Analysis Of Stakeholder Collaboration In The Emergency Management System (PSC) For Forest Fire Disaster Management Based On Pulang Pisau Regent Regulation Number 4 Of 2022

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Article Info	ABSTRACT
Keywords: Collaboration, Stakeholders, Emergency, Forest Fire	Pulang Pisau Regency is an area thathas a potential danger of forest and land fires (karhutla) at a moderate to high level. As an area with the potential for disaster events, this has the potential to become an emergency threat to the surrounding community. To overcome this, the Regional Government through the Public Safety Center (PSC) collaborates with various organizations and volunteers from the local community in an emergency management system for handling fire disasters. The aim of this research is to conduct an analysis of stakeholder collaboration in the Emergency Management System (PSC) for forest fire disaster management based on Pulang Pisau Regent Regulation Number 4 of 2022. The research was conducted from October 2023 to March 2024 using a qualitative descriptive research design. Data collection was carried out through observation, interviews and documentation. Researchers conducted interviews with several informants, such as the Head of BPBD Pulau Pisau Regency, company managers, University Public Relations, Police Agency/Polres Public Relations, Head of NGOs, and local residents. In this study, researchers determined informants using the technique of determining informants with certain considerations. The data analysis technique used is a qualitative data analysis technique based on the opinion of Miles & Huberman, which includes data reduction, presentation. The results of this research show that collaboration between BPBD and stakeholders is a key element in managing forest fire disasters with steps that have been identified and implemented. to overcome existing obstacles in collaboration. Things that can be implemented include socializing regulations, preparing disaster management plans, training officers and volunteers, monitoring weather and fire conditions, cross-sector cooperation, and strengthening human resources and technology.
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INTRODUCTION

Forest fires are a natural disaster that often occurs in Indonesia, especially during the dry season. These fires cause enormous environmental damage, economic losses, and social problems(1). Data from the Indonesian Ministry of Environment and Forestry (KLHK)

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recorded that during the January-August 2023 period there were widespread indicationsforest and land fires (karhutla)in Indonesia it has reached 267,935.59 hectares (ha) or more than three thousand times the area of the National Monument (Monas) which is only 80 ha. The following is a list of ten provinces with indications of the largest area of forest and land fires for the period January-August 2023, namely(2):

Table 1 Provinces with the Largest Area of Forest and Land Fires for the Period January-August 2023

No	Province	Indication of the Area of Forest and Land Fires
1.	West Kalimantan	54,402 ha
2.	East Nusa Tenggara	50,396 ha
3.	West Nusa Tenggara	26,453 ha
4.	South Kalimantan	24,588 ha
5.	South Papua	22,121 ha
6.	East Java	18,780 ha
7.	Central Kalimantan	18,058 ha
8.	Maluku	9,312 ha
9.	Central Java	5,376 ha
10.	West Java	4,641 ha

Cumulatively, the area of national forest and land fires for the January-August 2023 period has exceeded forest and land fires throughout 2022, which means that the intensity of fires this year is higher than last year.The occurrence of forest and land fires is triggered by various causes/factors, both natural and human factors. Natural factors that often trigger forest and land fires are extreme climatic conditions, such as prolonged dry seasons due to the El Nino phenomenon(1). Meanwhile, human factors that often trigger forest fires are caused by human activities themselves, such as land clearing activities, both for agricultural and plantation businesses(3).

During January-August 2023, Indonesian forest and land fires produced emissions of 32.9 million tons of carbon dioxide equivalent (CO2e), which is also higher than emissions throughout 2022 which were only 23.5 million tons of CO2e.(2).According to WHO, the impact of forest fires on health is that forest fires can be associated with premature deaths in the general population. Forest fire smoke can cause exacerbation of diseases of the lungs, heart, brain/nervous system, skin, intestines, kidneys, eyes, nose and liver. Even in the short term, say in the first few days or weeks of exposure to forest fire smoke, firstly, irritation will occur in the respiratory tract, eyes and skin. Second, various symptoms of lung and respiratory problems will appear, such as coughing, phlegm, even in people who were previously completely healthy. Next, heavy breathing, shortness of breath, wheezing, etc. may occur. Then inflammation/lung inflammation can also occur, decreased respiratory function, increased risk of exacerbation of asthma attacks, and worsening of other respiratory lung diseases.(4). This can then lead to an increase in the number of visits to the emergency department (IGD) as well as requests for hospital admission(4)due to the emergency response to forest fires.

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An emergency response situation is a change in a condition or situation that was previously normal to become abnormal as a result of an event or incident that was unexpected or undesirable. This situation can take the form of a natural disaster, fire, work accident, environmental pollution, and/or commotion(5). In this research, the emergency response situation referred to is a forest fire. Meanwhile, emergency services are services that require rapid treatment to prevent disability and death(6). This fast service is needed when there is an emergency response. Thus, the relationship between forest fire emergency response and emergency services is that emergency response requires emergency services, because this is very important to save the health of victims affected by forest fires. Meanwhile, handling emergency response situations that are not in accordance with standards will have an impact/cause problems other than health problems, such as people's daily activities being disrupted due to smoke generated from forest fires, community activities are also disrupted in terms of ecology, social and culture. , economy, environmental damage and others(7).

The Ministry of Health has issued Minister of Health Regulation (Permenkes) Number 19 of 2016 concerning the Integrated Emergency Management System (SPGDT) which aims to improve access and quality of emergency services and speed up the response time for victims or emergency patients as well as reduce death and disability rates.(10),(12). With the Integrated Emergency Management System (SPGDT), the public can call the 119 call center to get information about which health services are best prepared to provide emergency services, advice on first aid and mobilize hospital ambulance emergency transport to pick up patients. Call center officers are doctors and nurses who have emergency competence(10). Emergency medical services via number 119 can be accessed widely and free of charge by all Indonesian people, either via cellphone or telephone at home.(13),(14).

The problems related to stakeholder collaboration include the role of the parties, both government, private sector and society, which have not been optimal in carrying out efforts to prevent and extinguish forest fires.(3), such as in the implementation of extinguishing, there are still obstacles where, for example, forest fire areas occur in forest areas that are still difficult to reach by vehicles, so carrying out extinguishing will experience difficulties. Therefore, there is a need for the role of various parties such as the government, the private sector and the entire community to always protect and preserve forests so that the number of forest fires can be reduced, and ultimately can reduce the impact that will be caused by forest fires themselves.(7).

Apart from that, it is also felt that regulations relating to forest and/or land fires have not been fully able to facilitate and improve coordination, integration, synchronization and synergy to ensure good prevention of fires at the lower (field) level.(3). Problems at the lower level (field) related to this include people lacking a sense of ownership of the land, people lacking a sense of responsibility for controlling fire, and people's attention being concentrated only on agricultural cultivation and a lack of attention to forests. This is because the government is not actively involved in forest and land fire control activities(20).

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In fact, in the field, both the government, the private sector and the community should be able to establish a collaborative relationship together in preventing forest and land fires so that the goal of preventing forest and land fires can be achieved.(21). Thus, it can be said that there is a gap, where the community lacks a sense of ownership, responsibility and attention to the forest, whereas there should be a good collaborative relationship between the community, government and the private sector in their efforts to prevent forest fires.

The problems in Pulang Pisau are related to stakeholder collaboration, including limited budget, limited communication and coordination, lack of responsibility, and limited personnel. Due to budget constraints, the government has difficulty preventing forest and land fires due to the lack of budget(23). Due to these limitations in communication and coordination, for example, the government is not actively involved in activities to control forest and land fires(20). There is a lack of responsibility, such as people who don't care about the dangers of clearing land by burning, and people also don't care that hotspots are difficult to extinguish if forest and land fires occur.(24). Due to limited personnel, this is where the shortage of personnel occurs because the number of volunteer teams and Fire Care Communities (MPA) is not proportional to the distribution of the number of fires that occur.(25).

The impacts if the above problems are not immediately addressed include the various problems that arise which can become obstacles in handling forest and land fires that occur.(24), the potential that exists in the economic and tourism sectors is threatened with being lost, thick smoke can cause plane crashes, loss of biodiversity, disruption of biodiversity and the water cycle, global warming, can cause loss of human life and damage to ecosystems if forest fires occur, as well as other negative impacts(26).

The aim of this research is to conduct an analysis of stakeholder collaboration in the emergency management system (PSC) for forest fire disaster management based on the Pulang Pisau Regent's Regulation Number 4 of 2022. It is hoped that the results of this research can become policy recommendations regarding stakeholder collaboration in the emergency management system (PSC). forest fire disaster management in Pulang Pisau Regency.

METHODS

The research design used is descriptive qualitative, namely as a step to answer the research focus/problem formulation. This research method is used because it can describe/illustrate clearly and comprehensively the problems raised, and conclude research results based on data obtained in the field. Data collection in this research was carried out through observation, interviews and documentation. In collecting qualitative data, researchers conducted interviews with several informants, such as the Head of BPBD Pulau Pisau Regency, company managers, University Public Relations, Police Agency/Polres Public Relations, Head of NGOs, and local residents. In this study, researchers determined informants using the technique of determining informants with certain considerations(27), for example, the person is considered to know and understand the problems raised by the

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researcher.

This research was carried out for 6 months, namely from October 2023 to March 2024, which was divided into 3 stages, namely: 1) preparation stage, starting from writing a proposal; 2) data collection stage, namely collecting data in the field by conducting observations, interviews with informants, and documentation; 3) final stage, including analysis of research data, preparation of final reports and recommendations.

The data analysis technique used is a qualitative data analysis technique based on the opinion of Miles & Huberman(27), which includes data reduction, data presentation, and drawing conclusions. The collected interview data was reduced and selected according to the research topic. After that, the researcher presented the data by explaining the selected data. The final process is drawing conclusions based on the results of data analysis.

RESULT

Researcherconducting research in the Pulang Pisau Regency area by collecting research data through observation, interviews and documentation. Field observations were carried out by researchers by going directly into the field. Interviews were carried out by researchers by conducting questions and answers/interviews with the informants. Documentation is taken when researchers collect research data. Researchercarry out an analysis of stakeholder collaboration in the emergency management system (PSC) for Forest Fire Disaster Management Based on Pulang Pisau Regent Regulation Number 4 of 2022 Article 1 point 20 which contains "Integrated forest and/or land fire prevention is all efforts, actions or activities carried out to preventing or reducing the possibility of forest and/or land fires occurring sustainably involving related parties in a planned, coordinated and comprehensive manner by combining activities and/or resources (infrastructure and funds) owned so that fires do not occur.

In Pulang Pisau Regent's Regulation Number 4 of 2022 there are five important indicators in the implementation of the Regency Regulation, namely:

1. Indicators for planning forest fire prevention and control programs are based on the objectives of Pulang Pisau Regent Regulation Number 4 of 2022 in Article 3 point a, namely providing guidelines for planning integrated forest and land fire prevention.
2. Indicators of coordination, integration and synergy of forest fire prevention programs based on Pulang Pisau Regent's Regulation Number 4 of 2022 in Article 2 which contains this Regent's Regulation are intended as guidelines for all parties in coordinating, integrating and synergizing programs and activities to support forest and land fire prevention. .
3. Indicators of the role of BPBD and stakeholders in managing forest fire disasters based on Pulang Pisau Regent Regulation Number 4 of 2022 Articles 22,23 and 24.
4. Forest fire risk indicators are based on Pulang Pisau Regent Regulation Number 4 of 2022 Article 12 which states that the Regional Government develops community land use and utilization programs that support fire prevention programs and reduce the risk of forest and land fires.

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5. Economic and intensive empowerment indicators based on Pulang Pisau Regent Regulation Number 4 of 2022 Article 4 point b which reads Economic Empowerment and Incentives in supporting the prevention of forest and land fires; Economic and intensive empowerment cannot be separated from the obstacles faced and solutions to overcome these obstacles.

The concept of implementing the Pulang Pisau Regent's Regulation Number 4 of 2022 with five important indicators, namely Indicators for Forest Fire Prevention and Management Program Planning, provides guidance in planning integrated forest and land fire prevention (Article 3 point a) and developing an integrated forest fire prevention plan and coordinated.

Indicators for Coordination, Integration and Synergy of the Forest Fire Prevention Program encourage coordination, integration and synergy of programs and activities to support the prevention of forest and land fires (Article 2) by establishing coordination between stakeholders, integrating programs into joint action plans and increasing synergy between institutions related.

Indicators for the Role of BPBD and Stakeholders in Managing Forest Fire Disasters ensure the role of BPBD and stakeholders in managing forest fire disasters (Articles 22, 23 and 24), Formulating the roles and responsibilities of BPBD and other related parties, implementing coordination and training, as well as monitoring and evaluation performance.

Forest Fire Risk Indicators develop land use and utilization programs that support fire prevention programs and reduce the risk of forest and land fires (Article 12) by identifying and evaluating forest fire risks, developing sustainable land use programs, and implementing fire risk reduction practices.

Economic Empowerment and Incentive Indicators encourage economic empowerment and incentives in overcoming obstacles to forest and land fire prevention (Article 4 point b) by developing local economic empowerment programs, providing incentives for communities involved in fire prevention activities, as well as identifying and resolving obstacles that affect efforts fire prevention.

The description of the aspects mentioned above is based on research results from interviews conducted with the following results:

1. Indicators for planning forest fire prevention and control programs based on the objectives of Pulang Pisau Regent's Regulation Number 4 of 2022 in Article 3 point a, namely Providing guidelines for planning the prevention of forest and land fires in an integrated manner by showing a series of steps aimed at reducing the risk of forest fires and ensuring that If a fire occurs, it can be handled effectively by involving stakeholders.
   a. The planning for the fire prevention and control program at the BPBD has prepared a forest fire prevention and control program in accordance with what is stated in the Pulang Pisau Regent's Regulation Number 4 of 2022 as a result of an interview with the Head of the BPBD of Pulau Pisau Regency who stated:
   "Already. The program is created once a year before the APBD is determined, but develops according to current circumstances and conditions."

b. Planning for fire prevention and control programs at BPBD involves stakeholders including local companies and universities. In an interview with the Company Manager it was said that:

"The company participates in the forest fire prevention program in accordance with what is stated in the Pulang Pisau Regent's Regulation Number 4 of 2022."

Likewise, the results of interviews with University Public Relations stated that:

"Universities participate in forest fire prevention programs in accordance with what is stated in the Pulang Pisau Regent's Regulation Number 4 of 2022."

c. Fire prevention and control programs from stakeholders are also important for independence. In an interview with the Company Manager it was said that:

"The company has its own forest fire prevention system."

University Public Relations explained in more detail that:

"Universities have their own forest fire prevention system. "The system for preventing forest fires includes: 1) Education and counseling, 2) Research and innovation, 3) Strategic policy development, 4) Collaboration with related parties, 5) Monitoring and evaluation and 6) Sustainable campus land management."

These programs are usually managed by governments, NGOs and conservation organizations with the aim of protecting forests and the environment and the safety of the people living around them.

The company has created a forest fire prevention and control program as per an interview with the Company Manager, namely:

"Together with the local government, the company carries out monitoring and early detection in the company area and its surroundings, training and education for company employees and workers, patrolling the company area, collaborating with the local government and related parties, investing in equipment and recovery and rehabilitation."

2. Indicators of coordination, integration and synergy of forest fire prevention programs based on Pulang Pisau Regent Regulation Number 4 of 2022 in Article 2 which contains this Regent's Regulation are intended as guidelines for all parties in coordinating, integrating and synergizing programs and activities to support forest and land fire prevention . Coordination between the Regional Disaster Management Agency (BPBD) and stakeholders is very important in strengthening forest fire prevention programs.

a. The prevention program that has been prepared by BPBD has been coordinated with programs related to preventing forest fires which have also been created by other related parties (both in terms of type of activity, activity budget, planned implementation time and implementation location). The Head of BPBD said in the interview session as follows:

"Good coordination between BPBD and other related parties will increase efficiency and effectiveness in preventing and controlling forest fires and ensure that all aspects of the program have been properly considered."

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b. BPBD in carrying out its programs and activities has not yet collaborated well with the Forest Fire Control Task Force Command in terms of disaster emergencies, as said by the Head of BPBD in his interview:

"Overcoming this problem requires a strong commitment from all relevant parties to work together, share resources, improve coordination, and strengthen capacity in handling forest fires. "There is also a need for a holistic and sustainable approach in forest fire management that involves active participation from all stakeholders."

Likewise, collaboration or coordination with other stakeholders is still not optimal even though everyone is involved, including the community and NGOs. The community is given adequate equipment when a forest fire occurs. Equipment assistance was provided and community self-help was added, but it was still not optimal.

Integration and synergy of disaster management control, namely disaster management control carried out by BPBD and stakeholders.

d. The chairman of BPBD said that the disaster management carried out by BPBD in the pre-disaster phase was as follows:

"By carrying out these actions in a systematic and planned manner, BPBD can help reduce the risk of forest and land fires and increase community preparedness in facing these disasters."

e. Forest fire prevention has also been ongoing at the company, the Company Manager said that:

"Forest fire prevention is already underway within the company area."

f. The police have sforest and land fire prevention system that has been running so far. According to the Police Public Relations, it was said that:

"The prevention system implemented is: Patrol and supervision, Law enforcement, Counseling and education to the community, Cross-sector cooperation, Monitoring and early detection and Preparation and training."

g. Activities to prevent forest fires have also been carried out by NGOs. According to the head of the NGO he said that:

"We take part in carrying out outreach and providing education to the community, take part in efforts to extinguish fires, carry out policy advocacy in implementing government programs regarding forest fire management and participate in establishing cross-sector collaboration."

3. Indicators of the role of BPBD and stakeholders in managing forest fire disasters based on Pulang Pisau Regent Regulation Number 4 of 2022 Articles 22,23 and 24.

a. The role of BPBD in managing forest fire disasters has not been able to carry out its duties and functions in accordance with Pulang Pisau Regent Regulation Number 4 of 2022 according to an interview with the head of the BPBD Agency who said

"In carrying out its duties and functions, BPBD is still not running in accordance with the Pulang Pisau Regent's Regulation Number 4 of 2022, this happens because: Monitoring and Detection, namely the extent of forest land in Pulang

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Pisau Regency and the condition of the forest which is peat land and the lack of equipment which results in very the difficulty of monitoring and detecting and coordinating with related parties, namely the lack of understanding and responsibility of related agencies, community volunteers, NGOs in handling and preventing forest fires, has resulted in less than optimal implementation of Pulang Pisau regency regulation number 4 of 2022. BPBD has provided fire monitoring or early detection technology, however Currently BPBD only has a few tools such as drones and fire sensors at several points in collaboration with local companies. BPBD requires satellite imagery technology which is planned to be available in the near future. BPBD Applications also provides Mobile applications for Community Empowerment. Developing a mobile application that provides information about the dangers of forest fires, preventive measures and emergency steps that must be taken by the community can help in increasing awareness and preparedness of the community at large and a Community-Based Geographic Information System (GIS), namely the development of a community-based GIS platform that enable active community participation in monitoring and reporting potential forest fires, as well as identifying fire-prone areas and necessary prevention efforts."

b. According to the company manager, the company's role in the forest fire prevention program is as follows:

   "The company's role includes: Monitoring and early detection in the company area and its surroundings. Training and education for company employees and the surrounding community using technological patterns. Using virtual reality (VR) technology to provide training and simulations for extinguishing forest fires for officers and volunteers. This will help in improving their skills without having to carry out direct training in the field, which may be difficult to access or expensive, Patrol the company area and surrounding areas, Collaborate with local governments and related parties and provide equipment assistance."

c. The role of the police agency in the forest fire prevention program, as stated by the Police Public Relations, is:

   "The police together with related parties carry out: Patrols and supervision, Counseling and education to the community, Monitoring and early detection as well as Preparation and training. The police also carry out social media-based education and awareness, namely utilizing social media and other digital platforms as a tool to disseminate information about the dangers of forest fires, the importance of environmental conservation, and steps that individuals can take to protect the environment..".

d. The role of universities in forest fire prevention programs, as stated in interviews with University Public Relations, is that:

   "Our role is to provide education and counseling to the public about the dangers of forest fires and their consequences, Conduct research and development of technology and methods in preventing forest fires, Carry out information

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management and education by providing the latest information and by providing education to the community, Carrying out discussions and creating networks between academics, practitioners, government and society in preventing forest fires and implementing environmental restoration with related parties. "We also carry out research and development of fire extinguishing technology, namely investing in research and development of fire extinguishing technology that is more effective and environmentally friendly, such as the use of non-toxic chemicals or sensor-based automatic fire extinguishing systems."

e. The form of community involvement in forest fire management according to the opinion of one of the local residents the author interviewed is:

"Citizen involvement usually takes the form of reporting suspicious activities either directly or through applications and social media, participation in patrols and surveillance, formation of volunteers, assistance in extinguishing fires and community awareness campaigns."

f. The form of NGO involvement in forest fire management was said by the Head of the NGO to be:

"We carry out outreach and education, assist in carrying out monitoring and early detection, carry out fire extinguishing, carry out environmental restoration, policy advocacy and cross-sector cooperation."

4. Forest fire risk indicators are based on Pulang Pisau Regent Regulation Number 4 of 2022 Article 12 which states that the Regional Government develops community land use and utilization programs that support fire prevention programs and reduce the risk of forest and land fires. The impacts and risks if a forest fire occurs are certainly very detrimental to stakeholders.

a. Based on interviews, the risks faced by the business world if a forest fire occurs are as follows:

"Risks faced by the business world include: financial losses, operational disruptions, employee health and safety, company reputation, legal and regulatory demands and economic and social losses."

b. The risks faced by universities if a forest fire occurs based on the results of interviews are:

"The risks faced by universities if a forest fire occurs namely disruption of academic activities, threats to the safety of students and staff, damage to facilities and infrastructure, campus health problems and economic losses."

c. The impact felt by the community when a forest fire occurs.

"We, the local community, will definitely feel the impact if a forest fire occurs, such as health problems, economic losses, safety, environmental damage, loss of assets and psychological impacts."

5. Economic and intensive empowerment indicators based on Pulang Pisau Regent Regulation Number 4 of 2022 Article 4 point b which reads Economic Empowerment and Incentives in supporting the prevention of forest and land fires; Economic and

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intensive empowerment cannot be separated from the obstacles faced and solutions to overcome these obstacles. The obstacles faced by BPBD and stakeholders are different so they require different handlers.

a. The obstacles faced by BPBD in managing forest fire disasters are:

"The obstacles we face are 1) Limited Resources: One of the main obstacles is limited budget, personnel and fire fighting equipment which can limit BPBD's ability to respond to forest fires effectively, 2) Coordination between agencies: Lack of coordination and collaboration between various government and non-government institutions, including local governments, related agencies, and NGOs, can hinder the efficiency and effectiveness of mitigation efforts, 3) Extreme Weather Conditions: Extreme weather factors such as prolonged drought or strong winds can exacerbate the risk of forest fires and complicate mitigation efforts , 4) Conflict of Interest: Sometimes there is a conflict of interest between various related parties, for example between economic interests and environmental protection, which can hinder cooperation in handling forest and land fires, 5) Lack of Public Awareness: Lack of public awareness and understanding about the dangers of forest fires and how to prevent them can reduce the effectiveness of prevention and control efforts, 6) Use of Fire in Agriculture: The practice of burning land to clear agricultural land can be a major source of forest fires. Changing this behavior requires a comprehensive social, economic and educational approach, and 7) Climate Change: Climate change can increase the frequency and intensity of forest fires, thereby adding complexity to forest and land fire disaster management."

b. Factorinternal barrierForest fire disaster management for police agencies is:

"Limitations of human resources, difficult geographical conditions, limitations of technology and equipment, coordination between institutions, legal and regulatory limitations, level of public awareness and education, climate change and extreme weather and conflicts of interest and land."

c. The problems faced by the community in dealing with forest fires are:

"Limited knowledge, Dependence on traditional practices such as burning agricultural land, Inability to access information, Indifference and lack of awareness, Limited skills in extinguishing fires".

d. The problems faced by NGOs in dealing with forest fires are:

"Limited human resources and financial resources, limited access to data and information, dependence on external support, lack of coordination, limited logistics and access and socio-political challenges."

e. The solutions that have been implemented by BPBD to reduce the risks/impacts caused by forest fire disasters as stated in the results of the interview with the head of BPBD are:

"The solution we are implementing is Socialization of Regulations and Prohibitions: BPBD socializes regulations and prohibitions related to activities that can cause

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fires, such as open burning and the use of fire in agricultural activities. Preparation of Disaster Management Plans: BPBD prepares disaster management plans for forest and land fires which include risk identification, mitigation strategies, evacuation procedures, and resource allocation., Training and Simulation: BPBD trains disaster management officers and volunteers in handling forest fires, including fire extinguishing techniques, evacuation, and use of fire fighting equipment, Monitoring and Early Detection: BPBD monitor weather and fire conditions continuously, and use monitoring technology such as satellites and sensors to detect fires early. Cooperation and Coordination: BPBD collaborates with various related parties, including local governments, related agencies, NGOs and local communities , to improve coordination in efforts to prevent and deal with forest and land fires, Sustainable Land Management: BPBD collaborates with related parties to manage land sustainably, including controlling illegal land burning and managing vegetation that is vulnerable to fire."

f. Solutionfrom internal inhibiting factorsforest fire disaster management for police agencies based on interview results, namely:

"Our solution for the police is strengthening human resources, improving and strengthening technology and equipment, increasing cross-sector collaboration, strict law enforcement, education and outreach to the community, preparing emergency response plans and involving local communities."

Discussion

Pulang Pisau Regent's Regulation Number 4 of 2022 can be an important legal basis for regulating various aspects related to preventing and controlling forest fires in the area. This regulation regulates the formation and authority of the Pulang Pisau Regional Disaster Management Agency (BPBD), including its duties and responsibilities in managing the risk of forest fires in the area. It regulates coordination between BPBD and other related parties such as companies, universities, police, NGOs and the community. in efforts to prevent and control forest fires.

Indicators for planning forest fire prevention and control programs

The forest fire prevention and control program has been prepared in a thorough plan by BPBD and implemented by involving stakeholders such as local companies and universities. This shows a commitment to reducing the risk of fire and increasing the effectiveness of responses in handling emergencies. Companies and universities have their own forest fire prevention systems, showing active participation in risk mitigation efforts. Collaboration between BPBD, companies and universities forms a solid foundation in preventing and controlling forest fires. It is hoped that the Pulang Pisau Regent's Regulation Number 4 of 2022 will describe efforts to prevent and control forest fires that are officially regulated at the local level, as well as coordination and the roles of stakeholders being mapped. This is important to ensure that the implementation of forest fire prevention and control programs can proceed according to plan and be well coordinated between all parties involved.

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Based on the analysis of planning indicators for forest fire prevention and control programs regulated in Pulang Pisau Regent Regulation Number 4 of 2022, it can be concluded that the steps that have been taken cover various important aspects, including the creation of planning guidelines, stakeholder involvement, and program implementation with concrete steps such as education, monitoring, rapid response, risk management, law enforcement, collaboration and ecosystem restoration. The involvement of various parties such as local governments, companies and universities also illustrates that there is awareness of the importance of cross-sector collaboration in efforts to prevent and control forest fires.

Public health workers can collect data on the impact of forest fires on public health, including respiratory problems, mental health disorders, and other impacts. They can then analyze this data to identify the most vulnerable areas and most affected populations so as to integrate health aspects in prevention program planning.

Indicators of coordination, integration and synergy of forest fire prevention programs

Coordination, integration and synergy of forest fire prevention programs are crucial factors in the implementation of Pulang Pisau Regent Regulation Number 4 of 2022. This Perbup encourages cooperation and communication between various related parties to achieve harmony in the implementation of forest fire prevention programs. Development of a joint action plan that integrates various forest fire prevention programs implemented by various agencies and stakeholders. Integration also involves adapting policies, strategies and best practices to achieve shared goals. This Perbup also identifies opportunities for collaboration between various forest fire prevention programs and activities, including sharing resources, joint training, and developing joint initiatives. Synergy also involves creating an environment that supports cooperation between various parties to achieve the same goals.

Although coordination between BPBD and several related parties has been going well, there are obstacles in collaborating with the Forest Fire Control Task Force Command. Lack of coordination can hamper efficiency in handling fires. Overlapping tasks and limited resources become obstacles to collaboration. A lack of shared understanding and awareness of different responsibilities and priorities can hinder agreement on coping strategies.

Coordination, integration and synergy in forest fire prevention and control programs, as regulated in Pulang Pisau Regent Regulation Number 4 of 2022 are very vital. Good coordination between the Regional Disaster Management Agency (BPBD) and various stakeholders is the key to strengthening the program. Even though there have been coordination efforts made by BPBD with relevant stakeholders, there are still deficiencies in collaboration with the Forest Fire Control Task Force Command and several other problems such as limited resources, lack of public awareness, and conflicts of interest. Health workers must collaborate with various related agencies, including BPBD, companies, police, NGOs and local communities, to increase synergy in efforts to prevent and control forest fires.

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Indicators of the role of BPBD and stakeholders in managing forest fire disasters

BPBD has taken a number of preventive and preparatory measures to reduce the risk of forest fires. The use of advanced technology such as drones, remote sensors and satellite monitoring systems has a crucial role in detecting forest fires more quickly and accurately. The advantage of using this monitoring and early detection technology is that it allows rapid detection of hotspots before the fire spreads and becomes a bigger fire. large area, capable of efficiently monitoring large areas of forest, even in areas that are difficult to access, providing real-time information to disaster management officials to respond to fires in a timely manner and enabling efficient allocation of resources by directing officers and equipment to fire locations quickly. highest priority. The mobile applications provided, Gis applications and social media are also important, namely that people can easily access information about forest fires and actions to be taken via their mobile devices, whenever and wherever they are. With guidance on emergency steps and early notification, the community can be better prepared to face forest fires and respond quickly. This application and social media can also provide a platform for the community to participate in prevention efforts forest fires by providing reports of suspicious activity or conditions that have the potential to cause a fire. The role of conducting virtual training and simulations is also important and innovative, that is, officers and volunteers can improve their skills in fighting forest fires by carrying out realistic and repetitive exercises, they can experience experiences similar to emergencies without the real risks associated with real fires. , Virtual training can be conducted more efficiently without having to set locations or deal with certain environmental constraints and by reducing the need for direct training in the field, the use of virtual reality technology can save operational costs.

BPBD, companies, police agencies, universities, NGOs and the community have played an active role in managing forest fire disasters and can collaborate with good coordination, effective monitoring, targeted training, and providing high public awareness so as to support prevention efforts and forest fire management.

Even though there have been efforts to carry out their respective roles, there are several obstacles that hinder optimal implementation, namely BPBD and other stakeholders face limited resources such as monitoring and fire extinguishing equipment which affects the effectiveness of forest fire management. Then the lack of understanding and coordination and technical challenges such as the extent of forest land, peat conditions, and lack of monitoring equipment make it difficult to monitor and detect early fires.

Public health workers can play a role in providing education and counseling to the public about the dangers of forest fires and how to deal with emergency situations related to fires and providing emergency health assistance to victims of forest fires, including treating burns and other health problems that arise as a result of these incidents.

Forest fire risk indicators

Forest fires have a significant impact on the business world, universities and surrounding communities. Financial risks, operational disruptions, and economic and social losses need to be considered in mitigation efforts. Obstacles such as limited resources, lack

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of coordination, and natural factors are challenges in preventing forest fires. Required solutions include increased resources, improved coordination, and a holistic approach to risk mitigation. Gaillard, Liamzon, and Villanueva (2007) discussed the importance of community-based approaches in reducing disaster risk, including forest fires. They highlight the active role of communities in identifying risks, building capacity, and planning and implementing disaster prevention and management measures. Coordination between various stakeholders, including regional disaster management agencies (BPBD), companies, universities and NGOs, is also a focus in disaster prevention and management efforts.

Based on the description above, it can be concluded that the risk of forest fires has a broad impact on various stakeholders. The business world faces financial risks, operational disruptions, impacts on employee health and safety, company reputation, and legal and regulatory demands. Higher education institutions experience the risk of disruption to academic activities, threats to student and staff safety, damage to facilities and infrastructure, campus health problems, and economic losses. The surrounding community feels direct impacts such as health problems, economic losses, threats to safety, environmental damage, loss of assets, and psychological impacts.

The weakness in this aspect is that there are no concrete steps that must be taken by health workers in dealing with the risk of forest fires. Health workers must be able to play a role in minimizing the impact on public health and providing the support needed when facing the risk of forest fires.

Economic and intensive empowerment indicators

Economic and intensive empowerment can support the prevention of forest and land fires, as well as solutions that have been implemented to overcome the obstacles faced. The obstacles faced by the BPBD (Regional Disaster Management Agency) are: Limited Resources, namely limited budget, personnel and fire fighting equipment. Inter-Agency Coordination, namely lack of coordination and collaboration between various government and non-government institutions. Extreme Weather Conditions are extreme weather factors such as prolonged drought or strong winds. Conflict of Interest: Sometimes there is a conflict of interest between economic interests and environmental protection. Lack of Public Awareness, namely lack of public awareness and understanding about the dangers of forest fires. The Use of Fire in Agriculture is the practice of burning land to clear agricultural land. Climate Change is climate change that increases the frequency and intensity of forest fires.

The solutions that have been implemented by BPBD include socializing regulations and prohibitions related to activities that can cause fires, preparing disaster management plans for forest and land fires, training disaster management officers and volunteers, continuously monitoring weather and fire conditions, collaborating and coordinating with various related parties, Sustainable land management to reduce the risk of fire.

The solution to the inhibiting factors is strengthening human resources, improving and strengthening technology and equipment, increasing cross-sector collaboration, strict law enforcement, education and outreach to the community, preparing emergency response plans, involving local communities.

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Supporting factors in forest fire disaster management according to police agencies are the availability of human resources with requests for higher level support, cross-sector cooperation, authority to enforce law, involvement of local communities. This innovative partnership between the public sector, namely BPBD and stakeholders, is a strong collaborative approach in overcoming challenges such as forest fires. The concept of collaboration that can be explained from the Pulang Pisau Regent's Regulation Number 4 of 2022 is:

a. Strategic Collaboration.
b. Support in Innovation Development.
c. Equitable Access and Benefits.
d. Sustainable Resources.
e. Sustainability and Scalability.

Through intensive and economic empowerment efforts as well as implementing the solutions that have been implemented, we can reduce the risks and impacts caused by forest fire disasters effectively and sustainably. Economic empowerment and intensive efforts to support the prevention of forest and land fires require cross-sector cooperation, investment in human resources and technology, as well as awareness and active participation from all stakeholders to achieve optimal results in reducing the risk and impact of forest fires.

Researchers identified a number of deficiencies faced by various parties, including the Regional Disaster Management Agency (BPBD), police agencies, communities and NGOs. These obstacles include limited resources, lack of coordination between agencies, extreme weather conditions, and climate change. Health workers can act as important agents in intensive economic empowerment efforts in supporting forest fire prevention, with a focus on protecting public health and providing necessary medical assistance during emergencies.

CONCLUSION

From this research, several new findings that can be input for local governments and related units are as follows: Multi-Stakeholder Involvement. This research highlights the importance of multi-stakeholder involvement in forest fire management. This includes cooperation between the Regional Disaster Management Agency (BPBD), police agencies, NGOs, universities, local communities and the private sector. Local governments need to strengthen this cross-sector cooperation through the establishment of effective coordination mechanisms; Community Awareness and Education. This research highlights the importance of increasing public awareness and understanding about the dangers of forest fires and how to prevent them. Local governments need to intensify outreach and education programs for communities about practices that can reduce the risk of forest fires, such as the use of fire in agriculture; Improved Resources and Technology. This research identifies limited resources, both in terms of budget, personnel and technological equipment, as the main obstacle in controlling forest fires. Local governments need to allocate more resources to increase the capacity of BPBD and related units to detect,

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prevent and respond to forest fires, including investment in monitoring and early detection technology; Law Enforcement and Regulations. This research shows that there are conflicts of interest and legal issues that can hamper efforts to control forest fires. Local governments need to strengthen enforcement of laws and regulations, as well as improve coordination between relevant agencies in dealing with this problem; Active Community Participation. This research emphasizes the importance of active community participation in fighting forest fires, including reporting suspicious activity, participating in patrols and monitoring, and forming volunteers. Local governments need to provide support and incentives for communities to play an active role in efforts to prevent and control forest fires. Taking into account the research findings, the following can be recommended: Development of an Emergency Response Plan by preparing and implementing a detailed and coordinated emergency response plan involving all relevant stakeholders. This plan should include clear mitigation strategies, evacuation procedures, and resource allocation; Strengthening Coordination and Communication between all related parties, including BPBD, police agencies, NGOs, communities and other related sectors. This can be done through the establishment of regular forums, coordination meetings, and the use of effective communication platforms; Community Outreach and Education by conducting outreach and education programs to the community about the dangers of forest fires, how to prevent them, and emergency actions that must be taken.Communities need to be made aware of their role and responsibility in protecting the environment and reducing the risk of forest fires; Increasing Resources and Technology, namely increasing resource allocation, both in terms of budget, personnel and fire fighting equipment. Additionally, investment in forest fire monitoring and early detection technology is also important to improve rapid response to fires; Increasing Cross-Sector Cooperation, namely encouraging cross-sector cooperation between local governments, the private sector and the community in efforts to prevent and manage forest fire disasters. This collaboration may include establishing partnerships with companies that have interests related to forest and environmental management.

REFERENCES

1. Yusuf A, Hapsoh, Siregar SH, Nurrochmat DR. Analisis Kebakaran Hutan Dan Lahan Di Provinsi Riau. Din Lingkung Indones. 2019;6(2):67–84.
2. Ahdiat A. Luas Kebakaran Hutan Indonesia Capai 267 Ribu Hektare sampai Agustus 2023 [Internet]. 2023. Available from: https://databoks.katadata.co.id/datapublish/2023/09/20/luas-kebakaran-hutan-indonesia-capai-267-ribu-hektare-sampai-agustus-2023
3. Maylani T, Mashur D. Collaborative Governance Dalam Pencegahan Kebakaran Hutan Dan Lahan Gambut. J Kebijak Publik. 2019;10(2):59–118.
4. Aditama TY. Dampak Kesehatan akibat Kebakaran Hutan [Internet]. 2023. Available from: https://mediaindonesia.com/kolom-pakar/619597/dampak-kesehatan-akibat-kebakaran-hutan
5. Madrasah Education Quality Reform (REP-MEQR). Panduan Kesiapsiagaan dan

Analysis Of Stakeholder Collaboration In The Emergency Management System (PSC) For Forest Fire Disaster Management Based On Pulang Pisau Regent Regulation Number 4 Of 2022–Lambang Suncoko et.al

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Penanganan Tanggap Darurat. Proy Realiz Educ Promise. 2021;1–18.

6. Apriani, Febriani S. Hubungan Kegawatdaruratan dengan Waktu Tanggap Pada Pasien Jantung Koroner. J Kesehat [Internet]. 2017;VIII(3):471–7. Available from: http://ejurnal.poltekkes-tjk.ac.id/index.php/JK/article/view/668

7. Wahyudi MR. Manajemen Penanganan Tanggap Darurat Bencana Kebakaran Hutan Dan Lahan Di Kabupaten Mempawah. Jurnal. 2022;1–13.

8. Mahyawati, Widaryati. Hubungan Kegawatdaruratan Pasien Dengan Waktu Tanggap Perawat di IGD RS PKU Muhammadiyah Yogyakarta. Yogyakarta: STIKES Aisyiah Yogyakarta; 2015.

9. Ihtiarni AS. Kolaborasi Stakeholder Dalam Program Ambulans Ibu Hamil, Bersalin, Bencana Alam, Dan Gawat Darurat Di Kecamatan Tawangmangu Kabupaten Karanganyar Provinsi Jawa Tengah. J Pemerintah dan Keamanan Publik (JP dan KP). 2023;5(1):30–44.

10. Yudhanto Y, Suryoputro A, Budiyanti RT. Analisis Pelaksanaan Program SPGDT Di Indonesia. Media Kesehat Masy Indones. 2021;20(1):31–40.

11. Haryatun N, Sudaryanto A. Perbedaan Waktu Tanggap Tindakan Keperawatan Pasien Cedera Kepala Kategori I – V di Instalasi Gawat Darurat RSUD dr. Moewardi. Ber Ilmu Keperawatan. 2008;1(2):69–74.

12. Peraturan Menteri Kesehatan RI. Peraturan Menteri Kesehatan (Permenkes) Nomor 19 tahun 2016 Tentang Sistem Penanggulangan Gawat Darurat Terpadu (SPGDT). Jakarta: Kementerian Kesehatan RI; 2016.

13. Hernandez L. Design and Implementation of a Marking Strategy to Increase the Contact Ability in the Call Centers Based on Machine Learning. Int J Adv Sci Eng Inf Technol. 2019;9(1):1–7.

14. Taufiqurokhman, Murod M, Satispi E, Andriansyah, Agusinta L. Inovasi Layanan Call Center 119 Kesehatan Di Indonesia: Problem Kesiapan Aparat. Matra Pembaruan J Inov Kebijak. 2022;6(2):95–105.

15. Rasooli P. Knowledge Management in Call Centers Knowledge Management in Call Centers Supervisors. Knowl Creat Diffus Util. 2019;02(06):112–30.

16. Purba SM, Johana, Hidayati. J. Performance Improvement Strategies to Increase Call Center Service Level: A Literature Review. IOP Conf Ser Mater Sci Eng. 2020;801(1).

17. Hartono AS. Analisis Kolaborasi Stakeholder Dalam Sistem Penanggulangan Gawat Darurat Terpadu (SPGDT) Melalui Perspektif Collaborative Governance (Studi Kebijakan Public Safety Center berdasarkan Peraturan Bupati Tulungagung Nomor 30 Tahun 2016 tentang Sistem Penan. Surabaya: Universitas Airlangga; 2020.

18. Dorisman A, Muhammad AS, Setiawan R. Kolaborasi Antar Stakeholder Dalam Penanggulangan Kecelakaan Lalu Lintas. JIANA J Ilmu Adm Negara. 2021;19(1):70–83.

19. Kementerian Pertahanan. Keputusan Kepala Badan Pendidikan dan Pelatihan Nomor: KEP/98/IV/2016 Tentang Bahan Pembelajaran Pencegahan dan Mitigasi. Jakarta: Kementerian Pertahanan RI, Badan Pendidikan dan Pelatihan; 2016.

Analysis Of Stakeholder Collaboration In The Emergency Management System (PSC) For Forest Fire Disaster Management Based On Pulang Pisau Regent Regulation Number 4 Of 2022—Lambang Suncoko et.al

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