“Black gold, dark realities: Unpacking the socio-economic and environmental fallout of unauthorized oil extraction (Investigation in East Aceh, Indonesia)”

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BLACK GOLD, DARK REALITIES: UNPACKING THE SOCIO-ECONOMIC AND ENVIRONMENTAL FALLOUT OF UNAUTHORIZED OIL EXTRACTION (INVESTIGATION IN EAST ACEH, INDONESIA)

Abstract

Environmental degradation can lead to climate change, air and water quality degradation, and biodiversity loss. The study aims to assess the impact of illegal oil extraction on environmental, social, economic, and public health dimensions in Peurelak, East Aceh, Indonesia. Using proportional random sampling techniques, 245 respondents were selected, representing owners and investors (9), tenant investors (18), workers/laborers (68), melters (6), public figures/community leaders (3), the community (138), and village government officials (3). Data were analyzed using structural equation modeling (SEM) with AMOS software. The results revealed a significant negative effect of illegal oil mining on social, environmental, and health performance (p-values = 0.031, 0.029, and 0.010, respectively, at a 95% confidence level). Additionally, informal leadership and government support were found to positively influence illegal oil mining (p-values = .017 and .035, respectively, below the significance threshold of .05). Furthermore, illegal oil mining significantly affects economic performance (p-value = .021). This paper emphasizes the adverse impacts of unauthorized oil extraction on community well-being while highlighting the collusive role of informal leaders and government authorities. Additionally, the study reveals a worrisome positive relationship between illegal oil mining and economic performance in Indonesia.

Keywords illegal petroleum mining, social performance, economic performance, health performance, informal leaders, government officials

JEL Classification L71, Q51, Q56

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INTRODUCTION

Illegal oil mining has become a serious concern in both ecological and economic contexts in various regions. In Peurelak Subdistrict, East Aceh Regency, Aceh Province, this illegal practice has emerged as one of the major issues affecting the local ecosystem and the economic stability of communities. Considering its detrimental impacts, it is crucial to comprehensively analyze the causes, consequences, and mitigation efforts against this illegal practice.

The escalated illegal oil mining practices have resulted in serious consequences, including environmental damage, land degradation, and threats to the sustainability of natural resources and the local economy. Therefore, a deep understanding of the factors driving these illegal practices, as well as their measurable impacts, may provide a strong foundation for designing and implementing effective and sustainable mitigation strategies.

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The factors driving illegal mining in this area include inadequate supervision and law enforcement, urgent economic needs among local communities, as well as uncertainty in the ownership and management of natural resources. The existence of a black market for illegally mined products also provides additional incentives for illegal actors to continue these practices. Additionally, the presence of complex illegal trading networks further strengthens the sustainability of these illegal practices. Therefore, a profound understanding of these factors will be key in formulating effective solutions to address the issue of illegal oil mining in the Peurelak District and its surroundings.

1. LITERATURE REVIEW

Mining activities entail the extraction of minerals and precious metals from the earth, yet some of these operations may fall short of regulatory standards, rendering them illegal often conducted by local inhabitants or former employees of large corporations, illegal small-scale mining can give rise to social, environmental, and economic challenges (Suglo et al., 2021). In developing nations, illegal mining is frequently associated with limited educational attainment and elevated unemployment rates, posing threats to sustainable development while inducing pollution, biodiversity loss, habitat degradation, and health hazards. Although mining enterprises have the potential to yield substantial profits, they may also engender conflicts and adversities that impede the sustainable socio-economic progress of affected communities (Bugnosen, 2003; Tschakert & Singha, 2007; Nti et al., 2020; Hilson & Potter, 2005; Kervankiran et al., 2016; Guimaraes et al., 2011; Basiha, 2014; Hatu, 2016).

The concept of "illegal finance" may appear straightforward at first glance, but its nuances are manifold. As delineated by the Special Initiatives Division of the United Nations Economic Commission for Africa (UN ECA, 2017), financial flows are categorized into legal or illegal based on their sources and activities. These encompass a spectrum ranging from legitimate commercial transactions to illicit practices such as crime, corruption, and tax evasion. Moreover, the umbrella of illegal financial flows extends to encompass various activities such as bribery, money laundering, and clandestine transfers, as noted by Prakarsa (2016), Saputra and Abdullah (2015), and Kar and Spanjers (2014).

Illegal financial flows encapsulate money or capital that has been obtained, transferred, or utilized in contravention of the law. This encompasses funds commonly referred to as "hot money" and proceeds derived from illicit activities like money laundering, tax evasion, and corruption. Consequently, any monetary streams stemming from actions proscribed by municipal or state authorities fall within the purview of unlawful financial flows. For instance, income generated from illegal mining exemplifies such flows, inflicting both social and economic repercussions such as diminished tax revenues for governments and environmental degradation.

The ramifications of illicit mining extend beyond mere financial implications. While it yields substantial profits, its adverse effects on the environment, livelihoods, social cohesion, and human rights are profound. The culpability of the mining sector's failure to make significant contributions to state coffers lies, in part, in deficient governance policies that foster the influx of illicit funds into the industry. Without due consideration for social, environmental, economic, and health factors, both legal and illegal mining activities can imperil the sustainability of development efforts.

Government officials and informal leaders wield significant influence in the intricacies of development dynamics. Their roles encompass motivation, mediation, and acting as catalysts in community activities, as highlighted by Wahidin et al. (2017). Whether formal or informal, these leaders possess the capacity to either bolster or impede positive initiatives, contingent upon societal dynamics and their own circumstances. Their support, whether overt or covert, explicit or implicit, carries consequential ramifications for societal endeavors.

In Kenya, Samuel et al. (2012) uncovered a myriad of both positive and negative impacts stemming from the presence of mineral mines. These impacts span various domains, including the economy, health, education, and employment. However, the

societal repercussions of illegal mining activities paint a grim picture, adversely affecting cultural values and social cohesion. Hilson et al. (2007) corroborated this, revealing a host of detrimental effects such as heightened rates of prostitution, alcohol abuse, harassment, violence, and increased school dropout rates, exacerbating conditions of extreme poverty within affected communities.

Moreover, Amstrong-Stassen (2008) sheds light on the alarming escalation of intimidation, violence, and human rights violations associated with mining activities. Instances of forced evictions, arbitrary arrests, illegal detentions, rape, and even murder are not uncommon in areas plagued by illicit mining operations. Adding to the bleak scenario, Azumah and Onzaberigu (2018) emphasize that mining activity serves as a catalyst for a downward spiral, precipitating youth disenfranchisement, exacerbating poverty, and perpetuating a cycle of inadequate access to education, recreational facilities, and substandard living conditions, compounded by familial pressures.

Illegal mining activities have significant repercussions, resulting in environmental degradation and a decline in overall environmental quality. Obeng et al. (2019) revealed that mining operations in Ghana lead to environmental harm and reduced agricultural productivity due to water contamination, deforestation, and soil degradation. Similarly, Omotehinse and Ako (2019) highlighted the adverse impacts of mining activities on the environment in Nigeria. In Jordan, Al Rawashdeh et al. (2016) indicated that mining activities failed to benefit the local environment. Furthermore, Faamaa et al. (2020) underscored the detrimental effects of illegal mining in Ghana, including water pollution, deforestation, land degradation, air and noise pollution, and biodiversity loss.

Mining activities indeed play a crucial role in employment generation and can significantly boost people's income. Researchers have discovered that both small-scale and illegal mining activities contribute positively to the economy by creating job opportunities, increasing mineral output, particularly in developing nations, and stimulating growth in the GDP. Moreover, these operations often employ simple technology that minimally affects the environment.

However, alongside these benefits, some unearthed negative consequences are associated with mining activities. For instance, countries can suffer income losses due to smuggling, face food insecurity, and witness the destruction of land surfaces, consequently reducing agricultural and plantation productivity.

Illegal mining is believed to have a profoundly significant impact on public health, with numerous negative effects associated with its presence. Mensah and Darku (2021) support this assertion, revealing that illegal mining, characterized by its lack of regulation, poses external health implications. These include injuries, cancer, silicosis, and pneumoconiosis resulting from prolonged exposure to hazardous substances during mining activities, as well as malaria, respiratory diseases, pulmonary tuberculosis, skin diseases, and ocular conditions.

Furthermore, the World Health Organization (WHO) (Bland et al., 1989) highlighted the biohazard exposure stemming from excessive labor exploitation in mining activities, which contributes to various public health complications. Among these are musculoskeletal disorders such as shoulder ailments, fatigue, and lower back pain experienced by workers.

Moreover, illegal mining activities have been associated with a range of additional adverse effects, including fatalities, injuries, respiratory and dermatological ailments, hearing impairment, physical and psychological stress, as well as heightened risks of contracting malaria and HIV.

This study aims to investigate the involvement of informal leaders and government apparatus in illegal mining practices in the Peurelak region, East Aceh, with a focus on its impacts on social, environmental, economic, and health performance. The involvement of these parties can have a significant influence on the continuation of such illegal activities, either through tolerance, direct support, or active involvement in mining networks. Furthermore, the impacts of this illegal oil mining concern various aspects of community life, including disruption of social balance, environmental degradation, economic losses due to resource theft, and negative health effects from air and wa-

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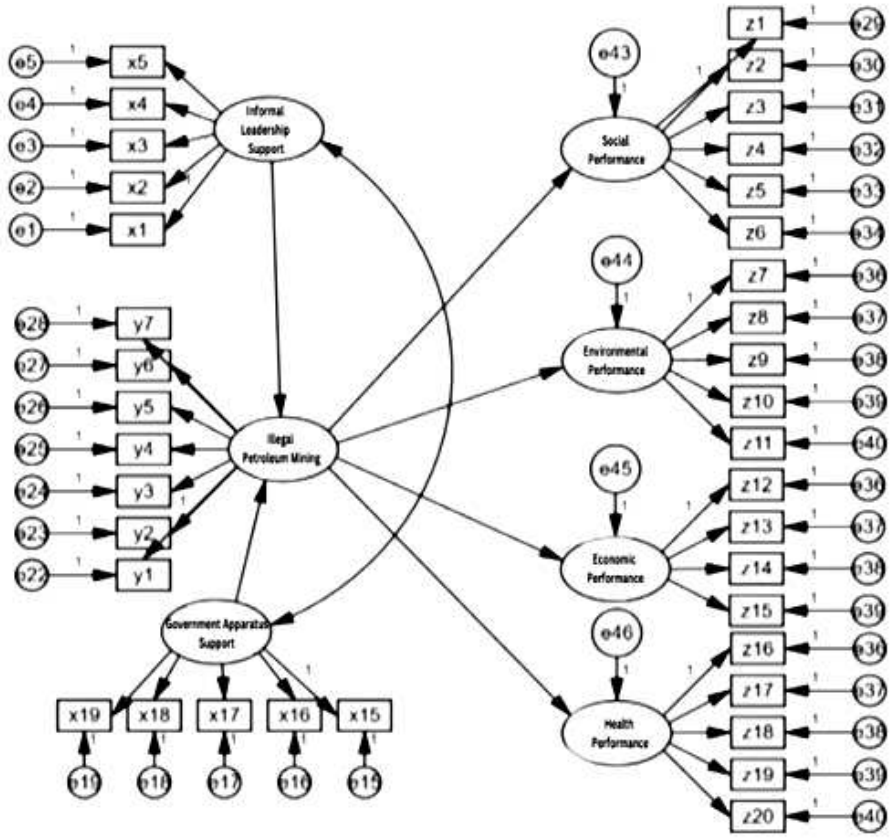

Figure 1. Research model

ter pollution. By comprehensively understanding these impacts, efforts to combat illegal mining practices can be more targeted and effective, supporting the recovery and sustainable development in the Peurelak region and its surrounding areas.

Figure 1 shows the conceptual model developed for this study, and the hypotheses are as follows:

H1: Informal leadership support affects the occurrence of illegal petroleum mining.

H2: Government officials affect the occurrence of illegal petroleum mining.

H3: Illegal petroleum mining can have a significant impact on social conditions.

H4: The repercussions of illegal petroleum mining can lead to a decline in environmental quality.

H5: Illegal petroleum mining directly affects the economy.

H6: The adverse effects of illegal petroleum mining can result in a deterioration of health quality.

2. METHODS

The analysis was conducted in Peurelak, East Aceh. This location was chosen due to the presence of illegal petroleum mining activities, which are exclusive to East Aceh, particularly in Peureulak, despite the presence of petroleum resources in several other districts in Aceh Province. The study population consisted of residents living in Peureulak, totaling 5,691 individuals. A sample of 245 residents was selected based on the number of research indicators, which totaled 32 and was multiplied by 5-10 (Hair et al., 2017). The sample members were selected using proportional random sampling. Primary data were collected through questionnaires distributed to the selected sample members.

The questionnaire was divided into two parts. The first part included questions about the respon-

Table 1. Population distribution and research sample

No.	Respondent	Total Population	Total Samples
1	Owners and Investors	205	9
2	Tenant Investors	412	18
3	Workers/Laborers	1574	68
4	Melting furnace operator	127	6
5	Public figures/Community leaders	80	3
6	General community	3217	138
7	Village government officials	76	3
Total		5691	245

dent's profile, such as status, gender, age, education level, and marital status. The second part consisted of statements related to the investigated indicators. The answers to the first part of the questionnaire used a nominal scale, while the answers to the second part used a five-point Likert scale, where 1 represents "strongly disagree" and 5 represents "strongly agree." The primary data were analyzed using structural equation modeling (SEM) with the Structural Moment Analysis software (AMOS). Table 1 shows the sample distribution according to their status.

3. RESULTS

Table 2 illustrates the characteristics of the respondents, including their status, age, education, gender, income, and residency status. In terms of status, the majority of respondents are from the general public (56.4%), while the smallest proportion originates from the categories of community leaders and village government officials, each comprising 1.2%. In terms of respondents' age, the group aged 40 and above dominates (76.7%), with the fewest respondents falling into the age group of 25 and below (2.9%). Meanwhile, respondents with a high school education level (SMA) are the majority (66.5%), while the smallest number of respondents have a diploma/academy level of education (22%). Regarding gender, male respondents are highly dominant (95.1%), whereas female respondents account for only 4.9%. From the respondents' income perspective, respondents earning below the Regional Minimum Wage dominate (60.8%) compared to those earning above the Regional Minimum Wage (39.2%). Meanwhile, regarding the respondents' origins, respondents from within the mining area dominate (80%), whereas the smallest number of respondents originate from outside the mining area (6.1%).

Figure 2 shows the measurement model. This measurement model is used as one of the indicator tests to confirm the definition of a construct

Table 2. Respondent characteristics

Respondent Status					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Owners and Investors	9	3.7	3.7	3.7
	Tenant Investors	18	7.3	7.3	11.0
	Workers/Laborers	68	27.8	27.8	38.8
	Melting furnace operator	6	2.4	2.4	41.2
	Public figures/Community leaders	3	1.2	1.2	42.4
	Village government officials	3	1.2	1.2	43.6
	General community	138	56.4	56.4	100.0
	Total	245	100.0	100.0	100.0
Age					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Under 25 years	7	2.9	2.9	2.9
	26 – 30 years	16	6.5	6.5	9.4
	31 – 35 years	1	.4	.4	9.8
	36 – 40 years	33	13.5	13.5	23.3
	Over 40 years	188	76.7	76.7	100.0
	Total	245	100.0	100.0	

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Table 2 (cont.). Respondent characteristics

		Frequency	Percent	Valid Percent	Cumulative Percent
Education					
Valid	Senior High School	163	66.5	66.5	66.5
	Diploma/Academy	28	11.4	11.4	78.0
	Bachelor degree	54	22.0	22.0	100.0
	Total	245	100.0	100.0	
Gender					
Valid	Male	233	95.1	95.1	95.1
	Female	12	4.9	4.9	100.0
	Total	245	100.0	100.0	
Income					
Valid	Below the Regional Minimum Wage	149	60.8	60.8	60.8
	Above the Regional Minimum Wage	96	39.2	39.2	100.0
	Total	245	100.0	100.0	
Origin of respondents					
Valid	From within the mining area	196	80.0	80.0	80.0
	From outside the mining area, but still in Aceh	34	13.9	13.9	93.9
	From outside the mining area and outside Aceh	15	6.1	6.1	100.0
	Total	245	100.0	100.0	

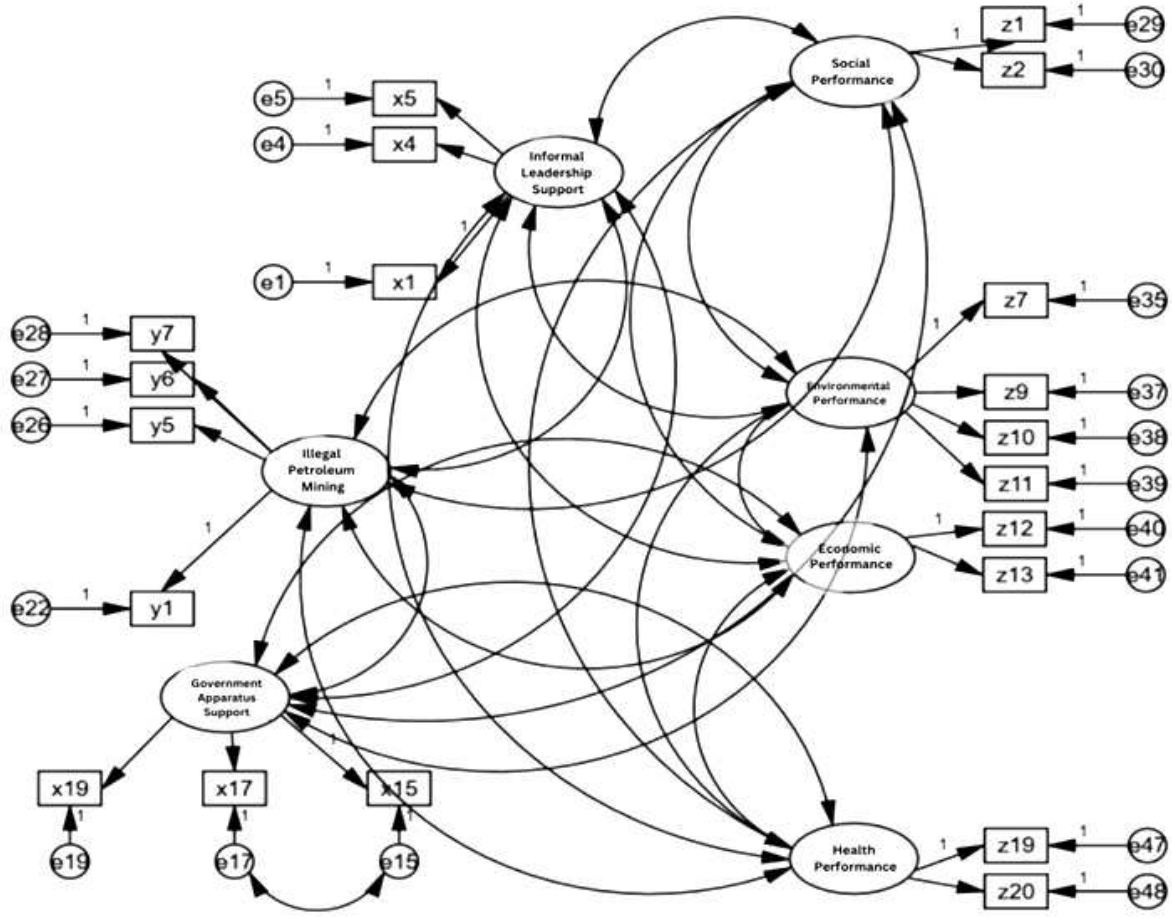

Figure 2. Measurement model

(Hair et al., 2017). The tolerated loading factor value is above 0.5. Model measurements were carried out using the second-order method to analyze confirmatory factor analysis (CFA), which was tested on all indicators. In the first order, not all indicator items met the standard criteria for loading factor > 0.5.

Based on Table 3, indicators that do not meet the criteria have been excluded (x18, y2, y3, y4, z4, z5, z6, z14, z15, z16, z17, and z18). Consequently, in the second order, every indicator with a loading factor value meeting the criteria underwent structural analysis (SEM test) within the proposed structural model. The resulting model from the second-order analysis is depicted in Table 5.

Table 4 shows the results of the goodness of fit indices evaluation. Evaluation of the feasibility test was analyzed using the goodness of fit criteria with several index criteria and cut-off values so that the research model became fit or good.

Structural model testing was carried out to check the relationship between variables, the significance value, and the *R*-square value of the research model. The structural model was evaluated by using the *R*-square value for each dependent variable, the *t*-test, and the significance of the structural path parameter coefficients. The structural test results are presented in Table 5.

Table 3. Standardized regression weights

Indicator	Influence on	Variable	Estimate
x1	←	Informal Leadership Support	.573
x2	←	Informal Leadership Support	.571
x3	←	Informal Leadership Support	.551
x4	←	Informal Leadership Support	.587
x5	←	Informal Leadership Support	.592
x15	←	Government Apparatus Support	.670
x16	←	Government Apparatus Support	.695
x17	←	Government Apparatus Support	.743
x18	←	Government Apparatus Support	.461
x19	←	Government Apparatus Support	.744
y1	←	Illegal Petroleum Mining	.534
y2	←	Illegal Petroleum Mining	.453
y3	←	Illegal Petroleum Mining	.495
y4	←	Illegal Petroleum Mining	.487
y5	←	Illegal Petroleum Mining	.541
z1	←	Social performance	.784
z2	←	Social performance	.739
z3	←	Social performance	.731
z4	←	Social performance	-.024
z5	←	Social performance	-.213
z6	←	Social performance	-.159
z7	←	Environmental Performance	.563
z8	←	Environmental Performance	.564
z9	←	Environmental Performance	.585
z10	←	Environmental Performance	.559
z11	←	Environmental Performance	.578
z12	←	Economic Performance	.645
z13	←	Economic Performance	.621
z14	←	Economic Performance	.407
z15	←	Economic Performance	.411
z16	←	Health Performance	.161
z17	←	Health Performance	.231
z18	←	Health Performance	.322
z19	←	Health Performance	.646
z20	←	Health Performance	.679

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Table 4. Goodness of fit indices

Goodness of Fit Index	Cut off Value	Model Test Result	Information
Degree of Freedom	Positive (+)	148	Positive
Chi-Square (CMIN/DF)	Table (105.075)	1.355	Acceptable
Significant Probability	≥ 0.05	0.03	Marginal
GFI	≥ 0.90	0.929	Acceptable
RMSEA	< 0.08	0.038	Acceptable
TLI	≥ 0.90	0.963	Acceptable
CFI	≥ 0.90	0.971	Acceptable
NFI	≥ 0.90	0.901	Acceptable
PNFI	0.60-0.90	0.702	Acceptable

Table 5. Structural model testing results

Variable	Influence on	Variable	Estimate	S.E.	C.R.	P
Illegal Petroleum Mining	←	Informal Leader Support	.720	.302	2.385	.017
Illegal Petroleum Mining	←	Government Apparatus Support	.065	.070	.924	.035
Social Performance	←	Illegal Petroleum Mining	–.190	.303	–.627	.031
Environmental Performance	←	Illegal Petroleum Mining	–.709	.390	–1.816	.029
Economic Performance	←	Illegal Petroleum Mining	.100	.250	.399	.021
Health Performance	←	Illegal Petroleum Mining	–.290	.500	–2.583	.010

4. DISCUSSION

Based on the results of the first hypothesis testing, as outlined in Table 5, the probability value for informal leader support for illegal oil mining is .017, which is less than .05. This indicates that the probability is statistically significant. Therefore, these findings suggest that informal leader support indeed has an influence on illegal oil mining in Peurelak, East Aceh. Malca et al. (2023) discovered that informal leadership has a significant impact on illegal mining activities. The study suggests that the formalization of mining has not been successful due to several reasons. Formalization is perceived as not yielding substantial profits for miners, being costly and bureaucratic, whereas informality does not pose discomfort for miners.

Informal leadership support refers to the support provided by individuals or groups within an organization without using formal authority or officially regulated hierarchical positions. This means that an individual or a group of people provide support, influence, guidance, or motivation to their peers without being their direct superiors. In the context of informal leadership, someone may act as a leader or a driving force within a team or project even though they do not hold a formal managerial or supervisory position. This support can include offering new ideas, solving problems, mentoring colleagues in performing specific tasks or providing emotional support in challenging situations.

Illegal petroleum mining refers to the drilling or extraction activities of petroleum without official permission from the government or in violation of laws regulating petroleum mining. This usually occurs when individuals or groups engage in drilling activities without obtaining the necessary permits from the relevant authorities.

The results of the second hypothesis testing in Table 5 indicate that the probability value associated with the government apparatus support for illegal petroleum mining variable is .035, which is less than .05. This implies that the probability is smaller than .05. Therefore, this outcome suggests that the influence of the government apparatus support variable on illegal petroleum mining is both positive and significant. Earlier studies have identified the participation of government officials who clandestinely endorse traditional mining (Amoako et al., 2022). Researchers suggest implementing innovative and participatory interventions to ensure the effective enforcement of current mining and environmental protection policies and laws.

However, it is important to note that "support" in this context does not always imply positive support. Support from government officials could involve turning a blind eye without implementing firm policies to address such illegal activities or even simply ignoring the issue without taking any action.

This suggests that in some cases, government officials may have a non-constructive role in controlling illegal activities such as illegal oil mining. This could be due to various factors, ranging from corruption to a lack of awareness of the negative impacts of these illegal activities on the environment and society.

The results of the third hypothesis testing, as confirmed in Table 5, indicate that the probability value for illegal oil mining influencing social performance is .031, with a p-value < .05, demonstrating significance. However, it has a negative impact (B = –.190), indicating that there is indeed an influence from the illegal oil mining variable. The significant impact of mining activities on social performance is noteworthy, as it suggests that increased mining activity correlates with a decrease in social performance. Therefore, these findings affirm that illegal petroleum mining can significantly deteriorate the social conditions of communities. This revelation can serve as the foundation for policy recommendations or further actions aimed at addressing this issue and safeguarding the well-being of communities impacted by illegal mining practices. Kühnel et al. (2023) discovered that mining activities can adversely affect the local community environment.

Based on these findings, which demonstrate the negative impact of illegal mining on the community environment, it is crucial for the Aceh government to take proactive measures in managing mining activities. One of the steps that can be taken is to strengthen regulations and supervise the mining industry to ensure that resource extraction practices are carried out responsibly and sustainably. This can be achieved by enhancing environmental monitoring, implementing strict sustainability standards, and imposing strict penalties for violations.

The fourth hypothesis testing yielded a probability value of .029 for the illegal oil mining impact on environmental performance, with a p-value < .05, indicating a significant negative impact (B = –.709). This signifies that illegal oil mining significantly negatively affects environmental performance. In other words, increased mining activity leads to lower environmental performance. Previous research found a decline in environmental quality due to illegal gold mining in Ghana (Faseyi et al., 2022), especially river water quality.

In addition to law enforcement and outreach initiatives, the government should promote the advancement of renewable energy as a sustainable alternative. Support for research and development in renewable energy technologies like solar panels, wind turbines, and geothermal energy can reduce reliance on petroleum and mitigate environmental degradation. Furthermore, offering incentives and subsidies for adopting renewable energy solutions at the grassroots level can incentivize both communities and industries to transition toward cleaner and more environmentally sustainable energy sources.

The results of the fifth hypothesis testing, as summarized in Table 5, indicate a probability value of .021 with a p-value <.05, indicating a positive impact (B = .100). This implies that illegal oil mining significantly and positively influences economic performance. In other words, increased mining activity leads to improved economic performance for both the community and miners. This discovery reinforces previous research findings indicating that illegal mining significantly affects economic performance and the present welfare of the community (Mitchell, 2006).

Economic performance in the context of illegal oil mining in Peurelak, East Aceh, refers to the evaluation or assessment of economic performance related to such activities. This includes a range of economic indicators used to measure the contribution and impact of illegal oil mining activities on the economy of a specific region, country, or area.

These findings align with prior research conducted in several developing countries across Africa, Asia, and South America. Similar to these regions, illegal oil mining has emerged as a primary economic activity within the communities studied. This phenomenon can be attributed to the economic conditions and limited employment opportuni-

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ties prevalent in these areas. Given the scarcity of productive agricultural land, illegal oil mining has become a viable alternative livelihood for the local population.

The illicit oil mining operations have absorbed a significant workforce and generated substantial income for the community. Field observations indicate that each miner can extract an average of 2 barrels of crude oil per day. With 469 operational wells in the research locations, the collective output amounts to 938 barrels of crude oil daily. Based on interviews revealing a selling price of IDR 1,250,000 per barrel, the total revenue generated from this illegal activity reaches IDR 1,172,500,000. This influx of funds plays a crucial role in stimulating economic growth within these areas.

The structural testing of the sixth hypothesis indicates that the probability value of illegal oil mining on health performance is .010, where a p-value is < .05. (Table 5). This suggests a negative impact (B = –0.290). Therefore, illegal oil mining has a significant and negative influence on health performance. This means that the higher the mining activity, the more it will negatively affect the health performance of both miners and the general public. Previous findings strengthen this conclusion, indicating that every instance of illegal mining activity significantly harms society, especially in terms of health performance (Rozo, 2020; Espin & Perz, 2021).

Health performance in the context of illegal oil mining in Peurelak, East Aceh, refers to the health condition and physical performance of workers involved in such illegal activities. Illegal oil mining is often carried out irregularly and without adequate protection, leading to various health risks for both workers and the surrounding community, such as exposure to hazardous chemicals, workplace accidents, and negative environmental impacts. Therefore, evaluating health performance is crucial to ensure the safety and health of workers involved in illegal oil mining activities in Aceh.

The study offers some recommendations for policymakers regarding illegal oil mining in Aceh, which has negative impacts on social, economic, and health performance, as well as allegations of covert government support for this illegal mining:

1) Strengthening Law Enforcement: Enhance law enforcement against illegal oil mining through routine and intensive raids. Take decisive action against illegal actors, including strict law enforcement and appropriate sanctions according to applicable regulations.

2) Transparency and Accountability: Provide transparent information regarding oil mining activities in Aceh, including those conducted illegally. Ensure government accountability for actions or support given to illegal miners.

3) Environmental and Health Oversight Strengthening: Conduct comprehensive environmental impact assessments of illegal mining activities to identify risks and implement appropriate mitigation measures. Pay special attention to the health impacts on communities living around illegal mining areas and provide adequate healthcare services.

4) Promotion of Legal and Sustainable Mining: Encourage investments in legal and sustainable oil mining by offering incentives and adequate facilities for law-abiding businesses. Promote awareness about environmentally friendly mining practices and their long-term benefits for communities and regional economies.

5) Collaboration among Stakeholders: Foster collaboration among local government, law enforcement agencies, NGOs, and civil society to monitor and report illegal activities and jointly develop solutions to address this issue.

6) Education and Community Outreach: Raise awareness about the dangers and negative impacts of illegal mining to help communities understand the importance of supporting law enforcement efforts and legal economic activities. Provide education on sustainable livelihood alternatives that do not harm the environment for communities dependent on this sector.

By implementing these recommendations, the negative impacts of illegal oil mining in Aceh can be reduced while strengthening the overall social, economic, and health aspects of the community.

CONCLUSION

The objective of this study is to identify several significant findings related to illegal oil mining in Peurelak, East Aceh. Firstly, the study aims to reveal the involvement of informal leaders and government officials in these illegal mining practices. This highlights the complexity of the issue and the need for cross-sectoral actions to address it.

Secondly, the study also identified significant negative impacts of illegal mining activities on various performance aspects, including social, environmental, and health dimensions. The escalation of mining activities contributes to the deterioration of social and environmental quality, as well as emerging health issues within the surrounding community.

Thirdly, despite the notable negative impacts, the study highlights the positive effects of illegal mining activities on the economic performance of the region. Local communities derive additional income from these activities, which, within the context of economic deprivation, could be perceived as advantageous.

Overall, the paper underscores the necessity for a holistic approach to addressing illegal mining issues, considering the balanced integration of social, environmental, health, and economic aspects. Enforcement efforts and the development of sustainable alternative economies can serve as initial steps in effectively resolving this problem.

AUTHOR CONTRIBUTIONS

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