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Collaboration Between the Indonesian National Police and the Community in Preventing Illegal Mining in the Tembelok Sea Area

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ABSTRACT

Illegal tin mining in Tembelok Sea, West Bangka, has caused massive environmental impacts, such as coral reef damage, a 30% decrease in fish catches, and triggered unrest and social conflicts in coastal communities. This exploratory qualitative research aims to analyze collaboration strategies between the Indonesian National Police (Polri) and the community in preventing such illegal activities. Data were collected through interviews, observations, and document studies, then analyzed using the Law Enforcement Theory, Collaborative Policing, and Crime Prevention approaches. The research results show that joint patrols are an effective integrated strategy, integrating primary prevention approaches (socialization, "Alert Fishermen" training, drone/GIS technology), secondary (focused patrols, community reports), and tertiary (firm law enforcement, environmental rehabilitation). This collaboration is driven by inter-agency synergy (Polri, Indonesian Navy, Bakamla), active community participation, and open communication. However, challenges such as overlapping authorities, limited resources, intimidation of reporters, and lack of integrated data platforms still hinder its effectiveness. To ensure sustainability, it is recommended to establish a permanent task force, develop anonymous digital reporting applications, and launch alternative economic empowerment programs, such as seaweed cultivation. In conclusion, the Polri-community collaboration has the potential to create an inclusive and sustainable monitoring system to maintain the preservation of marine ecosystems and the socio-economic stability of the Tembelok coastal community.

Keywords: Collaboration, Illegal Mining, Joint Patrol, Tembelok Sea

1. Introduction

Tin mining in the Bangka Belitung Islands has been an economic pillar since the Palembang Sultanate era before colonialism, continuing into post-independence Indonesia in the mid-20th century. This activity has not only shaped livelihoods but also the social and cultural identity of local communities. This change triggered the proliferation of illegal mines outside mining authority areas (KP), including in production forests and agricultural land, worsening environmental damage and causing state financial losses of up to US$13.5 million per year due to lost 3% royalties and smuggling of unbranded tin.

Illegal mining has caused significant social and environmental impacts in Bangka Belitung. According to Rahayu et al. (2023), this phenomenon creates a "resource curse," transforming community culture from farmers and fishermen to miners, threatening local identity and triggering environmental and social injustice. Ecosystem damage, such as marine sedimentation and loss of productive land, disrupts traditional livelihoods, while economic competition triggers conflicts among residents. Minimal supervision and overlapping authority among agencies, as regulated in Law No. 4 of 2009 on Mineral and Coal Mining and Minister of

Trade Regulation No. 04/M-DAG/PER/1/2007 (revision No. 32/M-DAG/PER/6/2013), exacerbate the situation. Weak law enforcement, including rejection of community reports due to lack of criminal evidence, reduces public trust in authorities.

In the Tembelok Sea area, West Bangka Regency, illegal tin mining has become a crucial issue triggering community unrest. Based on reports from the West Bangka Police Resort (2024), from 2022 to 2024, there were 8 official reports related to illegal activities, causing coral reef damage and a decrease in fish catches of up to 30% (Jihan et al., 2022). As many as 65% of fishermen reported decreased income, while a survey by the Bangka Belitung Environmental NGO (suaramelayu.co.id, 2023) revealed 70% of residents were anxious due to social conflicts, with 12 cases of inter-resident conflicts recorded in 2023 (West Bangka Police Resort Report, 2023). Allegations of involvement by rogue officials, such as local media reports about a West Bangka Police Resort officer requesting "fees" from diving pontoons (Tropedo.id, 2025), further worsen public distrust. Therefore, this research aims to formulate joint patrol strategies between Polri and the community to prevent illegal mining in Tembelok Sea, to create a sense of security, reduce social unrest, and ensure effective law enforcement.

Prevention of illegal mining in the Tembelok Sea area can be analyzed using three theories: Law Enforcement Theory (Sanyoto, 2008; Soekanto, 2007), which emphasizes the importance of law enforcement to create order and legal certainty in society, both through preventive actions before violations occur and repressive actions after violations. This theory is relevant because illegal mining activities in Tembelok Sea reflect law enforcement failures due to factors such as regulatory weaknesses, lack of coordination among law enforcers, and limited facilities such as patrol boats (Soekanto, 2007). Community unrest due to report rejection shows the lack of law enforcement effectiveness in providing justice and legal certainty.

International experience shows that effective strategies for dealing with illegal mining combine firm law enforcement, technology utilization, and creation of alternative livelihoods. As in Ghana (Hilson & Maconachie, 2020), joint patrol operations and heavy sanctions successfully reduced illegal activities. This success is often complemented by economic programs, such as agribusiness programs in Malaysia (Ahmad, 2022), which offer alternatives for illegal miners. This repressive and empowerment approach has proven capable of significantly suppressing illegal mining activities. On the other hand, monitoring technology and environmental rehabilitation become crucial supporting pillars. However, challenges such as local corruption, as well as weak coordination in Malaysia (Ahmad et al., 2021), remain obstacles that need to be anticipated in designing strategies for Tembelok Sea.

In Indonesia, main tin mining regulations such as Law No. 4 of 2009 theoretically have regulated all operational stages and sanctions, but in implementation face multidimensional challenges, ranging from weak inter-agency coordination causing overlapping authorities and slow handling of community reports, minimal application of modern monitoring technology such as satellites or drones, sanction inconsistency due to alleged involvement of rogue officials, to the absence of large-scale empowerment programs as alternative livelihoods for illegal miners, which overall causes the cycle of illegal activities to continue repeating. Weak regulations in Indonesia, marked by unclear legal norms, overlapping authorities, and light sanctions, are the main obstacles in enforcing illegal mining laws. This situation contrasts sharply with the strict legal framework consistently applied in various developed countries.

Based on various regulatory studies from these countries, it is known that their regulations stand out due to technology integration, transparency, and community involvement, which can be adopted and adapted as a model for Indonesia to strengthen Law No. 4/2009 and its derivative regulations. This approach enables the creation of a more effective, participatory, and accountable monitoring system, thus able to close legal loopholes that have been exploited by illegal mining actors and increase compliance with applicable legal provisions.

Global studies on illegal mining handling strategies strengthen the urgency of this research, because illegal tin mining problems in Tembelok Sea are proven to have global implications by disrupting the world tin supply chain (Ahmad, 2022) and contributing to environmental damage that contradicts Paris Agreement commitments. The increase in illegal activities reflected by the growth in the number of miners to 150-200 people in 2024 and involving 10-15 shell companies (West Bangka Police Resort Report, 2023) shows the failure

of handling that has relied on Marine Police Unit sea patrols which are not effective due to lack of coordination and limited resources.

Learning from the success of other countries, this research can formulate comprehensive strategies that integrate various best approaches, such as community empowerment programs à la Ghana, monitoring technology implementation from Peru and Australia, regional collaboration like Singapore, and formation of national task forces as in the Philippines. The community-based policing approach proven to increase law enforcement effectiveness by up to 35% in coastal areas (Sukoco, 2023) needs to be implemented by building multi-party dialogue forums to build community trust.

Implementation of these strategies requires structured Standard Operating Procedures (SOP) that regulate collaboration between the Marine Police Unit and the community, covering coordination mechanisms through official communication channels, training of local communities, utilization of drone and satellite technology for real-time detection, and internal supervision to prevent involvement of rogue officials as reported by local media (Tropedo.id, 2025). Synergy between transparent law enforcement and economic empowerment programs will create sustainable solutions that are not only effective in suppressing illegal activities but also supporting global environmental sustainability.

Based on the existence of community unrest problems due to illegal mining in Tembelok Sea, exacerbated by significant environmental and social impacts, shows the urgency of an effective joint patrol strategy. By studying best practices from countries such as Ghana, Peru, South Africa, Australia, and Canada, as well as addressing regulatory weaknesses in Indonesia, this research is expected to produce holistic solutions that not only suppress illegal mining activities but also create a safe, sustainable, and fair marine environment for the Bangka Belitung community. Strategic global studies strengthen the urgency of this research by showing the connection between local problems and global market and environmental dynamics. Therefore, this research carries the title "Collaboration Between the Indonesian National Police and the Community in Preventing Illegal Mining in the Tembelok Sea Area" to answer these challenges comprehensively.

2. Literature Review

2.1. Theory

2.1.1. Law Enforcement Theory

Law enforcement includes various behaviors performed by law enforcement officers. The purpose of this law enforcement is to increase order and legal certainty in society (Sanyoto, 2008). Law enforcement actions are carried out before and after violations of the law by the community. This is a system involving various government members who act as organized apparatus to enforce the law by restoring, stopping, or punishing individuals who violate legislation. Although often identified as part of court policing, this term also includes individuals who are not members of the official police involved in enforcement and observation actions for prevention of criminal activities.

Law enforcement can be considered as a process of efforts to implement and activate norms as the basis of legal behavior in society and the state. Harmony between legal values and norms with human behavior becomes the focus in the law enforcement system (Kenedi, 2017). Law enforcement can be carried out broadly and involve all legal subjects, aimed at realizing ideas about justice, certainty, and benefit. Although often misinterpreted as only related to criminal law, law enforcement includes repressive and preventive aspects. Based on Soekanto (2007), the effectiveness of law enforcement is determined by four interrelated factors, namely the quality of the law itself, the performance of law enforcement officers, the availability of adequate means and facilities, and the level of community awareness and compliance. All four constitute a unity that becomes a measure of success in law enforcement.

2.1.2. Collaborative Policing Theory

Collaborative policing is an approach where law enforcement activities, such as policing, actively collaborate with government agencies, international organizations, communities, and professionals from various fields to achieve common goals in creating security, preventing crime, and responding to crisis situations. This approach involves close interaction between law enforcement agencies and other entities such

as educational institutions, health, community organizations, and professionals such as psychologists, social workers, and scientists. The focus is to improve effectiveness, understanding, and better responses to the needs and challenges in maintaining community security.

This cooperation includes various activities, such as joint training, development of uniform training curricula, information exchange, technical assistance, coordination in responding to natural disasters or emergency situations, and utilizing special expertise from professionals in supporting law enforcement efforts. This collaboration also encourages community participation in crime prevention efforts and improving environmental security. Collaborative policing recognizes that addressing security issues and crime prevention cannot be done only by law enforcement agencies. With active cooperation among various entities, collaborative policing aims to create a safer environment that is responsive to community needs comprehensively (Kratcoski & Edelbacher, 2015).

2.1.3. Crime Prevention Theory

Crime prevention includes all efforts to reduce actual crime rates and fear of it, carried out both by the criminal justice system and by society at large. Unlike Ekblom's approach, the focus in this book is not on the consequences of crime, but on its roots. The reason is, if crime and fear of it are successfully prevented, the consequences are automatically addressed. Meanwhile, efforts such as victim compensation or counseling, although commendable, only address the impact without preventing crime from recurring. Crime prevention also needs to be distinguished from crime control. Prevention aims to stop crime before it occurs, while control only attempts to manage existing crime levels. Views that only focus on control are considered inadequate because they accept crime as a social necessity that cannot be eliminated. This acceptance can actually hinder the achievement of true crime prevention.

2.1.4. Sea Patrol Concept

Patrol is an activity carried out to prevent and take action against disturbances or law violations in order to maintain or improve legal order in Indonesian waters and Indonesian jurisdiction areas (Government Regulation of the Republic of Indonesia No. 13 of 2022). According to this explanation, sea patrols have a number of main functions designed to ensure security, protection, and monitoring in marine waters.

Sea patrol is an integrated strategy to monitor, secure, and enforce the law in water areas. Its activities include:

1) Maritime monitoring: Active supervision using radar, sonar, and other technologies to detect threats or illegal activities such as illegal sea mining.
2) Water security: Protecting marine areas from crime, piracy, smuggling, and maritime law violations by relevant authorities.
3) Maritime law enforcement: Taking action against violations and illegal activities that damage ecosystems and violate marine regulations.
4) Regional and international cooperation: Involving cross-country coordination through information exchange, training, and joint patrols.
5) Maritime emergency handling: Conducting search and rescue operations, disaster response, and handling emergency situations at sea.

Through an integrated and collaborative sea patrol concept, it is hoped to create a safe, clean, and sustainable maritime environment.

2.1.5. Illegal Mining Concept

Essentially, there are two types of mining businesses, namely legal and illegal mining. Mining businesses permitted to operate are categorized as legal, while those operating outside the law are called illegal mining. This category is determined based on business licenses; companies with official licenses are classified as legal, while those without licenses are considered illegal (Helawati, 2014). Wild miner activities are viewed as serious threats requiring strategic and sustainable solutions (Tschakert & Singha, 2007). The government views illegal mining as a future economic obstacle because it causes environmental, social, and economic damage, and has the potential to cause conflicts between local miners and large companies (Nti et al., 2020).

Government efforts in combating illegal mining must emphasize environmental sustainability, to maintain air quality, natural resources, and public health. Illegal mining is generally related to low education and high unemployment in developing countries. Rural households depend on natural, social, human, physical, and financial resources in determining their livelihoods. Highly educated households with limited natural resources tend to switch to non-agricultural sectors, while those with low education and high natural resource access are more dependent on mining activities (Vasco et al., 2017). Livelihood decisions are also influenced by structural, cultural, fiscal factors, and environmental changes. Illegal mining operations on fertile agricultural land cause ecological degradation, pollution, and food insecurity in rural areas. Although resource-rich countries show economic growth, sustainable resource management remains important.

Sustainability is measured through three main performance dimensions: social, environmental, and economic, including concern for farmers and miners, resource protection, and ecological community development. In many cases, illegal mining activities cause land degradation, erosion, water pollution, and loss of soil fertility. The use of chemicals such as cyanide and mercury worsens agricultural conditions, reduces land productivity, and forces farmers to switch to other income sources (Jeswiet, 2017).

2.2. Previous Research

Literature review shows that previous research has extensively discussed illegal mining from various perspectives, but has not specifically examined Polri-community collaboration in preventing illegal tin mining in marine areas. Research by Murty & Yuningsih (2017) and Purwoko (2021) focus on criminal law enforcement aspects and regulatory frameworks, highlighting the importance of inter-agency collaboration and penal and non-penal approaches. Meanwhile, research by Putri et al. (2023) and Sukarman et al. (2020) provides a basis regarding biophysical and socio-cultural environmental damage impacts that strengthen prevention urgency.

On the other hand, several studies such as Rambe et al. (2021); Sarah et al. (2023) evaluate patrol effectiveness, both independently and collaboratively, and identify operational constraints such as lack of personnel, funds, and community participation. Hallatu et al. (2021) and Nur (2020) underline the importance of community involvement and education, including utilization of local wisdom. This research positions itself as a development by specifically designing a Polri-community collaboration model in the context of preventing illegal tin mining in Tembelok Sea, which integrates previous findings while introducing innovation through technology utilization and economic empowerment approaches.

3. Methodology

3.1. Research Type and Design

This research uses a qualitative approach with an exploratory type to investigate Polri and community collaboration in preventing illegal mining in Tembelok Sea. This method was chosen to describe the impacts and implementation of patrol strategies in depth, as well as explore the dynamics and complexity of existing problems. Through an exploratory approach, this research aims to identify key factors and new aspects not previously revealed. The results are expected to provide substantive contributions to understanding and handling illegal mining, as well as become a foundation for formulating more effective policies and further research.

3.2. Data Sources

This qualitative research uses primary and secondary data sources (Creswell, 2016), obtained through direct research activities in the field. Primary data is obtained through interviews with informants and direct observation, to obtain an accurate picture of Polri and community collaboration in preventing illegal mining in the Tembelok Sea area. Meanwhile, secondary data is collected through analysis of documents related to joint patrol strategies and illegal mining prevention policies. Documents examined include mining and marine management regulations, previous research reports, illegal mining activity statistical data, local organization and community documents, news, articles, and decision letters and internal documents of relevant agencies. Analysis of these documents provides contextual and policy insights that enrich understanding of illegal mining countermeasures in the research area.

3.3. Data Collection Techniques

This research uses three main data collection techniques: interviews, observation, and document study (Creswell, 2016). Interviews were conducted with a number of relevant informants, including West Bangka Police Chief (AKBP Ade Zamrah, S.I.K.), Criminal Investigation Unit Chief (AKP Ecky Widi Prawira, S.I.K., M.H.), Marine Police Unit Chief (IPTU Yudi Lasmono, S.H., M.H.), Special Crime Unit Head of Criminal Investigation (AIPDA Octavianus, S.H.), Tembelok RT Chairman (Ari), Tembelok Fishermen Chairman (Fadli), and Head of Pollution Prevention and Environmental Damage Division of West Bangka Regency (Nurherodiyah, S.Hut.). Interviews aim to obtain in-depth information regarding the implementation of joint patrols between Polri and the community, factors affecting collaborative policing, and law enforcement strategies in preventing illegal mining in Tembelok Sea.

Observation was conducted through direct observation of joint patrol activities and field conditions to obtain empirical data regarding the level of community involvement, effectiveness of illegal mining prevention strategies, and environmental impacts. This observation also helps assess inter-agency cooperation, community response, and patrol implementation constraints, thus providing a comprehensive picture of policy implementation in the research area. Document study was conducted by analyzing various written sources, such as government policies and regulations related to marine area management, patrol activity reports, illegal mining statistical data, and legal documents and program evaluations. This document analysis provides deeper understanding regarding history, regulations, illegal mining activity patterns, and effectiveness of prevention strategies that have been implemented in Tembelok Sea.

3.4. Data Analysis Techniques

Data analysis techniques used to evaluate research results related to "Collaboration Between Indonesian National Police and Community in Preventing Illegal Mining in Tembelok Sea Waters" are carried out through a number of methods which are then processed and arranged into information with a systematic structure. This process involves several data triangulation techniques, which include reduction, validation, and data presentation stages. Through data triangulation, various data collection techniques and diverse data sources can be connected. The process of data reduction, data presentation, and conclusion drawing, as explained by Creswell (2016), is used to ensure the accuracy and reliability of research results. All these stages are carefully designed to create a comprehensive and reliable analysis regarding joint patrol strategies in efforts to prevent illegal mining in the Tembelok Sea area.

4. Results and Discussion

4.1. Implementation of Joint Patrols Between Polri and Community to Prevent Illegal Mining in Tembelok Sea

Illegal tin mining in Tembelok Sea, West Bangka, damages marine ecosystems, pollutes waters, disrupts fish migration routes, and reduces fishermen's catches. This floating TI mining activity also triggers social conflicts between miners and fishermen. Polri responded with joint patrols involving the Navy, Bakamla, NGOs, the "*Nelayan Waspada*" or Alert Fishermen community, and the Department of Marine Fisheries. Operations are supported by drone, AI, and GIS technology, as well as community-based environmental rehabilitation programs. Legal bases include Law No. 32/2009 on the Environment, Law No. 2/2002 on Police, Government Regulation No. 22/2021, Minister of Marine Affairs and Fisheries Regulation No. 18/2014, and Presidential Decree No. 33/2010. Patrol strategies are focused on vulnerable points such as river mouths and shallow waters, with monthly evaluations to ensure adaptability. Firm law enforcement through arrests, equipment confiscation, and criminal proceedings creates a deterrent effect, while reducing intimidation against the community and preventing recurrence of illegal mining activities.

When analyzed using Crime Prevention Theory by Lab (2016), which explains that crime prevention is a systematic effort to reduce the opportunity for crime to occur by modifying environmental conditions, increasing risks for perpetrators, and strengthening community capacity to protect themselves, the joint patrol approach in Tembelok Sea can be categorized as a comprehensive and proactive strategy. This theory emphasizes the importance of cross-sector collaboration and active community roles in building an

environment resistant to criminal activities, such as illegal mining. Countermeasures against illegal mining in Tembelok Sea are implemented through three prevention dimensions. Primary prevention is focused on efforts to eliminate crime opportunities through socialization, formation of "Alert Fishermen" groups, and use of technologies such as drones and GIS for surveillance, although still faced with challenges such as limited equipment and community understanding. Secondary prevention emphasizes identification and handling of vulnerable areas through integrated patrols and ship movement pattern analysis, with support from community reports; the main constraint is limited human resources and technical capabilities. Meanwhile, tertiary prevention is directed at post-crime handling through guidance of former perpetrators, alternative skills training, and rehabilitation of damaged environments, aimed at preventing crime recurrence.

In illegal mining in Tembelok Sea, this step becomes an important effort focused on handling crime perpetrators to prevent them from repeating their actions and reducing the damage impact that has been caused. Based on research results, Polri implements this strategy with a firm law enforcement approach, starting from the arrest process of perpetrators at illegal mining locations, confiscation of heavy equipment such as pontoons and tin suction machines, to destruction of mining tents built without permits. Visual evidence obtained through drone monitoring is utilized as strong evidence in the investigation and proof process in court, strengthening the legitimacy of legal processes and increasing the chances of conviction. In addition to law enforcement, corrective steps also include environmental recovery that has been damaged due to illegal mining activities. Rehabilitation programs implemented include activities such as replanting artificial coral reefs, restoring polluted seabeds, and cleaning sediment dangerous to marine life. This approach aims not only to punish perpetrators but also to restore the balance of marine ecosystems that are a source of livelihood for surrounding communities, especially traditional fishermen.

Implementation of tertiary prevention, although it has been implemented maximally in the field, currently still faces several serious challenges. One of the main challenges is the possibility of involvement of larger and more complex illegal mining networks, including foreign vessels and cross-regional syndicates that have greater resource access and more covert operating systems. In facing this situation, Polri requires stronger cross-sectoral coordination capacity, involving other agencies such as the Navy, Bakamla, and the Prosecutor's Office in an integrated framework. Another constraint from implementing tertiary crime prevention activities is that the environmental rehabilitation programs that have been running are still limited in terms of area coverage, implementation intensity, and budget allocation. With the scale of widespread damage, a more sustainable approach and greater funding support are needed. Unfortunately, without support from external parties, such as environmental NGOs or the private sector, these recovery efforts are difficult to provide significant ecological impact in the long term.

Responding to these issues, the problem-solving step is to strengthen the effectiveness of tertiary prevention, where Polri can initiate the formation of a joint task force involving various stakeholders to coordinate illegal mining handling strategies across regions. In addition, fundraising through CSR partnerships with companies operating in the marine or energy sectors can be a strategic solution in supporting environmental rehabilitation more widely and sustainably. Providing a deterrent effect to perpetrators can also be a further solution that can be further improved through consistent application of legal sanctions and transparency in law enforcement processes. This step can be applied by Polri needing to publicize the results of illegal mining enforcement operations, including court verdicts and environmental recovery actions, through social media channels and mass media. This effort will strengthen legal messages to the wider community, that violations against the marine environment will not be tolerated. This step can also be used to simultaneously encourage public participation in monitoring and reporting illegal activities in Tembelok Sea waters, so that other illegal activities can be prevented as early as possible.

According to Steven P. Lab (2016), reducing community fear of crime is key to successful public safety policies. Routine joint patrols, firm action against illegal mining perpetrators, and use of technologies such as drones have proven to foster a sense of security and public trust in authorities. Communication forums with fishermen and quick reporting channels also increase citizen participation in maintaining maritime security. However, fear of reporting and limited communication infrastructure remain obstacles, so anonymous reporting systems and expanded technology access are needed so that communities can contribute actively without worry. Community-based approaches place communities as active partners in maintaining environmental security. In Tembelok Sea, the formation of "Alert Fishermen" groups and training in using

drones and quick reporting applications increase citizens' capacity to detect illegal activities. Dialogue forums, educational campaigns, and marine rehabilitation activities foster a sense of ownership of ecosystems, so communities are encouraged to protect their areas. Collaboration between authorities and communities becomes the main foundation for creating sustainable security.

Implementation of community-based approaches in the field still faces challenges, such as uneven community participation and cross-sector coordination obstacles. Some residents are enthusiastic, while others remain passive due to lack of understanding, information access, or fear of illegal mining perpetrators. Bureaucratic obstacles and differences in vision between institutions also often slow responses to emergency situations. To overcome this, Polri together with stakeholders need to expand training for less involved groups and form more structured cross-agency coordination forums so that field handling is faster and more effective. In addition, alternative economic empowerment such as seaweed cultivation, marine product processing, and conservative ecotourism can be incentives for communities to switch from illegal activities. This approach creates inclusive and sustainable security based on local community solidarity. Research results show that joint patrols between Polri and the community in Tembelok Sea have suppressed illegal mining activities through a combination of socialization, technology surveillance, law enforcement, and environmental rehabilitation. These findings align with research by Murty & Yuningsih (2017), Putri et al. (2023), Sarah et al. (2023), and Sitorus et al. (2023), which affirm the importance of cross-sector collaboration, community education, and use of technology in maritime surveillance. Although there are still challenges such as limited technology and alleged involvement of rogue officials, these integrated patrols have proven to strengthen synergy between authorities, communities, and technology according to Crime Prevention Theory principles by Steven P. Lab (2016).

4.2. Factors Affecting Collaborative Policing in Preventing Illegal Mining in Tembelok Sea

Collaborative policing in preventing illegal mining in Tembelok Sea is a strategic approach that demands synergy among various security actors, local governments, and communities. According to the Collaborative Policing Theory by Kratcoski & Edelbacher (2015), it is known that crime prevention success depends on close partnerships between police, local communities, and other stakeholders to build trust, share responsibilities, and create joint solutions to security problems. According to this explanation, research findings also show that the implementation of collaborative policing in preventing illegal mining in Tembelok Sea is influenced by a number of interrelated factors that play a determining role in its effectiveness. These factors, when analyzed with Collaborative Policing Theory by Kratcoski & Edelbacher (2015), can be done through five main dimensions:

4.2.1. Inter-agency collaboration

Inter-agency collaboration becomes the main pillar of collaborative policing in preventing illegal mining in Tembelok Sea, West Bangka. Based on Collaborative Policing Theory (Kratcoski & Edelbacher, 2015), cross-sector partnerships are needed to build an integrated security system. This collaboration involves Polri, the Navy, Bakamla, DKP, the Environmental Agency, and NGOs and communities such as "Alert Fishermen". Each agency plays complementary roles: Polri enforces the law (Law No. 2/2002), the Navy and Bakamla maintain sea security, while DKP and DLH focus on environmental conservation.

This synergy optimizes resources—Polri provides ships and investigation expertise, the Navy and Bakamla support maritime security, while DKP maps illegal mining-prone areas. Utilization of maritime big data, AI, and GIS increases accuracy in monitoring floating tin pontoons in real-time (Sitorus et al., 2023). Collaboration sustainability requires routine coordination forums for data alignment and patrol evaluation, as well as investment in an integrated command center that integrates drone data, GIS, and community reports. Partnerships with universities and the private sector (Murty & Yuningsih, 2017) and cross-agency training strengthen operational synergy.

However, challenges still arise due to overlapping authorities between Polri, Bakamla, and the Navy, as well as regulatory conflicts such as Law No. 32/2014 and Law No. 17/2008. Sectoral ego (Sarah et al., 2023), limited ships, drones, and personnel, as well as minimal integrated data platforms also hinder surveillance effectiveness (Nur, 2020). Intimidation of reporters also weakens community participation. Solutions include regulatory clarification of inter-agency roles, for example establishing Bakamla as a coast guard with limited

authority, formation of an integrated data center, and increased patrol budgets. Development of anonymous reporting applications and alternative training for fishermen can strengthen participation and public trust (Nur, 2020; Murty & Yuningsih, 2017). With coordination forums, technology investment, clear regulations, and community empowerment, collaborative policing in Tembelok Sea can run effectively, inclusively, and sustainably, in line with partnership principles in Collaborative Policing Theory.

4.2.2. Community participation

Coastal community participation becomes a crucial element in collaborative policing in Tembelok Sea, in line with Collaborative Policing Theory (Kratcoski & Edelbacher, 2015) which emphasizes partnerships between police and communities. Through the "Alert Fishermen" group, communities act as eyes and ears in detecting illegal mining activities. With training from Polri and DKP, they are able to recognize signs of illegal tin mining in vulnerable areas such as river mouths and shallow waters. Local knowledge about currents and ship movement patterns strengthens early detection and accelerates authority response. In addition, their involvement in environmental rehabilitation, such as planting artificial coral reefs, fosters a sense of ownership of marine ecosystems.

Local knowledge becomes the main strength of communities in supporting collaborative patrols. Legal and technical training increases their capacity as strategic partners of authorities, as affirmed by Murty and Yuningsih (2017) that non-penal guidance is effective in preventing illegal mining while strengthening trust between authorities and citizens. To maintain participation, routine training needs to be expanded to women's and youth coastal groups. Dialogue forums between Polri, DKP, and communities are important to discuss complaints and strengthen coordination. Alternative economic programs such as seaweed cultivation and sustainable fisheries must be developed so that communities do not depend on illegal mining (Nur, 2020). However, challenges remain. Intimidation from mining perpetrators and low legal protection make communities reluctant to report. Lack of trust in authorities (Sarah et al., 2023), social resistance due to economic dependence, and minimal legal literacy weaken participation. In addition, limited technological capabilities restrict community contributions in digital-based surveillance, although integrated data platforms have proven to increase patrol effectiveness (Sitorus et al., 2023).

Various steps can strengthen community roles. Polri can provide encrypted anonymous reporting applications, increase legal socialization through social media and village counseling, and provide basic training in using technology such as drones and digital reporting systems. This approach needs to be accompanied by sustainable economic empowerment programs that provide alternative income for coastal communities (Murty & Yuningsih, 2017). Integration of these efforts will optimize community participation in collaborative policing in Tembelok Sea. Through safe reporting systems, legal socialization, technology training, and economic empowerment, communities can become strategic partners of authorities in creating effective and sustainable sea surveillance in line with Collaborative Policing Theory principles that place partnerships as the foundation for success in security and coastal environmental preservation.

4.2.3. Open communication

Open communication becomes the main pillar in collaborative policing in Tembelok Sea, West Bangka, in line with Collaborative Policing Theory by Peter and Maximilian (2016) which emphasizes the importance of transparent information exchange between authorities and communities. Through ad-hoc forums, distribution of brochures, banners, and training for "Alert Fishermen" groups, Polri encourages communities to recognize and report illegal mining activities. This approach strengthens public trust and accelerates early detection, although still constrained by inter-agency coordination and conventional reporting methods that slow responses.

Socialization based on information media has proven effective in increasing coastal community awareness of legal and environmental impacts of illegal mining (Murty & Yuningsih, 2017). Training from Polri and DKP also strengthens community roles as monitoring partners, increasing their ability to recognize floating tin pontoon (TI apung) activities in vulnerable areas. To improve communication effectiveness, dialogue forums need to be scheduled regularly with patrol evaluation and community report agendas, involving Polri, the Navy, Bakamla, DKP, NGOs, and local communities. Information distribution can be expanded through social media and community WhatsApp groups to reach coastal youth and women. Sarah

et al. (2023) studies show that digital communication successfully increases community participation in reporting illegal activities, so it can be adapted in Tembelok.

However, main challenges remain: slow ad-hoc coordination, inter-agency protocol differences, and absence of integrated digital reporting systems (Sitorus et al., 2023). Intimidation of reporters also hinders community courage to report, especially when reporting channels are not yet secure (Nur, 2020). Low legal awareness and limited digital access also weaken two-way communication. To overcome these obstacles, a digital reporting application with anonymous features and secure encryption is needed that allows real-time access for Polri, DKP, and Bakamla. This system can be equipped with 24/7 cross-agency hotlines and integrated report protocols so coordination is faster and more consistent. Legal socialization needs to be expanded through social media, short videos, and village counseling, accompanied by training in using reporting technology for communities. With strengthening digital communication, scheduled forums, and continuous socialization, collaborative policing in Tembelok Sea can become a responsive, transparent, and inclusive surveillance system. This approach aligns with Collaborative Policing Theory principles, which place information openness and community partnerships as the foundation for success in maintaining security and coastal environmental preservation.

4.2.4. Mutual trust

Mutual trust between Polri, communities, and related agencies becomes the main foundation of collaborative policing in preventing illegal mining in Tembelok Sea, West Bangka. Based on Collaborative Policing Theory by Peter and Maximilian (2016), this trust is built through transparent partnerships oriented toward common goals. In Tembelok, this is realized through joint patrols of Polri, the Navy, Bakamla, DKP, and the community group "Alert Fishermen". Community surveillance training and firm enforcement, such as arrests and confiscation of mining equipment, increase public sense of security and confidence in authorities. However, intimidation of reporters, minimal legal protection, and weak inter-agency coordination still hinder collaboration effectiveness.

Firm enforcement has proven to strengthen public trust. As noted by Murty and Yuningsih (2017), penal actions such as raids in Bangka Belitung increase public perceptions of authority credibility. In addition, community training by Polri and DKP strengthens the sense of ownership of marine protection efforts. To maintain this trust, Polri needs to show transparent commitment through publication of operation results, as suggested by Sarah et al. (2023), who found that maritime patrol openness increases community trust. However, threats to reporters and overlapping inter-agency authorities remain main obstacles. Lack of legal guarantees makes communities reluctant to report (Nur, 2020), while unclear authority boundaries between Polri and Bakamla (Sitorus et al., 2023) cause confusion in the field and weaken coordination.

Applicable solutions include digital-based reporter protection systems with anonymity features and encryption, as well as legal immunity policies for reporters. Formation of permanent joint teams and integrated command centers between Polri, the Navy, Bakamla, and DKP can reduce authority overlap. Regulatory revision, such as granting limited investigation authority to Bakamla, also needs to be considered. With reporter protection, operation transparency, inclusive community training, and inter-agency authority harmonization, mutual trust in collaborative policing can be strengthened. This approach aligns with Collaborative Policing Theory principles that affirm that trust is key in building an effective, participatory, and sustainable coastal surveillance system.

4.2.5. Division of responsibilities

Clear division of responsibilities becomes a key element of collaborative policing in preventing illegal mining in Tembelok Sea, West Bangka. According to Collaborative Policing Theory (Kratcoski & Edelbacher, 2015), security effectiveness depends on structured partnerships between Polri, communities, and related agencies. In Tembelok, Polri focuses on surveillance and investigation, coastal communities through "Alert Fishermen" act as reporters, the Navy and Bakamla handle strategic maritime security, while DKP and the Environmental Agency support ecosystem rehabilitation. However, the absence of joint patrol SOPs triggers task overlap and weak inter-agency coordination.

Community roles strengthen surveillance effectiveness. "Alert Fishermen" use local knowledge to detect floating tin pontoon activities, while DKP and NGOs contribute to environmental rehabilitation. Research by

Murty and Yuningsih (2017) shows that community and NGO involvement in non-penal approaches strengthens cross-sector collaboration. Technology support such as drones and GIS also helps Polri monitor areas more efficiently. To strengthen this system, communities need to receive advanced training on illegal activity detection and structured reporting, accompanied by economic incentives such as sustainable fisheries programs. Sarah et al. (2023) prove that economic support increases community participation in maritime patrols, a relevant strategy to apply in Tembelok. Main challenges remain in authority overlap and limited resources. Polri often bears excessive surveillance burdens due to limited Navy and Bakamla involvement. This condition, as noted by Nur (2020), reduces surveillance effectiveness and community trust. Sitorus et al. (2023) also affirm that unclear authorities slow maritime patrol responses. The solution requires drafting joint patrol SOPs that establish explicit task divisions, real-time data exchange protocols, and formation of integrated command centers and permanent inter-agency joint teams.

Routine coordination forums, as suggested by Murty and Yuningsih (2017), can prevent task conflicts, while adding patrol ships and personnel training will balance workloads. With clear SOPs, permanent joint teams, resource support, and community empowerment, division of responsibilities in Tembelok can be optimized to create efficient and coordinated sea surveillance. This approach aligns with Collaborative Policing Theory principles that emphasize structured partnerships in maintaining security and coastal sustainability. Collaborative policing in Tembelok Sea has strong potential through inter-agency synergy, community participation, and technology support, according to Collaborative Policing Theory. Obstacles such as overlapping authorities, limited resources, and reporter intimidation can be overcome through coordination forums, joint patrol SOPs, integrated data platforms, and anonymous reporting applications supported by fishermen's economic empowerment. In line with findings by Murty and Yuningsih (2017), Sarah et al. (2023), Sitorus et al. (2023), and Nur (2020), this strategy forms an effective, inclusive, and sustainable sea surveillance system to prevent illegal mining in coastal areas.

4.3. Law Enforcement Strategies to Effectively Prevent Illegal Mining in Tembelok Sea

Efforts to effectively prevent illegal mining in Tembelok Sea require law enforcement strategies that are not only repressive but also preventive and pre-emptive. In practice, this strategy includes increasing intensity of periodic and coordinated sea patrols between Polri, the Navy, and Bakamla, as well as optimizing technology-based community reporting systems. Firm steps in the form of arresting perpetrators and destroying illegal mining equipment at incident locations become symbols of authority commitment in maintaining legal sovereignty. In addition, legal education for coastal communities and empowerment of fishermen groups as field monitoring partners also become important parts of holistic prevention strategies. Local government involvement in supporting operational policies and cross-sector funding further strengthens law enforcement effectiveness in this area. Based on Law Enforcement Theory perspectives (Kenedi, 2017; Sanyoto, 2008; Soekanto, 2007), law enforcement strategies that can be applied to effectively prevent illegal mining involve several main components: legal factors, law enforcement officer factors, means/facilities factors, community factors, and justice, certainty, and legal benefits. To formulate strategic steps forward to ensure these various elements can be applied appropriately, both currently and in the future, to prevent illegal mining in Tembelok Sea effectively and sustainably, this can be analyzed as follows:

4.3.1. Legal factors

Legal factors become the main foundation in law enforcement against illegal mining in Tembelok Sea, West Bangka. Based on Law Enforcement Theory (Soekanto, 2007; Sanyoto, 2008; Kenedi, 2017), law enforcement is regulated through Law No. 4/2009 on Mineral and Coal Mining and Law No. 32/2009 on Environmental Protection and Management, which establish criminal sanctions up to seven years and fines of Rp10 billion for perpetrators without permits. However, overlapping authorities between Polri, the Navy, and Bakamla due to regulatory inconsistency (Murty & Yuningsih, 2017) often hinder coordination.

Unclear definitions of illegal mining activities and complex legal language worsen understanding among coastal communities. In addition, unclear inter-agency task divisions create legal loopholes exploited by perpetrators (Sitorus et al., 2023). Revision of Law No. 4/2009 is needed to clarify illegal mining definitions and coordination mechanisms, including strengthening Bakamla's authority as an official coast guard. Harmonization between regulations can be done through government regulations that establish explicit task divisions: Polri on investigation, the Navy on strategic security, and Bakamla on sea patrols (Sarah et al., 2023).

Formation of cross-sectoral task forces becomes a strategic solution to overcome overlapping authorities, involving Polri, the Navy, Bakamla, DKP, and the Environmental Agency with an integrated command center based on drone and GIS data. This approach aligns with recommendations by Murty and Yuningsih (2017) and Sitorus et al. (2023).

Legal socialization in simple language needs to be intensified through social media, banners, and fishermen forums to increase community awareness (Nur, 2020). Periodic regulatory evaluation is also needed to adjust policies with local dynamics and ensure legal certainty (Kenedi, 2014). In addition, cross-agency training on implementing Law No. 4/2009 and Law No. 32/2009 is important to standardize authority understanding (Sanyoto, 2008). Overall, legal strategies in Tembelok Sea can be strengthened through regulatory revision, formation of integrated task forces, inclusive legal socialization, periodic evaluation, and increased authority capacity. This approach upholds principles of legal certainty, justice, and benefit to suppress illegal mining and maintain marine sustainability.

4.3.2. Law enforcement officer factors

Law enforcement officer factors play a central role in preventing illegal mining in Tembelok Sea, West Bangka. Based on Law Enforcement Theory by Soekanto (2007), law enforcement effectiveness depends on capacity, professionalism, and inter-agency coordination. The Marine Police Unit of West Bangka Police Resort becomes the front line in patrols, confiscation of illegal mining equipment, and detention of perpetrators according to Law No. 2/2002. Use of technologies such as drones and GIS has increased detection of illegal activities, although personnel limitations and weak coordination with the Navy and Bakamla remain obstacles (Sitorus et al., 2023). Limited human resources and overlapping inter-agency authorities hinder law enforcement effectiveness. The West Bangka Police Chief emphasizes the importance of harmonizing Polri, Navy, and Bakamla roles, while the Criminal Investigation Unit Chief highlights community involvement, especially "Alert Fishermen" groups, to strengthen joint patrols. Minimal advanced technology training also reduces capability to monitor maritime areas in real-time. Research by Sarah et al. (2023) shows that cross-agency training increases patrol coordination, a relevant approach to apply in Tembelok.

Strategic steps include increasing authority capacity through intensive and periodic training covering monitoring technology mastery, GIS, and maritime data analysis. Training must also emphasize persuasive communication to build partnerships with coastal communities (Murty & Yuningsih, 2017). Cross-agency training between Polri, the Navy, Bakamla, and DKP needs to be conducted every six months to standardize SOPs, joint patrol simulations, and emergency coordination (Sanyoto, 2008). Formation of permanent joint teams involving authorities and local communities becomes an effective solution to improve coordination. This team needs to be supported by an integrated command center based on drone and GIS data (Sitorus et al., 2023) and routine evaluation forums as suggested by Murty and Yuningsih (2017). In addition, recruitment and additional training of at least 50% of Marine Police Unit members need to be prioritized to expand patrol coverage (Nur, 2020). Transparency of law enforcement results through publication in local and digital media can strengthen public trust and create deterrent effects for perpetrators (Sarah et al., 2023). Thus, strategies based on law enforcement officer factors in Tembelok can be optimized through training, cross-agency coordination, recruitment, technology budget allocation, and public transparency. This approach aligns with Soekanto's (2007) theory emphasizing authority capacity and coordination as keys to effective and sustainable law enforcement success.

4.3.3. Means/facilities factors

Means factors play an important role in law enforcement effectiveness against illegal mining in Tembelok Sea, West Bangka. According to Law Enforcement Theory by Soekanto (2007), availability of adequate means determines operational authority success. Technologies such as drones, satellite imagery, and geographic information systems (GIS) have been used to map vulnerable areas and monitor illegal vessel activities in real-time. However, limitations of patrol ships, drone range, and budgets hinder surveillance in vast water areas (Sitorus et al., 2023). Main constraints include number of patrol ships not proportional to area extent, drone technical limitations, and absence of digital-based quick reporting applications. "Alert Fishermen" groups still rely on manual reporting, reducing detection efficiency. Sarah et al. (2023) found that drone and GIS use in Batam increases detection accuracy, but limited technology infrastructure becomes an obstacle, a similar situation in Tembelok.

To overcome this, investment in advanced technology becomes a priority. Procurement of drones with wide range, infrared sensors, and extreme weather resistance, as well as access to high-resolution satellite imagery through cooperation with the Geospatial Information Agency (BIG), will strengthen surveillance systems (Murty & Yuningsih, 2017). Additional budget support from the State Budget, Regional Budget, or CSR partnerships is needed for procurement of fast patrol ships and modern monitoring equipment (Nur, 2020). Development of anonymous digital reporting applications with photo upload and GPS location features can accelerate authority response and increase coastal community participation. Integration of data from drones, satellite imagery, and GIS into integrated command centers is also important to analyze activity patterns spatially and determine priority patrol schedules (Sitorus et al., 2023). In addition, surveillance sustainability must be supported by routine equipment maintenance systems through long-term contracts with technology providers and mature budget planning (Sanyoto, 2008). Thus, strategies based on means factors in Tembelok can be optimized through technology strengthening, sustainable funding, digital reporting applications, and command center integration. This approach aligns with Soekanto (2007) theory emphasizing the importance of adequate means in law enforcement effectiveness, to create responsive, efficient, and sustainable sea surveillance systems.

4.3.4. Community factors

Community factors are important pillars in law enforcement against illegal mining in Tembelok Sea, West Bangka. Based on Law Enforcement Theory by Soerjono Soekanto (2007), active community participation determines law enforcement success. "Alert Fishermen" groups play important roles in reporting illegal activities thanks to their local knowledge about vulnerable areas. However, low legal awareness, intimidation from mining perpetrators, and economic dependence on illegal activities become main obstacles. Murty and Yuningsih (2017) note that economic dependence on illegal mining in Bangka Belitung weakens community participation, a similar condition in Tembelok.

Lack of legal information access and threats from illegal mining networks cause residents to be reluctant to report. As stated by the Marine Police Unit Chief of West Bangka Police Resort, although "Alert Fishermen" are active, fear of retaliation remains high. Research by Nur (2020) in Bone also shows that perpetrator threats are main hindering factors for community involvement. Efforts to increase legal awareness can be done through easily accessible educational campaigns such as short videos, banners, and radio broadcasts emphasizing ecological impacts and legal sanctions (Law No. 4/2009). Monthly dialogue forums between authorities, local governments, and communities are also important to build trust and strengthen legal understanding (Sarah et al., 2023).

Training in using digital-based quick reporting applications for "Alert Fishermen" groups becomes a strategic step, accompanied by anonymous features and encryption systems to protect reporters (Sitorus et al., 2023). The target includes 80% of community members within three years to increase reporting efficiency and information security. In addition, alternative economic empowerment such as seaweed cultivation, marine product processing, and conservative ecotourism needs to be developed to reduce dependence on illegal mining. This program can be supported through government funding, NGOs, or CSR partnerships, as proven effective in Bangka Belitung (Murty & Yuningsih, 2017).

Implementation of anonymous reporter protection systems based on digital applications and 24-hour hotlines is also needed, in line with Law No. 31/2014 on Witness and Reporter Protection. Nur (2020) proves that such systems increase community courage to report. Involvement of traditional leaders, religious figures, and youth in dialogue forums strengthens social cohesion and support for law enforcement (Sarah et al., 2023). These figures are able to mobilize collective awareness and encourage community collaboration in maintaining marine sustainability. Overall, strategies based on community factors in Tembelok can be optimized through continuous education, digital reporting training, economic empowerment, reporter protection systems, and local figure collaboration. This approach aligns with Soekanto (2007) affirming the importance of communities as law enforcement partners to realize participatory and sustainable sea surveillance.

4.3.5. Justice, certainty, and legal benefits

Justice, certainty, and legal benefits are main foundations of law enforcement against illegal mining in Tembelok Sea, West Bangka. Based on Law Enforcement Theory by Soekanto (2007), law must guarantee substantive justice, procedural certainty, and socio-economic benefits. Penal approaches through perpetrator detention, mining equipment confiscation, and criminal sanctions according to Law No. 4/2009 and Law No. 32/2009 effectively create deterrent effects, while non-penal approaches such as education, economic empowerment, and environmental rehabilitation strengthen community legal awareness. Murty and Yuningsih (2017) show that combining both approaches suppresses illegal mining and builds community support, a relevant strategy for Tembelok.

Main obstacles arise from overlapping authorities between Polri, the Navy, and Bakamla, and absence of joint patrol SOPs that reduce legal certainty. Visual evidence from drones and "Alert Fishermen" reports strengthen legal bases for investigation, but inter-agency coordination remains weak (Sitorus et al., 2023). Therefore, integrated SOPs are needed that regulate task divisions, evidence validation, and quick response mechanisms. Models like in Batam (Sarah et al., 2023) show that structured maritime SOPs increase efficiency and transparency.

Penal enforcement must be accompanied by publication of operation results such as pontoon confiscation, perpetrator detention, and court verdicts to build public trust and deterrent effects (Nur, 2020). Meanwhile, non-penal programs need to be strengthened through legal education reaching the majority of coastal communities, monthly dialogue forums, and social media campaigns regarding environmental impacts and legal sanctions (Murty & Yuningsih, 2017). Environmental rehabilitation, such as coral reef planting and sea sediment cleaning, must be developed through cross-sector collaboration with DKP, NGOs, and private CSR, targeting recovery of 50% of damaged areas within five years (Putri et al., 2023). To guarantee justice and legal certainty, formation of integrated command centers is needed to validate drone evidence and community reports in real-time, ensuring accurate and transparent legal processes (Sitorus et al., 2023).

Annual evaluation of case reduction, ecosystem recovery, and community justice perceptions becomes an important instrument to ensure sustainable legal benefits (John Kenedi, 2014). In addition, alternative economic empowerment such as seaweed cultivation and ecotourism needs to be developed so that 50% of coastal households have legal income sources within five years (Murty & Yuningsih, 2017). Overall, law enforcement strategies in Tembelok need to integrate penal and non-penal approaches through joint patrol SOPs, transparent publication, community education, environmental rehabilitation, integrated command centers, and economic empowerment. This approach aligns with Soekanto (2007) affirming the importance of balance between justice, certainty, and legal benefits to create effective, just, and sustainable law enforcement systems in coastal areas.

Law enforcement in Tembelok Sea has strong potential through regulatory harmonization (revision of Law No. 4/2009), increased law enforcement capacity, utilization of technologies such as drones, GIS, and anonymous reporting applications, and coastal community empowerment. In line with findings by Murty and Yuningsih (2017), Sarah et al. (2023), Sitorus et al. (2023), Putri et al. (2023), and Nur (2020), law enforcement effectiveness against illegal mining demands synergy between clear regulations, competent law enforcers, modern technology means, community participation, and balance between penal and non-penal approaches. Through integrated training, dialogue forums, and sustainable economic alternatives such as seaweed cultivation, law enforcement in Tembelok Sea can be realized inclusively and sustainably, creating justice and real benefits for communities and marine ecosystems.

5. Conclusion

Based on this research results, it can be concluded that implementation of joint patrols between Polri and communities in Tembelok Sea, West Bangka, is proven as an effective integrated strategy in preventing illegal mining. This approach is implemented comprehensively, including primary prevention through socialization and technology, secondary prevention via focused patrols, and tertiary prevention with law enforcement and environmental rehabilitation. Active community involvement as partners through "Alert Fishermen" training and alternative economic programs successfully suppress illegal activities and reduce community fear.

However, these efforts still face challenges such as limited resources and retaliation threats from perpetrators, requiring SOP improvement, capacity enhancement, and anonymous reporting systems to ensure sustainability in maintaining environmental preservation and social stability.

To ensure this strategy's effectiveness and sustainability, several concrete recommendations are proposed. First, formation of permanent task forces coordinating all stakeholders, supported by clear joint patrol SOPs. Second, development of secure digital reporting applications and intensive training for communities, strengthened by advanced technologies such as drones and GIS for early detection. Third, launching alternative economic empowerment programs, such as seaweed cultivation, targeted to increase income for half of coastal households, combined with continuous legal education. These recommendations are expected to overcome existing challenges, strengthen synergy, and create inclusive and sustainable surveillance systems to protect marine ecosystems and Tembelok coastal community welfare.

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