand and spread massively. There is sufficient data on extinguishers owned by MPA Putrabulu, these tools are a gift from vendors who carry out land rehabilitation activities. The extinguishers owned by MPA Putrabulu can be seen in Table 8.

MPA's role in providing explanations to the community regarding indicators of the causes of forest and land fires and how to control them has a score of 3.00 (high category). MPA invites the community to prioritize preventive measures over extinguishing in terms of



controlling forest and land fires. Prevention efforts carried out by MPA include mobile patrols, building monitoring towers around forests and land in Awang Bangkal Barat Village. MPA's role in explaining punishments/criminal acts for arsonists to the public gets a score of 3.00 (high category). MPA Putrabulu actively helped put up banners prohibiting forest and land burning in Awang Bangkal Barat Village, as shown in Figure 2.

Table 8 – Extinguishers in Putrabulu

N	Tools	Total
1	Kepyok	13
2	Jet Shooter	9
3	Communication tool	8



Figure 2 – Banners prohibiting forest burning in Awang Bangkal Barat Village

The prohibition is stated in Article 36 point 17 of the Job Creation Law which amends Article 50 paragraph (2) letter b of Law Number 41 of 1999 concerning Forestry which reads "Everyone who intentionally burns forests is threatened with a maximum imprisonment of 15 years and a maximum fine of Rp. 5 billion. If forest fires are caused by negligence, the threat of imprisonment is a maximum of 5 years and a maximum fine of IDR 3.5 billion.

The role of MPA in terms of assisting socialization with related agencies was found to be in the "high" category. MPA Putrabulu actively assists and participates in socialization activities with related agencies. Related agencies, especially UPT Tahura Sultan Adam, always involve MPA around Tahura Sultan Adam in socialization activities for controlling forest and land fires, starting from prevention, extinguishing and post-fire activities.

Regular meetings held by MPA Putrabulu are useful as a forum for discussion, exchange of ideas, sharing experiences and developments in forest and land fire control and forest protection activities. The role of MPA in participating in Meeting Activities can be seen in Table 9.

MPA's role in holding meetings is included in the "high" category, this shows that Putrabulu MPA is carrying out its obligations well. MPA Putrabulu in carrying out their duties and organizing always applies the principle of openness among members because if they are open, it allows all MPA members to know what other MPA members are doing, so that fellow MPA members can provide positive input and help solve problems in the team. .



Openness between teams and mutual trust are the main assets of team cohesiveness, so that the team is able to work optimally and get the desired results.

Table 9 – Holding Meetings

N	Indicators	Score	Category
1	Creating an atmosphere of openness within the MPA group	3	High
2	Assist relevant agencies in compiling maps on forest and land fires (hotspot points, vulnerable villages, etc.)	2.33	High
3	Assisting the community and agencies related to efforts to control forest and land fires	3	High
4	Participate in forest and land fire control training	3	High
5	Regular meetings and deliberation	3	High
Average		2.87	High

MPA helps make/compile maps related to forest and land fires such as hotspots, vulnerable villages and others, which are included in the high category. MPA Putrabulu is tasked with providing coordinates in locations prone to forest and land fires and sending them to the Tahura to make maps of forest and land fires. MPA Putrabulu is also active and participates in training on forest and land fire control. Related agencies such as UPT. Tahura, the Forestry Service and Manggala Agni regularly hold training on forest and land fire control for MPA members. MPA is the front line in controlling forest and land fires at the site level, so MPA must be equipped with the best forest and land fire control techniques. MPA has worked well by holding meetings with relevant agencies such as Tahura, Manggala Agni and BPBD regarding forest and land fires, especially if there is training to anticipate forest and land fires in the summer.

Meetings and deliberation activities for MPA members are usually held before the dry season to discuss how to prevent and control forest and land fires in Awang Bangkal Barat Village. This activity was attended by all members of MPA Putrabulu. In the "meeting" category, MPA Putrabulu got a "high" category, which means MPA Putrabulu has actively participated in holding meetings to deal with land and forest fires in Awang Bangkal Barat Village.

CONCLUSION

Factors causing forest and land fires in Awang Bangkal Barat Village are cultivation activities by 64.70%, unknown cause by 17.64%, camping and hunting by 11.80%, grazing by 5.90%. The results of the research on the participation of Awang Bangkal Barat showed that MPA Putrabulu had an active role in preventing and overcoming forest and land fires, this was based on the results of interviews and questionnaires where MPA Putrabulu got a high score and category, meaning that every activity was carried out well.

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