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Analysis of Company Performance in the Coal Subsector from the Sustainability Development Goals's Perspective in Indonesia

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ABSTRACT

Environmental issues have been under discussion for the last few years in various countries. The world, including Indonesia, has become more polluted and stakeholders are busy looking for solutions to maintain biodiversity. This research analyzes the performance of coal subsector companies listed on the Indonesian Stock Exchange from the perspective of sustainability development goals. The population in this study is 22 coal subsector companies, which the coal subsector is the largest mining sector in Indonesia and it contributes to several causes of environmental problems. The research method is carried out by scoring 17 indices of sustainability development goals. Data was taken from sustainability reports in the period 2021 and 2022. In-depth data analysis was carried out to correlate the score results with the indicators disclosed in the company's sustainability report. The results explain that the disclosure of sustainability reports containing 17 sustainability development goals indices has fluctuated in two periods between companies. A small number of companies still do not provide information regarding their sustainability programs and others do not fully disclose the 17 indices. The results of this research are expected to become a benchmark for stakeholders to evaluate mining sector companies in their sustainable environmental management attempts.

Keywords: Coal Subsector, Company Performance, Sustainability Development Goals

INTRODUCTION

Environmental issues have hit the world. For two decades, the world has experienced several problems related to social problems, economic inequality, and environmental damage (Chopra et al., 2022). This made the UN launch sustainable environmental targets which are reflected in the sustainability development goals with 17 items consisting of economic, social, and environmental sustainability in 2015. With the launch of the sustainability development goals, the UN hopes that there will be achievements in sustainable development and climate improvement in 2030 (Çağlar & Gürler, 2022).

Indonesia is also responding to these SDGs nationally. The government and society through systems and governance strive to achieve a sustainable environment. Apart from the government, the industrial sector has also involved itself and is present to voice the SDGs through programs to improve environmental, social, and economic issues in sustainability reporting which is published every year.

Environmental issues have gained significant attention in both academic research and the business sector due to their potential impact on the economic growth and long-term viability of companies (Rizki & Hartanti, 2021). Research conducted on 500 companies in the USA that have used CSR policies through SDG explains that this measurement can empower companies, to carry out organizational advocacy to identify areas with poor performance in the corporate sector. This can also help to identify companies that have emerged as leaders and possibly spread the measurement method to other companies (Lee & Hess, 2022). In the mining sector, SDG is a good tool to use to assess company performance. Observations of crushed stone mining activities located in Mon senhor Gil, Piauí, Brazil verify that there are several possibilities to achieve the 17 SDGs in the mining sector, for example in increasing employment (SDG 8), contributing to the reduction of poverty (SDG 1) and hunger (SDG 2). However, mining areas that have lost their economic importance after local development stops and abandons them will cause huge losses to those who depend on them for their work. In addition, these industries do not restore degraded areas, thereby disrupting the achievement of SDG 13 in order to combat climate change and its impacts (Monteiro, da Silva, & Neto, 2019).

Indonesia is a country with many mining industries ranging from petroleum, gas, rocks, gold, precious metals, coal, nickel, and so on. Apart from providing income and jobs for the community, the mining industry has also damaged and caused significant environmental degradation. The decline in water quality occurred in several rivers near mining areas in Bangka Belitung, such as the Kayubesi River, Mabet, Limbung, Selindung, etc. Apart from damaging rivers, mining activities also damage the forest and marine environment (Rahayu & Permatasari, 2022). From the many mining activities, the coal sector is the mining sector that has the greatest social, economic, and environmental impact on society (Fitriyanti, 2016). Coal mining contributes to at least 70% of environmental damage in Indonesia (Habibi, 2022). Around 3.97 million hectares of protected areas in Indonesia are threatened by mining. The situation is getting worse with the existence of companies with 10,235 mineral and coal mining permits, almost 34% in mainland Indonesia (Habibi, 2022).

Environmentally, the presence of coal mining has an impact on changes in the landscape, decreased soil fertility, threats to biodiversity, decreased water quality, decreased air quality, and environmental pollution (Fitriyanti, 2016). Heavy metals contained in overburden and coal piles oxidize with sulfide minerals, giving rise to the potential for acid mine water, this condition will increase the opportunity for water quality pollution (Kaharapenni & Noor, 2015). Several rivers in South Kalimantan have turned black due to mining waste pollution. Soil conditions also worsen because coal mining

leaves many unprocessed mine scars (Marganingrum & Noviardi, 2010). Apart from that, air quality is also poor due to coal-fired power plant activities and passing trucks also contribute to very thick dust (Habibi, 2022). The coal spill in West Aceh sea's area also had a negative impact on various marine organisms. Water mixed with pollution will also disturb coastal aquatic organisms, fish, coral reefs, and mangrove forests and damage coastal tourism.

Economically, the existence of coal mining activities is capable of pioneering the economy, encouraging regional development, providing regional and national economic benefits, providing supporting business opportunities, building new infrastructure, providing employment opportunities, opening isolation in remote areas, and increasing knowledge by transferring technology to surrounding communities mining (Monteiro, da Silva, & Neto, 2019). However, if water and soil erosion occured continuously, then in the end fishermen and farmers will also experience economic losses, including global state losses due to damage to their ecosystem.

Apart from the environment and the economy, the social impacts of coal mining include conflicts between communities and companies, a decline in the quality of public health, changes in people's mindsets, and changes in social structures in society (Fitriyanti, 2016).

In this regard, it is necessary for the coal mining industry to carry out sustainable development so that it does not just extract natural resources, but also creates an ecosystem that is not destructive. So, this research aims to assess the performance of coal mining sector companies from the SDGs perspective contained in each company's sustainability report. Sustainability reporting is a company sustainability report relating to company performance in economic, environmental, and social aspects which is published once a year.

Another reason is that the mining industry has also issued policies through the ICMM (International Council on Mining and Metals) supporting the principles of progress towards sustainable development globally. ICMM mining principles seek to maximize the benefits of the industry for society while minimizing negative impacts to manage problems of concern to the community. ICMM itself highlights several points that are in line with the SDGs, including ethical business, decision-making, human rights, risk management, health, safety, environmental performance, biodiversity conservation, responsible production, social performance, and stakeholder involvement.

LITERATURE REVIEW

The sustainable development systems approach is a meeting point of goals associated with three interrelated systems, namely environmental (or ecological), economic, and social (Barbier & Burgess, 2017). Countries in the world and companies that influence the climate, economy, and society are joining in achieving the welfare index targeted by 2030, including organizations like the UN which are actively collaborating to socialize and implement the 17 SDGs (Bogers et al., 2022). The Sustainable Development Goals are a global hope to end gender gaps, and poverty, protect the planet, and improve the lives of people around the world (Clemente-Suárez et al., 2022).

In the 8 years since the start of the SDGs, several SDG points have been implemented by world stakeholders even though they are uneven and sometimes there is inequality (Wackernagel, Hanscom, & Lin, 2017) or there is no synergy with each other (Stafford-Smith et al., 2017). Research results show that developed countries benefit most from focusing on social and environmental factors while developing countries remain focused

on economic and social factors (Bali Swain & Yang-Wallentin, 2020). Improvements in economic factors will disrupt social conditions at first and environmental factors in the early stages will influence economic development (Gupta & Vegelin, 2016), but then these points increase simultaneously with other SDGs after some time passes (Zhao et al., 2022). The balance between social, economic, and political efforts required to achieve sustainability tends to differ in each country (Osborn, Cutter, & Ullah, 2015). The following are 17 indices measuring SDG achievement.

Table 1. Indices Measuring SDG Achievement

Sustainability Development Goals (SDGs)		Description
01	No Poverty	End poverty in all its forms, everywhere.
02	Zero Hunger	End hunger, achieve food security and improved nutrition, and promote sustainable agriculture.
03	Good health and well-being	Ensure healthy lives and promote well-being for all at all ages.
04	Quality education	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.
05	Gender equality	Achieve gender equality and empower all women and girls.
06	Clean water and sanitation	Ensure available and sustainable management of water and sanitation for all.
07	Affordable and clean energy	Ensure access to affordable, reliable, sustainable, and modern energy for all.
08	Decent work and economic growth	Promote sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all.
09	Industry, innovation, and infrastructure	Build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation.
10	Reduced inequalities	Reduce inequality within and among countries.
11	Sustainable cities and communities	Make cities and human settlements inclusive, safe, resilient, and sustainable.
12	Responsible consumption	Ensure sustainable consumption and production patterns.
13	Climate action	Take urgent action to combat climate change and its impacts.
14	Life below water	Conserve and sustainably use the oceans, seas, and marine resources for sustainable development.
15	Life on land	Protect, restore, and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation, and halt biodiversity loss.
16	Peace, justice, and strong institutions	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all, and build effective, accountable, and inclusive institutions at all levels.
17	Partnership for the goals	Strengthen the means of implementation and revitalize the global partnership for sustainable development.

Source: (Fonseca, Domingues, & Dima, 2020).

On the industrial side, companies draw SDG points as their CSR index or include SDG points in sustainability reports. The SDG index on 500 companies in the USA shows that companies tend to score worse on environmental goals compared to social goals (Lee & Hess, 2022). Meanwhile, in Malaysia, environmental and social responsibility have a positive relationship with achieving SDGs in the logistics sector. These findings also reveal that innovative culture significantly mediates the relationship between environmental and social responsibility to achieve the SDGs (Chien, 2023). SDGs also have positive synergy on social aspects in manufacturing companies operating in Italy, especially to improve worker welfare, improve the workplace, and involve employees (Bonfanti, Mion, Brunetti, & Vargas-Sánchez, 2023). It is not much different from the industrial sector in Japan which also implements SDGs widely at every level of the company and operationally (Sasaki, Stubbs, & Farrelly, 2023).

In the energy and mining sectors, SDGs are the right tool to complement non-financial performance assessments through sustainability and CSR reports. The mining and energy industry is the sector that has the greatest impact on the environment, including economic and social changes in society. In Ecuador, for example, 14 SDGs have been implemented in power generation companies as performance measures (Martínez, Jara-Alvear, Andrade, & Icaza, 2023). Meanwhile, in Europe, as many as 75 oil and gas companies have included references to sustainable development goals (SDGs) in their company reporting as a means of demonstrating their contribution to sustainable ecosystem development (Arena, Azzone, Ratti, Urbano, & Vecchio, 2023). Likewise, the mining sector in Brazil has highlighted the SDGs and improved environmental degradation, and economic and social welfare of the community in order to work together to support sustainable development goals (Monteiro, da Silva, & Neto, 2019).

The Indonesian mining sector, especially coal, contributes to environmental damage by 70% (Habibi, 2022). This environmental degradation also has an impact on decreasing the economic welfare of the surrounding community and social change (Fitriyanti, 2016). Rehabilitation of water that has been contaminated by mining requires quite a lot of resources (Bhaduri et al., 2016). Apart from that, damage to coastal and marine areas was also quite serious due to spilled mining logistics. The government has tried to renovate mangrove forests to protect beaches and coastal plants, but the costs required are quite large (Sasmito et al., 2023).

In this regard, coal mines need to synergize with the government in repairing damaged ecosystems. ICMM (International Council on Mining and Metals) an international organization for the mining industry has also issued an index that supports sustainability in SDGs points. In addition, research results show that CSR has a significant positive effect on SDGs and SDGs have a significant influence on company financial performance (Husnah & Fahlevi, 2023). So, this research intends to take an SDGs perspective as an assessment of the performance of coal mining sector companies in Indonesia.

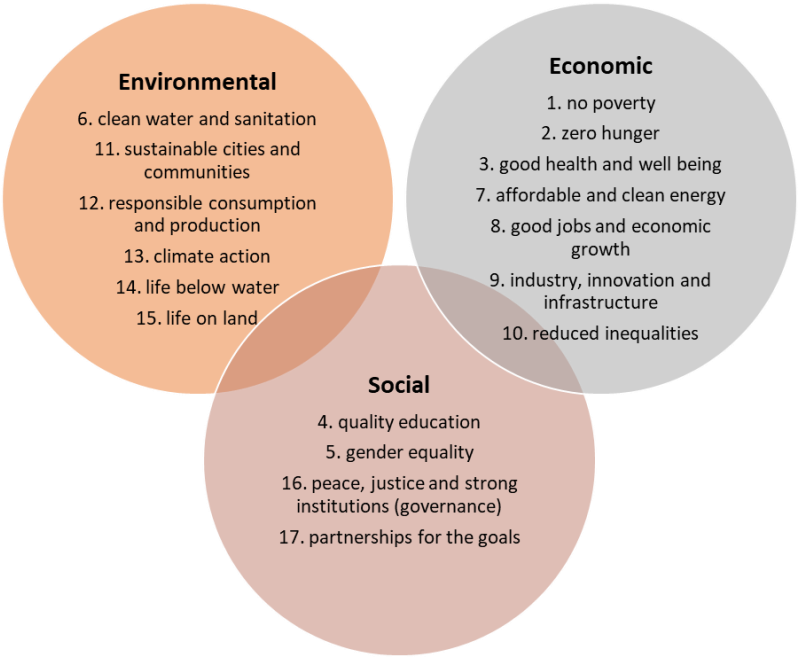
RESEARCH METHOD

This research method will use scoring to group 17 SDG points. Previously, the scoring method has also been used to review SDGs achievements in Western and Eastern countries (Zhao et al., 2022). The scoring method is an analysis method that is carried out by calculating the score for each parameter used and weighing each parameter (Erfani, Naimullah, & Winardi, 2023). The parameters used are the SDGs index and a score has given for each SDGs index that has been implemented by the company. Company data is taken from the BEI (Indonesian Stock Exchange), namely coal subsector mining companies totaling 22 companies. SDGs analysis is taken from data

disclosed in each company's sustainability reporting for the 2021-2022 period (latest report). At this stage, each sample company will be seen to what extent its sustainability report applies the SDG's achievement points.

Next, the scoring analysis model will be classified into 3 parts, namely environmental dimensions, economic dimensions, and social dimensions. In this way, information on trends in each dimension that has been achieved by the coal sector in Indonesia can be drawn. The following are the details of the analysis model:

Figure 1. SDGs's Dimension Mapping



Source: (Amirya & Irianto, 2023; Barbier & Burgess, 2017).

After being given a score for each SDG point, the SDG points will be grouped according to their respective dimensions and the scores obtained will be added up. The results of the analysis will also explain the form of SDGs implementation in the average coal mining sector that has been implemented.

RESULTS

The research results explain that the coal sector in Indonesia has implemented the majority of the SDGs points in their sustainability reports.

Figure 2. SDGs Index Result in 2022

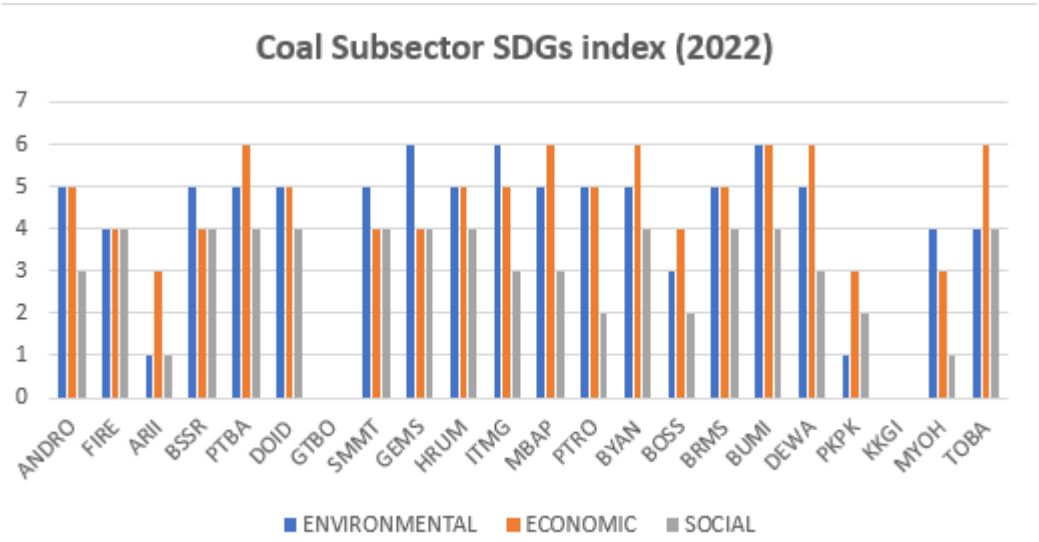
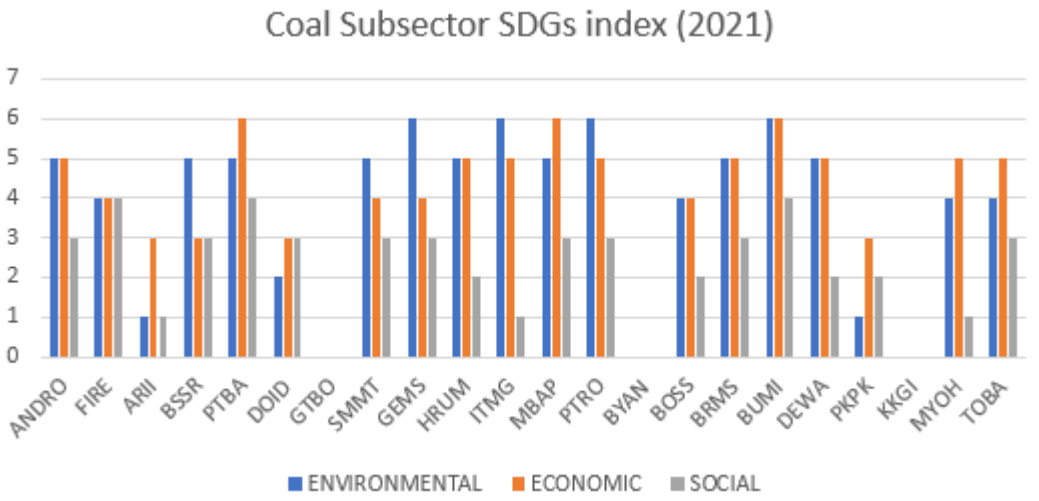


Figure 3. SDGs Index Result in 2021



Of the 17 SDG points that have been analyzed, the highest group of disclosures by the coal sector is the economic dimension, followed by the environmental and social dimensions. However, not all companies publish sustainability reports. A small number of companies still disclose annual reports that have CSR elements in them, and a small number of others do not explain their sustainability ecosystem disclosures at all.

The comparison of SDGs disclosure in 2022 and 2021 is not very significant. The majority of companies have been consistent in their disclosures for the last 2 years, however, there are companies that have only published sustainability reports for 2022 (BYAN), so there will be no disclosure of the SDGs index in 2021.

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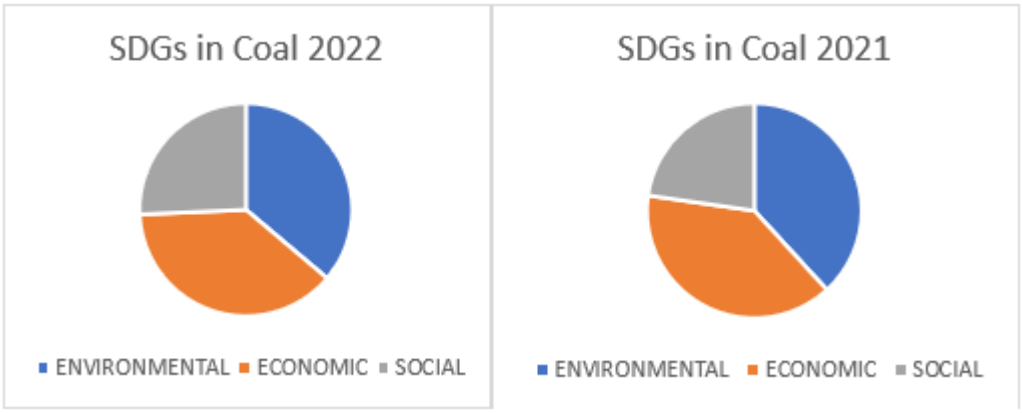
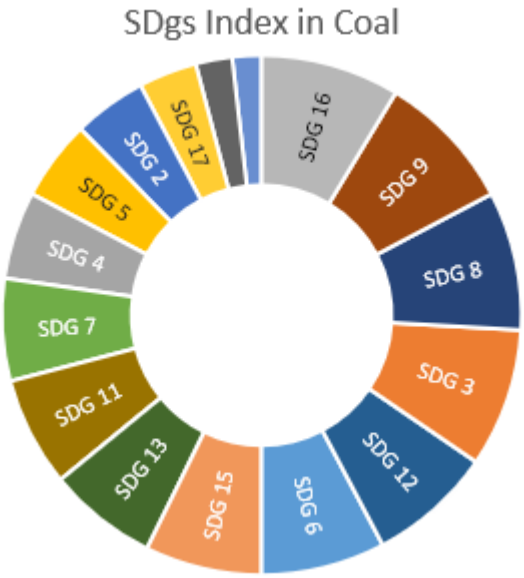
Figure 4. SDGs Dimension in Coal 2022 and 2021



Based on the figure above, it can be seen that over the last 2 years, the SDGs index in the social sector has increased and the share in the environmental sector has decreased equally. It can be seen that the economic sector is still stable and does not fluctuate too much. So, the disclosure of sustainability aspects in the environmental and economic sectors is in an equivalent position during the 2021 and 2022 reporting years.

Figure 5. 17 SDGs in Coal



If the SDGs index is described according to criteria, results can be drawn like the pie chart above. Based on the data that has been processed, it can be concluded that the coal mining sector is still minimal in achieving SDG 10 and SDG 14 points. Meanwhile, all companies are still unable to achieve SDG 1 sustainability ecosystem. Meanwhile, SDG 17, SDG 2, SDG 4, and SDG 5 are still few companies. that discloses and implements its sustainability efforts.

In general, the coal mining sector in Indonesia, which consists of 22 companies registered on the BEI (Indonesian Stock Exchange), has implemented the SDG goal points, but implementation is still uneven and depends on the policies of each company. In addition, each company's written sustainability report has declared its cooperation in improving the world's ecosystem in accordance with the UN agreement contained in the SDGs. These Sustainability Development Goals also have points that are equivalent to the GRI (Global Reporting Index) index as a sustainability reporting standard and ICMM's Mining Principles as the principal expectations for mining industry performance.

DISCUSSION

Based on data processing that has been carried out, the results obtained are that the majority of coal mining subsector companies in Indonesia have implemented and implemented the goals of the 17 SDGs that have been agreed upon by the UN. The maximum achievement of the SDGs in the 2-year time span, namely 2022 and 2021, is in the economic dimension, followed by the environmental dimension, and finally the social dimension. The economic dimension includes SDG 1, SDG 2, SDG 3, SDG 7, SDG 8, SDG 9, and SDG 10. The environmental dimension includes SDG 6, SDG 11, SDG 12, SDG 13, SDG 14, and SDG 15. Meanwhile, the social issues include SDG 4, SDG 5, SDG 16, and SDG 17. The following is a detailed description of each dimension:

Economic Dimension

Coal sector companies in Indonesia have implemented SDGs in the economic dimension, but the implementation of SDG 1 and SDG 10 is still not clearly identified in each company's sustainability report. The implications of the coal sector for poverty alleviation are still yet to be felt. Generally, companies only provide food assistance or service assistance that is temporary and does not contribute to the protection system for the poor themselves. Meanwhile, setting the migration policy at SDG 10 points is not entirely the company's responsibility. SDG 10 in the mining sector implements numbers of equality in ethnicity, religion, origin, and race. Each community group in the mining area and employee members have received sufficient basic rights in economic studies and income distribution. So, the goal of sustainable development to end inequality and improve people's living standards can be achieved gradually (Clemente-Suárez et al., 2022).

The coal mining sector supports the achievement of SDG 2 by implementing a food management system for workers, providing agricultural training or assistance to local communities, and empowering women's groups and communities to be empowered independently. On average, this company provides training on the cultivation of agricultural products in the form of vegetables and fruit to the community. Implementation of SDG 3 is provided by the company primarily to employees and communities around the mine. During the pandemic, the company was active in providing humanitarian aid, food, and free vaccinations. Employees are also guaranteed health protection through the K3 work safety system, routine health checks, HIV/AIDS prevention, and psychological consultation services.

SDG 7 as an energy efficiency point has been implemented by the company by saving electricity, and water and then using a solid mining waste recycling system. Some companies have also created solar power systems and river water treatment to protect natural resources and aquatic vegetation. SDG 8 and SDG 9 points as a form of improving the economy and infrastructure have been implemented by the company through increasing gross domestic product for the country, development as a result of clearing land, opening up employment opportunities, supporting entrepreneurship, and providing opportunities for education and training. Coal mining companies also protect

the rights of employees of various origins and types and reject forced work, discrimination, and underage workers. Apart from developing internal infrastructure, the company also builds facilities for the community such as building roads and improving public facilities and schools. So, the conclusion from the economic dimension has proven that developing countries like Indonesia focus more in detail on increasing the economy and income of the country and its people (Bali Swain & Yang-Wallentin, 2020).

Environmental Dimension

The environmental dimension consists of SDG 6, SDG 11, SDG 12, SDG 13, SDG 14, and SDG 15. Implementation of SDG 6 by the mining sector is achieved by making a number of efficiencies in all types of water ranging from groundwater, river water, and lake water to water sea. Processing liquid waste and measuring the spillage of processed water into rivers and seas are also regulated by the company (Bhaduri et al., 2016). The company also provides clean water and river processing assistance to areas around the mine. Preventing environmental impacts also supports the achievement of SDG 11 goals in creating safe, clean, and adequate areas for local and urban communities. Companies are also implementing SDG 11 by building adequate transportation facilities, creating a green village environment, and creating disability facilities and a small number of companies are collaborating with the government in developing state infrastructure and toll roads. Apart from that, the coal mining industry also provides training and care for every member of community groups, whether in the form of social-religious associations or SMES groups (Sasaki, Stubbs, & Farrelly, 2023).

SDG 12 is realized by developing a sustainable environmental ecosystem. Companies in the coal mining sector prevent waste and create efficient waste disposal systems, some companies have even had no waste at all in the last 2 years. These sustainable practices are also conveyed to employees, investors, and communities around the mine reclamation area. The marine and terrestrial ecosystem points in SDG 14 and SDG 15 are important points that support climate balance in SDG 13. The majority of mining companies implement the protection and improvement of terrestrial ecosystems (SDG 15) rather than marine ecosystems (SDG 14). Several small groups of companies protect and improve marine ecosystems by caring for coral reefs, preventing excess waste spills into marine areas, protecting fish ecosystems, and planting mangroves (Sasmito et al., 2023). Generally, these companies have a tendency towards planting mangroves and maintaining coastal areas rather than entering the realm of underwater ecosystems. Meanwhile, protection for terrestrial ecosystems has been implemented by the majority of coal mining sector companies. Land conservation is pursued by the coal industry by restoring land after mining drilling, preventing drought or erosion, reforestation, planting seeds, stopping deforestation, and providing protection and improvement of protected areas for flora and fauna. The majority of coal mining areas are located on the islands of Kalimantan and Sumatra which are close to protected forests as nature reserves to protect rare species that are almost extinct. These species include mammals, aves, primates, snakes, and types of plants and flowers. The company's sustainability report has detailed all the protected and preserved species listed.

Social Dimension

The social dimension consists of SDG 4, SDG 5, SDG 16, and SDG 17. Implementation of SDG 4 is achieved by the majority of coal mining sector companies through scholarship programs and the development of educational and training institutions. Training is usually aimed at employees to support their work with a certification program. Apart from that, training is also provided to community groups and teenagers who are undertaking vocational education. There are several companies that provide coaching programs to the younger generation who are interested in the coal mining industry. They lend tools, provide mining insight, and allow vocational schools for direct industrial

practice. Gender equality in SDG 5 is implemented by companies primarily for employees. Both male and female employees are given the same rights in careers, partnerships, and the fulfillment of their rights in terms of leave, remuneration, and retirement. Even now, the coal mining sector has women holding general manager positions and holding important positions. Apart from the company's internal environment, the coal mining industry also provides equal opportunities for entrepreneurial women groups to work.

SDG 16 is achieved by coal mining companies through efforts to protect human rights, protect children, protect employee rights, protect against sexual harassment, prevent corruption, and create good corporate governance. The company also provides consumer protection guarantees, and supplier guarantees and creates a system for collecting public complaints. SDG 17 points in the coal mining sector has a small number because its achievement requires quite a large synergy with the government. SDG 17 covers state debt policy, investment in developing countries, and supporting cooperation with developing countries. In the industrial aspect, the coal mining sector seeks to realize adequate mining science and technology operations as well as develop the pace of information and communication technology. It is hoped that this progress can have a positive influence on company finances (Husnah & Fahlevi, 2023).

CONCLUSION

A total of 22 coal mining company populations analyzed their SDGs implementation through sustainability report analysis. Of the 17 SDG points that have been analyzed, the highest group of disclosures by the coal sector is the economic dimension, followed by the environmental and social dimensions. The coal mining sector is still minimal in achieving SDG 10 and SDG 14 points. Meanwhile, all companies are still unable to achieve the SDG 1 sustainability ecosystem. Meanwhile, SDG 17, SDG 2, SDG 4, and SDG 5 are still a few companies that reveal and implement their sustainability efforts. The coal mining sector in Indonesia has implemented the SDG goal points, but implementation is still uneven and depends on the policies of each company.

LIMITATION

This research has limitations in data. The data processed is from one sector with a small population. For further research, researchers hope that there will be populations from other business sectors so that broad conclusions can be drawn from the SDG's achievements.

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N/A

DECLARATION OF CONFLICTING INTERESTS

The authors declared no potential conflicts of interest.

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