

Collaborative Strategy between BPBD and MPA to Improve Disaster Management Performance Forest and Land Fires in the Regency West Kotawaringin

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Abstract. *This study aims to analyze the collaboration strategy between the Management Agency Regional Disaster (BPBD) and the Fire Care Community (MPA) in handling forest and land fires in Kotawaringin Barat Regency. The background of this research is the continued occurrence of forest and land fires caused by peatland conditions, limited accessibility to fire-prone areas, and the suboptimal coordination and role distribution among stakeholders in fire management efforts. This research employed a qualitative method with a strategic descriptive approach. Data collection techniques included interviews, observations, and documentation involving informants from BPBD, MPA, village officials, and the Rapid Response Team (TRC). Data analysis used the SWOT (Strength, Weakness, Opportunity, Threat) approach through the preparation of IFAS and EFAS matrices to formulate alternative strategies for forest and land fire management. The results of the study indicate that the main strengths lie in the preparedness of BPBD personnel, the existence of approximately 36 active MPA groups, technology-based early detection systems, and effective cross-sector coordination. Meanwhile, the main weaknesses include limited access to fire locations, the difficult characteristics of peatland fires, limited facilities and infrastructure at the MPA level, and communication network constraints. Opportunities consist of the utilization of early detection technology, strengthening real-time communication systems, support from national programs and BNPB, and the involvement of youth volunteers and local communities. The major threats include the El Niño phenomenon, the highly flammable nature of peatlands, land clearing expansion, and limited resources during large-scale fire incidents. Based on the SWOT analysis, the recommended strategies include strengthening cross-sector collaboration, optimizing the use of early detection technology, improving the capacity and facilities of MPA, strengthening communication and field coordination systems, and increasing community participation in forest and land fire prevention. These strategies are expected to enhance the effectiveness of forest and land fire management in Kotawaringin Barat Regency in a more integrated, responsive, and sustainable manner.*

Keywords: *Analysis; Care; Collaboration; Community.*

1. Introduction

Fire forest and land (karhutla) in the Regency area West Kotawaringin raises threat Serious to sustainability environment, health society, as well as instability social and economic. Fire forests and land impact direct through haze and disturbance activities in society, but also give rise to various impact term short and long term long to environment. Fire Can cause change characteristic chemistry, physics, and biology land, remove closing vegetation that impacts changes climate micro, as well as lower quality and power support ecosystem. Even in larger scale area, fire forests and land participate contribute to improvement greenhouse gas emissions influential glass to change global climate (Tuhulele, 2014; Siburian, 2020). Fires forests and land considered as threat potential for development sustainable Because the effect in a way direct for ecosystem (*United Nations International Strategy for Disaster Reduction* 2002), contribution to improvement emission carbon and its impacts for diversity biological conditions This make fire forests and land as problem strategic that requires handling integrated, sustainable, and involving various parties.

Table Indications of the Extent of Forest and Land Fires in Central Kalimantan Province 2020-2025

Province	2020	2021	2022	2023	2024	2025	TOTAL AREA
PULANG PISAU	798.00	43.00	0.00	45,701.12	4,857.14	107.56	51,506.82
KAPUAS	1,542.00	249.00	421.00	38,062.30	518.72	662.88	41,455.90
SUKAMARA	210.00	333.00	374.00	16,432.90	927.07	89.05	18,366.02
SERUYAN	6.00	0.00	28.00	17,288.95	251.35	207.92	17,782.22
SOUTH BARITO	1,603.00	1,791.00	207.00	10,494.64	785.32	390.34	15,271.30
EAST KOTAWARINGIN	174.00	9.00	31.00	13,876.39	179.10	685.93	14,955.42
KATINGAN	303.00	65.00	134.00	8,945.58	956.47	1,210.96	11,615.01
WEST KOTAWARINGIN	136.00	403.00	67.00	6,986.80	160.19	8.72	7,761.71
NORTH BARITO	1,877.00	94.00	69.00	832.46	942.86	533.13	4,348.45
PALANGKA RAYA	29.00	34.00	0.00	3,892.15	26.08	7.98	3,989.21
MURUNG RAYA	780.00	348.00	125.00	474.08	1,446.40	293.07	3,466.55
EAST BARITO	40.00	145.00	0.00	1,244.65	123.27	154.52	1,707.44
MOUNT MAS	38.00	4.00	21.00	1,006.35	207.48	373.24	1,650.07
LAMANDAU	145.00	134.00	70.00	658.08	78.44	78.69	1,164.21

Source: SIPONGI, Ministry of Forestry

Based on the Table of Indications of the Area of Forest and Land Fires above, the Regency West Kotawaringin is ranked 8th out of 14 regencies / cities in Central Kalimantan province. No including areas with area fire highest, condition This No necessarily reflect low potential fire, but rather can indicates existence effort blackout relatively early fast. However Thus, the condition the still show that potential fire forests and land Still Enough significant and requires more handling effective.

Although various effort countermeasures has done, performance countermeasures fire forests and land in the Regency West Kotawaringin has not yet completely optimal. This is shown by still height frequency incident fire in a number of year final as well as Still found incident fire repeated in the same area. Condition the indicates that effort prevention and handling carried out Not yet capable pressing incident forest and land fires in a way significant. In addition, in implementation Still there is various obstacles in the field, such as limitations coordination between party, not yet optimally distribution participation Not yet maximum utilization the potential of the Fire Aware Community (MPA) in activity prevention and detection early.

In context countermeasures disasters in the region, the Government Regency West Kotawaringin through BPBD plays a role as coordinator main in organization countermeasures forest and land fires. As part from the coping strategy BPBD coordinates forest and land fires various stakeholder interest as well as push involvement society. One of the the approach applied is involvement of the Fire Aware Community (MPA) as actor local in effort prevention and control fire forests and land at the level villages and sub-districts.

Awareness Community (MPA) in the Regency West Kotawaringin begins formed since 2018 and ratified through the Decree (SK) of the Village Head or Sub-district Head as base legitimacy implementation tasks in their respective areas. Until 2025, in the Regency West Kotawaringin has formed as many as 36 Fire Aware Community (MPA) groups spread across various areas villages and sub-districts vulnerable fire, with amount member around 540 people. The number the show size involvement public in effort prevention forest and land fires and make MPA as potential strategic in strengthen performance countermeasures pre-disaster fire forests and land in the area.

However Thus, the effectiveness of the mitigation strategy forest and land fires based collaboration between BPBD and MPA still need study more in-depth. Control efforts forest and land fires No Enough only nature reactive at the time incident, but must supported by a proactive, planned, and disaster-based pre-disaster strategy strengthening capacity society. In the context of this, collaboration between BPBD and MPA to become factor key in create system control effective forest and land fires, especially in matter prevention and response early in the field.

As far as this, some big study related fire forests and land more Lots carried out in the regions of Sumatra and South Kalimantan, with focus on impact forest and land fires, aspects technical blackout, or use technology control fire. Research that is specific review collaborative strategies between BPBD and MPA in context Regency West Kotawaringin still relatively limited. In addition, the study regarding MPA in general Still nature descriptive and role - focused technical in the field, so that research that examines aspects of collaboration strategy and their interrelationships with performance countermeasures forest and land fires still minimal, especially those using approach empirical and measurable.

More continue, in perspective management public, performance organization influenced by harmony between strategy, capacity institutional and quality implementation in the field (Boyne, 2003). Meanwhile that, theory collaboration inter-organizational emphasize that Work The same cross actor only will produce optimal performance when supported by effective coordination, division of clear roles, as well as existence trust between parties (Ansell & Gash, 2008). Therefore that, approach based evidence (evidence-based approach) becomes very important as base in formulate policy effective and sustainable public services, in particular in countermeasures fire forests and land in the area.

2. Research Methods

Study This use method qualitative with approach descriptive strategic approach qualitative used for understand phenomenon in a way deep related collaboration between the Disaster Management Agency Regional Disaster Management Agency (BPBD) and Fire Awareness Community (MPA) in countermeasures fire forests and land in the Regency West Kotawaringin. According to Sugiyono (2017), method study qualitative used for research condition natural objects, where researchers play a role as instrument key and data analysis is inductive approach This assessed appropriate Because study No only aim for describe phenomenon, but also for understand dynamics collaboration between actor in context countermeasures disaster. Approach descriptive strategic used for give description systematic about existing conditions at a time formulate strategies that can implemented in increase effectiveness countermeasures fire forest and land analysis in study This use SWOT (*Strength, Weakness, Opportunity, Threat*) approach, namely something tool analysis strategic use for identify internal and external factors organization. According to Freddy Rangkuti (2013), SWOT analysis is methods based on logic for maximize strengths and opportunities, as well as in a way simultaneously minimize weaknesses and threats.

3. Results and Discussion

3.1. General Image of the Research Location

Regency West Kotawaringin is one of the areas in Central Kalimantan Province which has potential fire sufficient forest and land high. Condition geographical area dominated by land peat as well as activity opening land make this area prone to to incident fires, especially during the dry season drought.

In an attempt countermeasures fire forest and land, Government Regency West Kotawaringin through the Disaster Management Agency Regional Disaster Management Agency (BPBD) plays a role as coordinator main in implementation activity prevention, preparedness, and handling beginning fire. BPBD is on duty coordinate various parties involved, both from element government, private sector, and public.

One of form involvement public in countermeasures forest and land fires is through the formation of the Fire Awareness Community (MPA). MPA is group communities formed at the

level village or ward with objective for increase role as well as public in activity prevention, detection early, and treatment beginning fire forests and land.

In the Regency West Kotawaringin, up to beginning 2026 has formed as many as 36 MPA groups spread across disaster-prone areas fire with amount member around 540 people. The existence of this MPA become potential strategic in support effort countermeasures forest and land fires, especially at the stage pre-disaster fire forest.

Although thus, in implementation Still there is various obstacles, such as limitations coordination between party, not yet optimally distribution participation Still height incident fire forests and land in a number of year last. Condition This show that more collaborative strategies are needed effective between BPBD and MPA in countermeasures forest and land fires in the Regency West Kotawaringin.

Analysis factor strategic in study This done for identify internal and external conditions that influence countermeasures fire forests and land in the Regency West Kotawaringin. Internal factors include strengths and weaknesses *that* come from from capacity organization and implementation collaboration between parties. Meanwhile that, factor external covering opportunities and threats *that* come from from environment outside organization, good in the form of condition natural, social, and support policy.

Identification results factor the Then used as base in compilation IFAS and EFAS matrices, which are further analyzed for produce a coping strategy fire forests and land through SWOT approach.

Based on results interview with informant from the National Disaster Management Agency Regional Disaster Management Agency (BPBD), Fire Awareness Community (MPA), authoritie village, as well as members of the Rapid Response Team (TRC) of the Regency BPBD West Kotawaringin, obtained a clearer picture comprehensive about condition countermeasures forest and land fires.

In a way general, prevention forest and land fires in the Regency West Kotawaringin has walk Enough good and under control, especially in the phase beginning season dry season. However thus, the incident forest and land fires Still still found in several areas, such as the most recent in 2026 in Kotawaringin Hulu Village with wide fire approximately 2.5 hectares. This is show that although system handling has walking, potential fire Still still there are, especially in the land area peat that becomes characteristics main area study.

From the BPBD side, disaster management forest and land fires supported by preparedness 24-hour post during season drought, personnel a combination consisting of from the TRC BPBD, Manggala Agni, TNI/ Polri, as well as support means infrastructure like car fire extinguishers, water pumps, jet shooters, and support water bombing helicopters from BNPB. In addition, the system detection early via SIPONGI, tower monitor in vulnerable areas, as

well as utilization thermal drone technology is increasingly strengthen ability monitoring point fire.

From the perspective of the Fire Aware Community (MPA), the role public become element important in system countermeasures forest and land fires. There are around 36 groups Fire Aware Community (MPA) with amount member around 540 people in the Regency West Kotawaringin plays a role in routine patrol, detection early warning, hotspot reporting, and handling beginning fire in the field before The BPBD team arrived at the location. The MPA also functions as extension BPBD's hands in education and appeals to society so as not to open land with method burn.

Temporary that, from side government village, role main in countermeasures forest and land fires is do coordination with MPA and BPBD as well support activity prevention in their respective regions. The government the village also relies on MPA as the front guard in handling beginning fire at level local.

Collaboration between institutions also involve Manggala Agni, TNI/ Polri, Unit Production Forest Management (KPHP), as well as party company mandatory plantations own team fire extinguisher fire. Synergy This show that countermeasures forest and land fires in the Regency West Kotawaringin is multi- actor and community-based collaboration cross sector.

Although thus, various constraint Still faced in implementation in the field. The main obstacle covering condition geographical land deep and difficult peat extinguished, limitations access going to location fire, and lack of water sources in the season drought. In addition, the limitations mean transportation, delays information from society, as well as disturbance network communication in some areas also becomes obstacle in handling fast fire.

From the side strength, the existence of MPA becomes factor important in support system countermeasures forest and land fires, in particular in detection early detection and treatment early. Preparedness BPBD personnel, support technology monitoring, as well as coordination cross sector also becomes strength main in system existing handling moment This.

In an attempt increase effectiveness countermeasures forest and land fires, there are a number of opportunities that can be utilized, such as utilization technology detection early hotspot- based, strengthening real-time communication, optimization PUSDALOPS function, development partition channel for guard humidity peat, as well as involvement volunteers young such as Karang Taruna and Scouts in activity prevention.

Temporary that, the threats faced Still Enough significant, especially related condition weather extreme and potential El Niño events that can increase drought, characteristics land easy peat burning, expansion opening land plantations, as well as limitations support tool weight and helicopter at the time incident forest and land fires scale big.

Based on results interview with informant from BPBD, Fire Awareness Community (MPA), and apparatus villages in the Regency West Kotawaringin, obtained internal factors that influence countermeasures fire forests and land. These internal factors consist of from strengths and weaknesses *that* come from from internal institutional conditions, sources power, as well as implementation collaboration in the field.

Strength

a. Preparedness and experience BPBD personnel (TRC)

BPBD TRC personnel have enough experience in handling forest and land fires as well as supported preparedness operational for 24 hours in season dry season, so that capable respond incident with fast.

b. Availability facilities and infrastructure blackout

BPBD Regency West Kotawaringin has supported by facilities blackout like car fire extinguishers, water pumps, jet shooters, and support water bombing helicopter from BNPB in conditions certain.

c. System detection early detection and monitoring fire

Strengthening system detection early through SIPONGI application, tower monitor in vulnerable areas, as well as utilization of thermal drones increases ability monitoring point fire in a way more fast and accurate.

d. active role of the Fire Aware Community (MPA)

Existence 36 Fire Aware Community (MPA) groups spread across various areas villages and sub-districts vulnerable fire, with amount member around 540 people. MPA is active in the Regency West Kotawaringin becomes strength main in routine patrol, detection early warning, hotspot reporting, and handling beginning fire before BPBD team arrived at the location.

e. Response fast in handling incident

System handling based response fast allows control fire before widespread, especially through coordination direct between BPBD and MPA in the field.

f. Coordination cross sufficient sector Good

Collaboration between BPBD, MPA, Manggala Agni, TNI/ Polri, government village, KPHP, and company plantation has walk in pattern handling integrated in the field.

Weakness (*Weakness*)

a. Limitations access going to location fire

Condition geographical area, especially land peat, causing difficulty mobilization personnel and equipment going to point fire.

b. Characteristics land difficult peat handled

Land fires peat often happened below surface land (*subsurface fire*) so that difficult extinguished in a way fast and in need time as well as source Power more big.

c. Limitations facilities and infrastructure at the MPA level

Some MPAs still own limitations tool blackouts, especially in remote areas from BPBD post.

d. The lack of water sources on site incident

In season drought, availability water resources are very limited so that hamper the extinguishing process in the field.

e. Limitations transportation operational

Vehicle access fire extinguisher No always can reach point fire Because condition damaged roads or no available.

f. Delay information from public

There are still pause time in reporting incident fire from public to party authorized so that influence speed response beginning.

g. Limitations network communication

Some areas still experience constraint signal so that hinder real-time coordination between BPBD, MPA, and other parties related.

Based on results interview with informant from the National Disaster Management Agency Regional Disaster Management Agency (BPBD), Fire Awareness Community (MPA), authority village, as well as the Rapid Response Team (TRC) of the Regency BPBD West Kotawaringin, obtained factors external influences countermeasures fire forests and land. External factors the consists of from opportunities and threats that come from from environment outside organization, good aspect technology, policy, conditions nature, as well as social public.

Opportunity (*Opportunity*)

a. Utilization technology detection early fire

Availability of technology like SIPONGI application, thermal drone, and CCTV hotspot on the tower monitor give opportunity big in increase speed detection point fire in a way more accurate and real-time.

b. Strengthening system real-time communication and coordination

Use system communication based group coordination (HT and application message fast) between BPBD, MPA, and other stakeholders give opportunity improvement response handling in the field.

c. Support for national programs and BNPB

Support from BNPB in the form of heli water bombing, funding emergency, and alert status emergency forest and land fires give opportunity strengthening capacity handling scale big.

d. Construction of partitions canals and restoration peat

BRGM Program in development partition canals in peat areas give opportunity important For guard humidity land so that reduce risk fire.

e. Improvement Fire Awareness Community (MPA) capacity

There are 36 active MPA groups in the Regency West Kotawaringin opens opportunity strengthening role public as the spearhead of prevention and treatment beginning forest and land fires.

f. Involvement volunteer youth and community local

Involvement of Karang Taruna, Scouts, and communitie local other become opportunity regeneration and strengthening awareness public to danger forest and land fires.

Threat (Threat)

a. El Niño phenomenon and weather extreme

Predicted El Niño potential increase drought extreme become threat main thing that can enlarge risk fire forests and land.

b. Characteristics land easy peat burnt

Regency Area West Kotawaringin is dominated by land peat become factor risk tall Because fire can spread below surface land and difficult extinguished.

c. Expansion opening land plantation

Improvement activity opening land, especially For plantation people's palm oil, still potential increase incident forest and land fires consequence practice burning land.

d. Limitations source Power moment incident big

When incident forest and land fires scale large, limited helicopter water bombing, equipment weight, and personnel can become constraint in handling fast.

e. Difficult area accessibility reachable

Some areas are prone to disasters forest and land fires such as Kumai and Old Kotawaringin have access limited, so that slow down the extinguishing process.

f. Potential delay handling beginning

Although system Already okay, still there is risk delay handling beginning consequence delay report from public or condition network communication that is not stable.

3.2. Discussion

Research result show that countermeasures fire forests and land in the Regency West Kotawaringin in general general has walk Enough good, but not yet completely optimal. Condition This reflected from domination factor internal strength in the form of preparedness BPBD Rapid Response Team (TRC) personnel, availability means blackout, system detection early based on SIPONGI and thermal drone technology, as well as role active Fire Aware Community (MPA) in activity patrol and handling beginning fire.

Findings This show that system countermeasures forest and land fires in the area study has own capacity adequate institutional strong. However however, still there is a number of weaknesses that are inherent structural and operational, such as limitations access to peat areas, minimal water sources in the season drought, and limitations facilities and networks communication in some areas. Conditions the show that effectiveness field handling still very much influenced by factors geography and infrastructure supporters.

In perspective theory collaboration, findings This in line with Ansell and Gash's (2008) stated view that success collaboration determined by the existence of trust between actor, commitment together, and effective coordination. In the context of study this, collaboration between BPBD, MPA, government village, TNI/ Polri, and Manggala Agni has walk Enough good, especially in form handling integrated in the field. However however, still there is challenge in aspect distribution source power, regional accessibility, and speed delivery information that shows that collaboration the need Keep going strengthened to be more effective and adaptive to condition field.

The results of the IFAS analysis show that internal conditions are in the category strong, which is marked with more dominant factor strength compared to weakness. While that, the result EFAS analysis shows that environment external give enough opportunities big, especially through utilization technology detection early, BNPB support, and restoration programs peat. However thus, the threat external like El Niño phenomenon, characteristics land peat, as well as activity opening land Still become challenge main in countermeasures forest and land fires.

Based on results SWOT matrix, the most dominant strategy is an SO (Strength–Opportunity) strategy, which shows that the internal strength possessed by BPBD and MPA has Enough capable utilized for optimize opportunity external resources available. This strategy reflected from optimization MPA's role as the vanguard, utilization technology detection early, and

strengthening system response fast based post 24-hour standby and coordination cross sector.

In addition, the WO strategy shows importance strengthening capacity facilities and infrastructure, especially at the MPA and village level vulnerable forest and land fires. The ST strategy emphasizes preparedness face threat weather extreme and conditions land easy peat burning, while the WT strategy leads to strengthening effort preventive through socialization, reporting fast based society, as well as enforcement law to opening land with method burn.

If associated with theory performance organization public performance as stated by Boyne (2003), organizations are greatly influenced by suitability between strategy, resources power, and implementation policy. In research this, although the coping strategy forest and land fires has formed through pattern sufficient collaboration okay, still required strengthening of aspects source Power operational, especially at the level field, so that the implementation of the strategy can walk more optimal and sustainable.

With thus, it can concluded that improvement performance countermeasures fire forests and land in the Regency West Kotawaringin is highly dependent on strengthening collaboration between institutions, optimization utilization technology, as well as improvement capacity public through the Fire Awareness Community (MPA). The third integration aspect the become key in realize system countermeasures more forest and land fires effective, adaptive, and sustainable.

4. Conclusion

Condition Countermeasures Forest and land fires in the Regency West Kotawaringin, In General general countermeasures Forest and land fires in Regency West Kotawaringin has walk with Enough good, although in a way fully not optimal. Condition This characterized by the presence of system handling integrated involving BPBD, Fire Awareness Community (MPA), government village, TNI/ Polri, and Manggala Agni. Strength main thing that is owned covering Rapid Response Team (TRC) preparedness, response fast in handling events, availability means blackout, as well as system detection early based technology like SIPONGI, tower monitoring, and *thermal drones*. In addition, the existence of around 36 MPA groups are active in vulnerable areas become factor important in strengthen system handling based society. However Thus, the effectiveness handling Still influenced by limitations access to peat areas, minimal water sources in the season drought, and constraint communication in several blank spot areas. Conditions This show that aspect geographical Still become factor barrier main in operational in the field.

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