

Analysis of the Impact of the Mining Industry on the Social and Economic Conditions of the Community Around the Industrial Area of Konawe Regency

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Abstract

Nickel mining industrialization has expanded rapidly as part of Indonesia's downstream resource policy aimed at stimulating economic growth and regional development. Conceptually, the presence of industry is expected to generate multiplier effects such as increased income, employment opportunities, and local economic activity. In practice, however, a development paradox often occurs in which economic growth is not always followed by improved community welfare. Differences in the level of exposure among communities surrounding industrial areas create unequal distribution of benefits and risks, requiring an impact analysis based on affected rings. This study aims to analyze the social and economic impacts of mining industry activities on communities around the industrial area of Konawe Regency and to evaluate the effectiveness of Corporate Social Responsibility (CSR) programs. A descriptive qualitative approach was employed using observation, in-depth interviews, and documentation in villages classified into Ring 1 (directly affected) and Ring 2 (indirectly affected). The results show that Ring 1 experiences the most significant social, economic, and environmental pressures, characterized by the decline of traditional livelihoods, limited access to formal mining employment, degradation of natural resources, changes in social interaction, and inequality in local power structures. Ring 2 remains relatively stable and benefits from economic multiplier effects through the growth of trade and services. CSR programs remain partial and have not been oriented toward productive economic empowerment, so the benefits received by communities are not proportional to the impacts, especially in Ring 1. The study emphasizes the importance of participatory, inclusive, and sustainable environmental management and CSR implementation based on local needs to ensure fair community welfare improvement.

Keywords: *Mining Industry, Affected Rings, Socio-Economic Impact, CSR, Local Communities, Sustainability.*

Introduction

Economic development in developing countries, including Indonesia, still relies on the utilization of natural resources as the main driver of growth. The mining sector holds a strategic position because it plays a role as a provider of industrial raw materials, a source of state revenue, and a driver of industrialization through downstream policies. The mandate of Article 33 paragraph (3) of the 1945 Constitution, as affirmed in Law No. 4 of 2009 in conjunction with Law No. 3 of 2020, emphasizes the importance of increasing the added value of domestic minerals to create a multiplier effect for the regional economy. Normatively, mining industrialization is expected to accelerate the transformation of the economic structure from the primary sector to the industrial and service sectors and improve community welfare.

However, various literature shows that natural resource-based economic growth does not always go hand in hand with increased social welfare. The concept of the resource curse (Auty, 1993) explains that resource-rich regions often experience economic dependency and inequality. Bebbington et al. (2008) emphasize that mining not only impacts the local economy but also changes social structures, power relations, and land tenure systems. Freudenburg (1992), through the concept of the boomtown

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effect, shows that large-scale industrial expansion can trigger population surges, changes in social norms, and pressure on community social facilities.

In the Indonesian context, Erman (2010) found a shift in community livelihoods from the agricultural sector to the service and trade sectors around mining areas. Resosudarmo et al. (2012) showed that economic growth in mining areas is often accompanied by increasing income inequality. Salim (2015) added that corporate CSR programs have not fully addressed sustainable economic empowerment. More recent research by Arifin et al. (2020), Sari and Nugroho (2021), Rahman et al. (2022), Putri and Hidayat (2023), and Yusuf et al. (2024) confirms that the benefits of industrialization tend to be enjoyed more by certain groups, while local communities face limited access to formal employment, rising living costs, and the emergence of new social stratification.

This phenomenon is also evident in the nickel industrial areas of Konawe Regency, such as those of PT OSS and PT VDNI, which are driving the transformation of the regional economy from an agrarian to an industrial and service-based one. On the one hand, industrial activity increases local economic turnover through the growth of trade and services. However, on the other hand, the influx of labor migration, rising land and basic necessities prices, and limited local skills create complex social dynamics. Therefore, an empirical study is needed to comprehensively analyze the impact of the mining industry on the social and economic conditions of communities surrounding industrial areas in Konawe Regency to support more inclusive and sustainable development.

Literature Review

Mining Industry as Natural Resource Processing

According to Chatterjee (2015), mining is a form of utilization of non-renewable natural resources that plays a crucial role in supporting a country's economic structure, industrial development, and technological advancement. Globally, demand for mining commodities continues to increase along with the development of the battery industry, electric vehicles, and renewable energy technologies. This makes the mining sector a frequent driver of economic growth, particularly in mineral-rich regions such as Konawe Regency. Therefore, the mining sector is viewed not only as an activity of exploiting natural resources but also as a catalyst for regional economic transformation. Pearce and Turner (1990) added that the utilization of natural resources must consider the balance between short-term economic benefits and long-term environmental costs. According to them, sustainable development can only be achieved if natural resource exploitation is carried out while considering environmental carrying capacity and the sustainability of ecosystem functions. Meanwhile, according to Soemarwoto (1994), mining activities cannot be separated from the multiple impacts they generate. On the one hand, mining can increase regional income through taxes, royalties, and derivative economic activities. Todaro and Smith (2012) also view the mining sector as a driving force for regional development because it creates a multiplier effect. The presence of mining can increase economic mobility, open new business opportunities, and encourage infrastructure development such as roads, electricity, bridges, and other public facilities. From a social perspective, Bebbington (2015) explains that mining activities significantly change the social structure of local communities. The influx of labor from outside the region, increasing urbanization, and shifts in livelihoods from agriculture to industry are common phenomena in mining areas.

The Existence of the Nickel Mining Industry In Southeast Sulawesi

Southeast Sulawesi is known as one of the regions with the greatest nickel potential in Indonesia, with most of the laterite deposits spread across Konawe, North Konawe, Kolaka, and the industrial buffer zone in Morowali. According to a study by the Ministry of Energy and Mineral Resources, this region holds strategic nickel reserves for national economic development, especially after Indonesia placed significant emphasis on mineral downstreaming. These abundant nickel reserves make the region a magnet for investment in the international mining and mineral processing industry. According to Taufik & Santoso (2020), the development of nickel mining in Southeast Sulawesi is part of a structural transformation resulting from changes in national policy, particularly the ban on raw ore exports and the encouragement of smelter construction. From a social perspective, experts also offer critical insights. According to Suryadi (2021), the expansion of nickel mining in Southeast Sulawesi offers "two faces of development." The first face is the acceleration of prosperity, as seen in increased community income, increased job opportunities, and the growth of small businesses in services, transportation, and local trade. From an environmental and governance perspective, experts such as Wijayanti & Brooks (2019) highlight that nickel mining in Southeast Sulawesi carries significant ecological risks, particularly to soil, water, and air quality. They emphasize that without strong regulatory

oversight and a commitment to sustainability from companies, regions like Konawe and Morosi are vulnerable to long-term environmental degradation. Globally, the presence of nickel mining in Southeast Sulawesi is of particular concern because nickel is a key raw material for electric vehicle (EV) batteries, a key pillar of the global energy transition. The International Energy Agency (IEA) notes that demand for Class 1 nickel continues to increase along with the growth of the electric vehicle and renewable energy industries. This strengthens Southeast Sulawesi's position as part of the global strategic supply chain. As Manfredo & Ricketts (2022) argue, nickel-producing regions have the potential to become "global energy hubs" if managed with an integrated and sustainable industrial approach.

The Concept of Rings Affected by Mining Industry Activities

The industrial activity impact circle (ring) is a grouping of community areas based on geographic proximity and the intensity of the impact of industrial activities on the community's social, economic, and environmental conditions. In regional development studies, this concept is used to identify those most impacted, thus providing a basis for socioeconomic analysis and determining the targets of community empowerment programs. In the mining industry, communities surrounding industrial areas experience varying impacts. Differences in distance from the operational location lead to differences in the intensity of changes in livelihoods, population mobility, land prices, employment opportunities, and social relationship patterns. Therefore, community areas are classified into several categories of impacted circles (rings of impact). Various studies have shown that the level of proximity significantly determines the type of impact experienced by the community. Arifin et al. (2020) found that communities living closest to industrial areas experience the greatest economic opportunities and the highest social pressures. Sari and Nugroho (2021) showed that the most significant livelihood changes occurred in the main mining area. Rahman et al. (2022) identified increases in land prices and the cost of living, especially in villages located around industrial centers. Putri and Hidayat (2023) found a social gap emerging between communities integrated with industry and those outside the main circle. Yusuf et al. (2024) emphasized that the effectiveness of CSR programs is greatly influenced by the accuracy of determining affected areas because misclassification results in misdirected aid. According to Fischer & van der Ploeg (2017), areas directly adjacent to mining sites will experience the most rapid social and economic change compared to more distant areas. They explained that proximity to mining sites results in direct impact exposure, meaning communities directly experience changes in economic activity such as the growth of local trade, increased employment, and changes in household income structure. Socially, Bebbington et al. (2018) suggested that villages or sub-districts located within a short radius of mining often face greater social pressures than those located further away. These pressures include changes in social interaction patterns, increased labor migration, competition for public facilities, and the potential for conflict between local communities and migrants. According to Santosa (2022), the proximity of mining and residential areas in Indonesia's nickel industrial areas often occurs due to a lack of spatial planning or delays in adjusting the Regional Spatial Plan. As a result, many villages end up "surrounded by industry," making social adaptation unavoidable.

Social Impact of the Mining Industry

The presence of the mining industry in a region brings significant social change, both in the form of opportunities and challenges for local communities. Theoretically, mining activities are always associated with the emergence of social externalities, namely social consequences arising from extractive industrial activities and directly felt by the surrounding community (Hanna & Vanclay, 2013). These social impacts can include changes in employment structures, social relationship patterns, population dynamics, and changes in culture and community values. According to Bebbington et al. (2018), the mining sector is one of the industries with the largest "social footprint" in the world. They explain that the presence of mining often triggers rapid social change, especially in rural areas or those previously dependent on the agricultural sector. These changes include shifts in community livelihoods, increased interaction with newcomers, and changes in consumption patterns and lifestyles of local communities. The area around the Industrial Area in Konawe Regency is a clear example of how the social impacts of mining emerge in a complex manner. Before the arrival of the nickel industry and smelters, the community relied heavily on agriculture and plantations. However, over the past decade, the region's social structure has drastically transformed into an intensively industrialized zone filled with local and migrant workers. These changes bring benefits such as increased job opportunities and the growth of local businesses, but also pose challenges such as increased population density, lifestyle changes, increased cultural interaction, and potential conflicts over land and the environment. This situation aligns with the concept of rapid social change, as explained by development sociologists such

as Rogers (2003), which states that large-scale industrialization in a short period of time will result in intense social change.

Economic Impact of the Mining Industry

The existence of the mining industry is one factor that can drive significant economic change in society. In many literatures, mining is categorized as a sector with a high multiplier effect, where this industrial activity can drive the growth of various supporting sectors such as services, trade, transportation, and construction (Todaro & Smith, 2012). According to Auty (1993), mining is a sector that can be a source of economic growth by increasing added value, regional income, and investment. However, Auty also warned about the potential resource curse or "resource curse" that occurs when mining-producing regions are unable to optimally manage mineral wealth, thus not generating welfare for the community. Based on regional development theory, the McKinsey Global Institute (2013) stated that the mining sector can increase community income through job creation, both direct jobs in mining companies and indirect jobs such as food, lodging, trade, and transportation services. In addition, Bebbington et al. (2008) explained that the presence of mining also encourages the development of infrastructure such as roads, electricity, clean water, and other public facilities. From a macroeconomic perspective, Sachs & Warner (2001) suggest that mining plays a role in increasing government revenue through taxes, royalties, and regional levies. In the nickel industry, particularly in regions like Southeast Sulawesi, Jaffe & O'Connell (2020) highlight that nickel downstreaming through smelter construction creates a new economic corridor that increases investment activity, creates jobs, and stimulates the growth of supporting sectors. According to Suparmoko (2009), mining areas typically undergo a transformation from an agricultural sector to an industrial and service sector, resulting in increased local economic turnover.

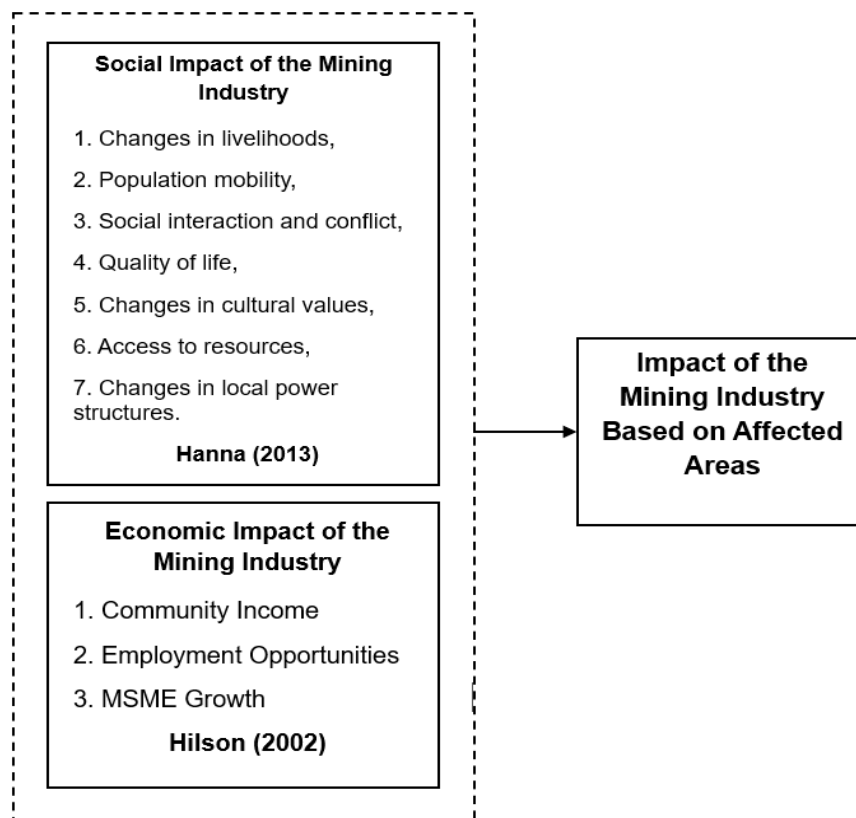


Figure 1 Conceptual Framework

Research Methods

This research was conducted in Southeast Sulawesi Province, a strategic region for the development of the national mining industry. This province is known to have very large nickel reserves spread across several districts, making it a center for nickel extraction and downstream processing activities in Indonesia. Informants in this study were determined purposively based on their level of

exposure and involvement in the mining and mineral refining industry activities in Konawe Regency. The main informants were local communities living around the industrial area, both directly and indirectly affected, including heads of families, women, vulnerable groups, and communities experiencing changes in livelihoods and income. In addition, community leaders, traditional leaders, and village officials were involved as key informants to understand the dynamics of social structural changes and potential conflicts. From an economic perspective, informants included industrial workers, small and medium business owners, and people experiencing job transitions. Meanwhile, from a policy perspective, informants came from relevant local government agencies to explore policy implementation and handling of socio-economic impacts.

Research Result

The Impact of Mining on Social Conditions in the Community

Changes in Livelihood: The presence of the mining industry has opened up new job opportunities, both directly and indirectly. However, these opportunities have not significantly changed the structure of community livelihoods. Some communities remain dependent on traditional occupations such as farming, day labor, and small businesses due to limited education and the technical skills required by the industry. In villages located very close to industrial areas, changes in livelihoods tend to be negative. Some gardens, fish ponds, and traditional businesses have experienced decreased productivity due to environmental impacts such as dust and changes in water quality. This indicates that the economic transformation is not fully inclusive and does not automatically replace lost sources of livelihood.

Unemployment Rate: Theoretically, the presence of large-scale industry is expected to reduce the unemployment rate by creating new jobs. However, research shows that the relationship between the mining industry and unemployment is not linear. In villages closest to mining activity centers, unemployment actually increases due to disruptions to traditional livelihoods and limited access for local residents to formal employment in companies. Conversely, in villages relatively far from industrial areas, employment conditions tend to be more stable because residents still have gardens and small businesses that can support their livelihoods. This situation demonstrates that the impact of industry on unemployment is strongly influenced by distance, human resource capacity, and the adaptability of the local economy.

Changes in Power Structures and Local Governance: The entry of the mining industry has also impacted power structures at the village level. Companies, as actors with substantial economic resources and access to information, wield strong influence in local decision-making processes. The roles of customary institutions and village deliberation forums have tended to shift, with the increasing dominance of industry actors in regional governance. These changes indicate a concentration of power in the hands of actors with the greatest resources, necessitating the strengthening of village government capacity and participatory mechanisms to maintain a balanced governance system.

Community Quality of Life: From a quality of life perspective, the impact of the mining industry exhibits ambivalent dynamics. On the one hand, there is increased economic activity and income opportunities for some communities. However, on the other hand, environmental pressures such as dust, noise, and decreased clean water quality impact community health and well-being. Several villages experience reduced access to natural resources, particularly clean water and productive land. This demonstrates that economic growth is not always accompanied by an overall improvement in quality of life, particularly for groups living closest to industrial areas.

The Impact of Mining on the Economic Conditions of the Community

Community Income: The presence of the mining industry provides additional income for some residents, primarily through contract work, daily labor, and industry support businesses. However, this additional income is generally temporary and unstable. In villages very close to industrial areas, many residents have experienced a decrease in income due to the destruction of gardens and fish ponds, and the decline in boarding houses and food stalls. Meanwhile, in villages relatively far away, community income tends to be stable but does not show significant increases. The majority of residents still rely on garden produce and small businesses as their primary source of income. This situation indicates that the economic impact of the industry is limited and has not yet fully improved welfare evenly.

Growth of Micro and Small Enterprises: Data shows an increase in the number of micro and small businesses around industrial areas, particularly in the trade and service sectors. Some businesses have

adjusted their operating hours and expanded their product range to meet the needs of industrial workers. However, this business growth remains adaptive and highly dependent on the dynamics of industrial activity. Limited capital, access to financing, and managerial capacity are key obstacles to strengthening business sustainability. Without adequate policy support and mentoring, these businesses are vulnerable to changing economic conditions and fluctuations in industrial activity.

Corporate Social Responsibility (Csr) Implementation

Companies have implemented CSR programs that include the provision of public facilities and social assistance, and some communities have benefited from these programs. However, CSR implementation has not fully addressed the community's basic needs, particularly in terms of long-term economic empowerment. Community involvement in CSR program planning remains limited, resulting in suboptimal effectiveness. Overall, this discussion indicates that the mining industry in Konawe Regency has had a positive economic impact on some community groups, but has also given rise to social inequality, environmental pressures, and changes in local social and power structures. Therefore, strengthening more inclusive, participatory, and sustainability-oriented policies is necessary so that the benefits of industrialization can be felt more fairly and equitably by all communities.

Conclusion

Based on the results of the discussion in the previous chapter, the following conclusions can be put forward in this study:

Operational management of the mining industry has been ongoing and supports production activities and regional economic growth, but it has not been fully integrated with community social and environmental management. Corporate social responsibility programs are still short-term assistance and not empowerment-based. Environmental impact management is also suboptimal, as communities continue to experience dust, noise, and decreased water quality and productive land. Based on regional zoning, management weaknesses are most evident in Ring 1, which faces directly with industrial activities. In Ring 2, management impacts are partially felt, while in Ring 3, the influence of industrial management is relatively minor because it does not interact directly with operational activities.

The presence of the mining industry has caused changes in the social structure of the community, including decreased social cohesion, changes in interaction patterns, and the emergence of potential conflicts due to unequal access to jobs and environmental impacts. Population mobility has increased with the influx of migrant workers and the displacement of some local residents. Cultural changes have also occurred through reduced participation in traditions and mutual cooperation. Based on zoning, the greatest social impacts occur in Ring 1 in the form of social pressure and latent conflict. Ring 2 is in the social adaptation phase with changes in community relations, while Ring 3 is relatively stable because traditional social structures still persist.

The mining industry creates new economic opportunities, but the benefits are unevenly distributed. Some communities lose traditional livelihoods and turn to informal employment with unstable incomes. Access to formal employment is limited due to the skills and dominance of out-of-town labor, while the cost of living rises. Based on regional zoning, Ring 1 experiences high economic dependence but low welfare, Ring 2 experiences a mix of benefits and losses, while Ring 3 is relatively stable because the community's economy is not directly dependent on the industry. This indicates that regional economic growth does not automatically improve the welfare of local communities.

It is recommended that future research examine the impact of the mining industry longitudinally and use a mixed quantitative and qualitative approach to obtain a more comprehensive picture of changes in community welfare.

References

- [1] Adriyanto. (2024). Social and Economic Impact of Industrialization Nickel Mining on The Community (Study of Wonuamorome Village, Konawe Regency). Kendari: Universitas Halu Oleo.
- [2] Auty, R. M. (1993). Sustaining Development in Mineral Economies: The Resource Curse Thesis. Routledge.
- [3] Awaliah. (2025). Dampak Keberadaan Industri Nikel (Studi di Desa Paku Jaya dan Desa Morosi). Kendari: Universitas Halu Oleo.
- [4] Bamberger, M., & Davis, R. (2012). RealWorld Evaluation: Working Under Budget, Time, Data, and Political Constraints. Sage Publications.
- [5] Bernard, T., & Esteva, G. (2016). Grassroots Post-Modernism: Remaking the Soil of Cultures. Zed Books.
- [6] Burdge, R. J. (2004). A Community Guide to Social Impact Assessment. Social Ecology Press.

- [7] Bridge, G. (2004). Contested terrain: Mining and the environment. *Annual Review of Environment and Resources*, 29, 205–259.
- [8] Dale, R. (1997). *Resource Economics*. John Wiley & Sons.
- [9] Davis, K. (1949). *Human society*. New York: Macmillan.
- [10] Fischer, C., & van der Ploeg, F. (2017). Environmental policy, pollution spillovers and spatial externalities. *Journal of Public Economics*, 147, 45–59.
- [11] Fujita, M. (1989). *Urban Economic Theory: Land Use and City Size*. Cambridge University Press.
- [12] Frank, A. G. (1967). *Capitalism and underdevelopment in Latin America*. New York: Monthly Review Press.
- [13] Hanna, P., & Vanclay, F. (2013). Human rights, Indigenous peoples and the concept of Free, Prior and Informed Consent. *Impact Assessment and Project Appraisal*, 31(2), 146–157.
- [14] Hilson, G. (2002). An overview of land use conflicts in mining communities. *Land Use Policy*, 19(1), 65–73.
- [15] Henderson, J. V. (2010). Cities and spatial externalities. *Journal of Economic Geography*, 10(1), 1–24.
- [16] International Energy Agency. (2022). *Global Energy Review: The Role of Minerals in Clean Energy Transitions*. IEA Publications.
- [17] Jaffe, S., & O'Connell, S. (2020). Industrial policy and the future of the nickel sector in Indonesia. *Journal of Development Studies*, 56(7), 1234–1249.
- [18] Manfredo, M., & Ricketts, T. (2022). Critical minerals and the future of global energy systems. *Energy Policy*, 165, 112–125.
- [19] Marx, K. (1867). *Capital: A critique of political economy (Vol. 1)*. Hamburg: Otto Meissner Verlag.
- [20] McKinsey Global Institute. (2013). *Reverse the Curse: Maximizing the Potential of Resource-Driven Economies*. McKinsey & Company.
- [21] North, D. C. (1955). Location theory and regional economic growth. *Journal of Political Economy*, 63(3), 243–258.
- [22] Pearce, D., & Turner, R. K. (1990). *Economics of Natural Resources and the Environment*. Johns Hopkins University Press.
- [23] Richardson, H. W. (1978). *Regional and Urban Economics*. Penguin Books.
- [24] Rogers, E. M. (2003). *Diffusion of Innovations (5th ed.)*. Free Press.
- [25] Sachs, J. D., & Warner, A. M. (2001). The curse of natural resources. *European Economic Review*, 45(4), 827–838.
- [26] Suryadi, A. (2021). Dampak pertambanganan nikel terhadap struktur sosial ekonomi masyarakat lokal. *Jurnal Sosiologi Pembangunan*, 12(1), 45–60.
- [27] Suryono, A. (2010). *Kebijakan Sumber Daya Alam dan Pembangunan Nasional*. Bumi Aksara.
- [28] Smith, A. (2011). *The wealth of nations (Reprint edition)*. London: Penguin Classics.
- [29] Todaro, M. P., & Smith, S. C. (2012). *Economic Development (12th ed.)*. Pearson.
- [30] Undang-Undang Republik Indonesia Nomor 4 Tahun 2009 tentang Pertambanganan Mineral dan Batubara.
- [31] Vanclay, F. (2003). International principles for Social Impact Assessment. *Impact Assessment and Project Appraisal*, 21(1), 5–12.
- [32] Wijayanti, R., & Brooks, J. (2019). Nickel mining, environmental degradation, and sustainability challenges in Eastern Indonesia. *Environmental Management Journal*, 62(3), 310–325.
- [33] WCED (World Commission on Environment and Development). (1987). *Our common future*. Oxford: Oxford University Press.
- [34] World Bank. (2012). *New Mining Policy Trends: The Contribution of Mining to Sustainable Development*. World Bank Publications.