Developing an Environmental and Social Performance Index for Indonesian State-Owned Enterprises (ESPISOE): A GRI-Based Approach

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Abstract

Indonesian state-owned enterprises (ISOEs) must meet environmental and social responsibilities under Laws No. 19/2003 and No. 40/2007, facing labor and environmental violations, social conflicts, and noncompliance. This study develops an Environmental and Social Performance Index (ESPISOE) based on Global Reporting Initiative standards to assess performance. The index integrates environmental, social, and governance practices into ISOEs, benefiting SOEs and stakeholders including employees, customers, suppliers, and native groups. ESPISOE was developed using data from 2008 to 2018. The top five ESPISOE rankings are: Timah (TINS) 2.856, Tambang Batubara Bukit Asam (PTBA) 2.480, Semen Indonesia (SI) 2.380, Aneka Tambang (ANTM) 1.185, and Perusahaan Gas Negara (PGAS) 1.085. Few studies examine SOE compliance with Law 19/2003 and normative accountability, mainly focusing on social and environmental performance. This study addresses non-compliance with employment and environmental laws, social conflicts, and policy deviations. The ESPISOE measures environmental and social performance of ISOEs.

Keywords: *Environmental and Social Performance, Indonesian State-Owned Companies, GRI Standard-Based; ESPISOE Index.*

Introduction

Indonesian State-Owned Enterprises (SOEs) play a pivotal role in the nation's economy, contributing significantly to GDP and employment. As stipulated in Laws No. 19/2003 and No. 40/2007, these enterprises are not only economic entities but also bear the responsibility of adhering to environmental and social standards. However, compliance with these laws remains inconsistent. A report by the Indonesia Corruption Watch (ICW) highlighted that many SOEs often fall short in fulfilling their legal obligations, leading to violations of labour rights and environmental regulations (ICW, 2021). For instance, the mining sector, dominated by SOEs, has frequently been implicated in environmental degradation, with cases of illegal waste disposal and deforestation reported (World Bank, 2020).

The lack of robust monitoring and enforcement mechanisms has exacerbated these issues. Research by Sari et al. (2022) indicates that while many SOEs have policies in place, the actual implementation often diverges from stated commitments. For example, the state-owned electricity company, PLN, has faced criticism for not adequately addressing the environmental impacts of its coal-fired power plants, which contribute significantly to air pollution (Sari et al.,

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2022). This situation underscores the urgent need for a structured approach to evaluate the environmental and social performance of these enterprises.

Moreover, the social conflicts arising from the operations of SOEs, particularly in sectors such as mining and forestry, have led to tensions with local communities. The failure to engage stakeholders effectively has resulted in protests and legal disputes, further complicating the operational landscape for SOEs (Amir et al., 2021). This backdrop highlights the necessity for a comprehensive framework that not only assesses compliance with laws but also promotes accountability and transparency in SOE operations.

The significance of environmental and social performance in the context of SOEs cannot be overstated. As major contributors to Indonesia's economy, these enterprises have substantial impacts on both the environment and society. A study by the Asian Development Bank (ADB) (2021) found that SOEs account for approximately 30% of Indonesia's GDP, underscoring their influence and reach. Their operations, from resource extraction to infrastructure development, can lead to significant environmental degradation if not managed responsibly.

Furthermore, the implications of poor environmental and social performance extend beyond legal compliance; they can affect the long-term sustainability of the enterprises themselves. For example, the 2015 forest fires in Indonesia, largely attributed to land clearing practices by palm oil and timber SOEs, resulted in economic losses estimated at USD 16 billion, alongside severe health impacts for local populations (World Bank, 2016). This incident illustrates how neglecting environmental responsibilities can have dire economic and social repercussions, not only for the companies involved but also for the broader community.

In addition, there is a growing demand from investors and consumers for transparency and accountability regarding corporate social responsibility (CSR). The Global Sustainable Investment Alliance (GSIA) reported that sustainable investment assets reached USD 35.3 trillion globally in 2020, highlighting a significant shift towards prioritising environmental, social, and governance (ESG) factors in investment decisions (GSIA, 2021). For Indonesian SOEs, aligning with these global trends is crucial to attracting investment and maintaining public trust.

Moreover, effective management of environmental and social performance can enhance operational efficiency and reduce costs. A report by McKinsey & Company (2020) revealed that companies implementing robust sustainability practices can improve their profitability by up to 20%. This finding suggests that a focus on environmental and social performance is not merely a regulatory obligation but can also serve as a strategic advantage for SOEs in Indonesia.

The Global Reporting Initiative (GRI) Standards represent a comprehensive framework for sustainability reporting, enabling organisations to measure and communicate their environmental, social, and governance performance. Established in 1997, GRI has evolved into a globally recognised benchmark for sustainability reporting, with over 10,000 organisations worldwide adopting its standards (GRI, 2021). The GRI Standards are particularly relevant for Indonesian SOEs, as they provide a structured approach to reporting that can enhance transparency and accountability.

The GRI framework's flexibility allows organisations to tailor reporting to contexts and stakeholder needs - crucial for Indonesian SOEs across diverse sectors. The GRI Standards include sector-specific disclosures to guide SOEs in addressing impacts in mining, energy, or agriculture (GRI, 2021). GRI Standards promote stakeholder engagement by considering

affected communities' perspectives, aligning with stakeholder inclusivity. Freeman (2010) emphasises that stakeholder engagement improves decision-making and social outcomes for SOEs. The Standards enable benchmarking across organisations, driving competition in environmental performance among Indonesian SOEs. By adopting GRI Standards, SOEs can enhance credibility and attract sustainability-focused investors (Eccles et al., 2014).

The objective of this study is to develop an Environmental and Social Performance Index for Indonesian State-Owned Enterprises (ESPISOE) based on the Global Reporting Initiative (GRI) standards. This index aims to provide a comprehensive assessment of the environmental and social performance of SOEs, enabling stakeholders to evaluate their contributions to sustainable development in Indonesia. The ESPISOE will serve as a tool for measuring compliance with legal obligations, as well as for identifying areas for improvement in environmental and social practices.

This paper proposes the Environmental and Social Performance Index for Indonesian State-Owned Enterprises (ESPISOE). While previous studies examined environmental and social performance across sectors, few addressed SOEs in Indonesia. The research applies Global Reporting Initiative (GRI) standards to develop an index for Indonesian context while aligning with global sustainability practices. The ESPISOE addresses gaps in measuring environmental and social performance among SOEs. This research contributes to corporate sustainability discourse by providing a structured assessment framework that enables stakeholders to make informed decisions through improved understanding of SOE performance.

The paper engages stakeholders, including policymakers, industry leaders, and civil society organisations, to ensure ESPISOE reflects needs of various groups. This participatory approach is key to the research's originality, fostering collaboration around environmental and social performance in SOE operations. The study's focus on implications for long-term sustainability and economic viability adds a unique dimension. By linking performance metrics to broader economic outcomes, the ESPISOE contributes to understanding SOEs in Indonesia's development trajectory.

This paper offers an overview of the research process and findings. The literature review examines studies on environmental and social performance in SOEs, highlighting themes and gaps. The methodology outlines the research design, data collection, and analytical techniques for developing ESPISOE. The findings present results, detailing performance indicators and implications for Indonesian SOEs. The paper concludes with policy and practice implications and future research recommendations. This analysis contributes to the discourse on sustainability in Indonesia and SOEs' role in promoting responsible business practices.

Conceptual Framework of Social and Environmental Performance in Indonesian SOEs

Overview of State-Owned Enterprises in Indonesia

State-owned enterprises (SOEs) play a significant role in the Indonesian economy and operate in various strategic sectors. These organisations face unique challenges due to their hybrid nature, balancing commercial objectives with social and political demands (Apriliyanti et al., 2023). Indonesian SOEs are subject to complex multiple-principal-agent dynamics, where government-linked principals exert influence over CEOs through various mechanisms. These include commercial, social, and private demands, with the latter often involving collusion among principals, career-ending threats, and the use of political ties as both enablers and buffers (Apriliyanti et al., 2023). This complex environment can lead to governance issues and hinder

the effective implementation of reforms.

Despite efforts towards democracy and good governance, Indonesian SOEs continue to face challenges related to collusion, rent-seeking, and corruption among political and business elites (Apriliyanti & Kristiansen, 2019). The high costs associated with obtaining powerful positions often result in conglomerate business owners gaining control over SOE management, a process described as "wall-building and gatekeeping" (Apriliyanti & Kristiansen, 2019). These practices persist due to the continuous co-optation of new entrants by established elites, making it difficult to break the cycle of corruption and improve governance in Indonesian SOEs.

Theoretical Frameworks

This study employs various theoretical frameworks to elucidate the rationale behind examining environmental and social performance (ESP) based on stakeholder, regulatory, and corporate theories. Drawing on Freeman's (1984) concept of stakeholders, this includes groups capable of influencing or being influenced by an organisation's decision-making process, such as shareholders, employees, consumers, suppliers, and the general public (Clarkson, 1995). Stakeholder theory provides valuable insights into how organisations disclose information to their stakeholders based on the principle that all stakeholders possess the right to access information. Deegan's (2014) extension asserts that stakeholders are entitled to receive relevant information.

Stakeholders, particularly those who exert authority over Indonesian state-owned enterprises (SOEs), have the right to access information regarding the environmental and social performance (ESP) of these entities. This category of stakeholders encompasses employees, customers, suppliers, local communities, and indigenous people who influence SOEs through market and non-market mechanisms. The actions of these stakeholders can significantly affect the performance of SOEs, necessitating a proactive approach to address their concerns.

Regulations play a critical role in promoting comprehensive reporting by encouraging corporations to disclose pertinent information. Deegan (2014) and Zheng et al. (2014) argue that regulation governs individuals, groups, and organisations. In this study, SOEs were mandated to comply with regulations requiring the disclosure of Environmental and Social (ESP) matters to maintain their operations and adhere to environmental and social legislation. Compliance with these regulations falls under the Environmental, Social, and Governance (ESG) performance dimensions outlined by Global Reporting Initiative (GRI) standards (GRI, 2016).

Performance Dimensions and Their Importance

Corporate performance management encompasses multiple stages, one of which involves the assessment of outcomes. Performance dimensions serve as a reference point for evaluating how a company achieves its objectives. Managers play a pivotal role in selecting relevant performance dimensions for decision-making, as these dimensions influence both current and future performance. Krausert (2009) indicates that the evolution of performance theory is facilitated by establishing a correlation between dimensions and organisational performance.

This study investigates the impact of performance dimensions on the environmental and social performance of Indonesian State-Owned Enterprises (SOEs), which have diverse financial, environmental, and social responsibilities. Grounded in Zenger's corporate theory (Zenger, 2016), corporate objectives can be achieved through strategic management that incorporates ESG practices. A company's objectives include generating profits and benefits for stakeholders

while adhering to ESG principles (Deegan, 2014). Zenger's theory is based on foresight, insight, and cross-sight.

The concept of foresight in Zenger's theory is reflected in corporate practices that anticipate future trends and challenges. Ruff (2006) discusses how corporate foresight in a multinational automotive company helps detect medium- to long-term developments, including social and market trends, that are integrated into innovation and strategy processes. This aligns with ESG's focus on long-term sustainability and risk management (Ma, 2024).

The second pillar of Zenger's theory, Insight, can be linked to strategic ESG implementation. Ma (2024) emphasises aligning ESG initiatives with corporate objectives to optimise societal impact and shareholder value. Xiao et al. (2024) proposed a framework combining slack resources and stakeholder theory to explain how digital transformation drives ESG practices, demonstrating the insight needed to leverage technology for sustainability goals.

Cross-sight, which integrates diverse perspectives, has been evident in the multifaceted approach to ESG implementation in several studies. Wong et al. (2023) present a framework that examines the relationship between external stakeholders and ESG disclosure by considering stakeholder and legitimacy theories. Filatotchev and Nakajima (2014) explored the interrelationships between corporate governance, responsible leadership, and corporate social responsibility in various contexts, highlighting cross-functional integration in ESG implementation.

In conclusion, while Zenger's corporate theory is not explicitly referenced in the studies, its principles of foresight, insight, and cross-sight are evident in the strategic approaches to ESG implementation discussed. These studies demonstrate that the strategic integration of ESG practices can facilitate the achievement of corporate objectives, thereby aligning with Zenger's strategic management theory.

The ability to anticipate challenges, gain insight into internal issues, and maintain a cross-functional perspective is essential for organisations. In accordance with corporate theory, SOEs should operate as clear legal entities with responsibilities across the economic, financial, environmental, and social domains. The objective is to create value for the SOE and its stakeholders, including employees, consumers, suppliers, local communities, and indigenous individuals. A strategic management framework is proposed for the adoption of ESG practices within SOEs as corporate entities, emphasising vision and challenges, programmes and policies, and innovation and creativity.

This study examines three key issues regarding State-Owned Enterprises (SOEs) in Indonesia. SOE responsibilities include economic, financial, environmental, and social obligations. Financial performance reflects the first, whereas Environmental and Social Performance (ESP) represents the second. Second, SOEs must disclose ESP to stakeholders entitled to such information. The ESP is vital for the assessment of SOEs. Finally, SOEs can exemplify ESP disclosure, both domestically and internationally. SOEs are the main drivers of the Indonesian economy as mandated by Law No. 19/2003 (Republik Indonesia, 2003), and their international counterparts also play significant roles.

Concepts such as corporate social responsibility (CSR), corporate social responsiveness, corporate citizenship, the triple bottom line (TBL), sustainability, and stakeholder engagement share foundational principles (Deegan, 2014; Milne & Gray, 2013; Wartick & Cochran, 1985; Wood, 2010). However, their practical implications may differ (Deegan, 2014). This study aimed to elucidate the essential principles of environmental and social performance that

encompass the two social functions of SOEs, representing SOEs' moral and legal obligations to comply with social and environmental regulations.

Disclosure communicates information about a company's ethical obligations and accountability to its stakeholders. This is a crucial element of the reporting process and comprises three stages: input, process, and output. The input stage involves collecting performance data through documents, events, and transactions. The process stage encompasses activities such as classification, measurement, recognition, and reporting guided by standards and principles. The output stage generates a disclosure report conveying financial and non-financial information to stakeholders.

The reporting process involves classification, measurement, recognition, and reporting of documents, events, and transactions related to performance. This process also requires adherence to guidelines and standards. The output of the reporting process is the disclosure report, which provides both financial and non-financial information to stakeholders.

Wood (2010) argues that disclosure is essential for the legitimacy of public responsibility as a responsive process involving multiple stakeholders. This study examines the environmental and social performance disclosure dimensions and themes, focusing on how SOEs demonstrate responsibility and how this influences their practices. To achieve these objectives, it is critical to evaluate SOEs' environmental and social performance (ESP) through disclosure. This study aims to identify the appropriate disclosure dimensions to fulfil this approach.

GRI Standards and Their Relevance to SOEs

The GRI Standard serves as an alternative to GRI G4, maintaining the same content but with regulation as its aspect (Herriott, 2016). The GRI Standard is auditable, whereas GRI G4 remains a non-mandatory guideline. This study explores the notion that the GRI Standard encompasses a comprehensive multidimensional disclosure theme, including environmental and social performance. The GRI Standard has advantages over other frameworks because of its diverse dimensions of environmental and social performance disclosure.

Moreover, studies have demonstrated that the adoption of sustainability reporting frameworks such as GRI standards can enhance the environmental and social performance of SOEs. A comparative analysis by Khan et al. (2023) found that SOEs implementing GRI standards exhibit improved transparency and accountability, resulting in better stakeholder relations and enhanced corporate reputation. This finding suggests that integrating sustainability reporting into SOE operations can facilitate positive changes.

In addition to environmental concerns, social performance is critical for SOEs. Setiawan (2023) underscores the importance of community engagement and corporate social responsibility (CSR) initiatives in enhancing social performance. The study found that SOEs actively engaging with local communities and investing in social development projects tend to experience greater public trust and support, ultimately benefiting from operational sustainability.

Methodology

This study was guided by an interpretivist lens for the following reasons: the first is the analysis of ESG disclosure from the perspective of the extent of transparency exhibited by SOEs in their Environmental, Social, and Governance (ESG) reports through content analysis to reveal content orientation. There were 644 indicators of the ESG dimensions covered by the GRI Standards. Through content analysis of textual information from the annual reports of SOEs, this study

provides a foundation for researchers to examine trade-offs in compliance, care, and responsiveness regarding SOEs.

This study utilised ATLAS.ti, a deconstruction technique based on the hermeneutic concept (Friese, 2012), to analyse text-based information from annual reports. Saunders et al. (2016) described hermeneutics as an interpretive paradigm for exploring texts, symbols, stories, and images in cultural artefacts. ATLAS.ti software is ideal for processing textual ESG information in SOE annual reports. We used the ESPISOE Index, developed qualitatively via content analysis with ATLAS.ti version 8 and quantitatively in two stages: initial and process.

Initial Stage

The first stage involves sample data acquisition and the selection of the dimensions of information disclosure and their indicators. Sample data were collected from archival annual reports and purposive sampling based on the following criteria: (1) state-owned enterprises (SOEs) registered on the Ministry of SOEs website between 2008 and 2018; (2) SOEs listed on the Indonesia Stock Exchange website between 2008 and 2018; and (3) SOEs that published annual reports on both the IDX and Ministry of SOEs website.

The dimensions and indicators employed in this study were selected based on Global Reporting Initiative (GRI) standards. For Dimension A, 124 sub-indicators were selected; for Dimension B, 76 sub-indicators; for Dimension C, 13 sub-indicators; for Dimension D, 116 sub-indicators; and for Dimension E, 315 sub-indicators were chosen. The development of the indicators included the role of stakeholders, particularly in Dimensions C and D: local communities, indigenous peoples, employment, consumers, and suppliers. In total, 644 GRI standard disclosure indicators were used in this study. The coding scheme developed herein was created based on the GRI, resulting in five ESPISOE coding schemes with five dimensions, as illustrated in Figure 3.1. Figure 3.1 and Table 3.1 provide a detailed explanation.

Process Stage (Investigation of ESP)

At this stage, the study outcomes were analysed using a content analysis approach. The ATLAS.ti program was employed to process the coding using GRI standards, and weighting scores were assigned to each dimension and indicator, according to the assessment criteria detailed in Table 3.2.

This study utilised techniques from Kohlbacher (2006), Schreier (2012), and Weber (1990) for content analysis of environmental and social performance (ESP) using the frequency method. This involves reading ESP dimensions/indicators/sub-indicators in SOEs' annual reports using ATLAS.ti software and identifying those that appear most frequently. Frequency scores were derived from coding results, with the output called Absolute Frequency Values (AFV), indicating the number of scores appearing most often during coding. The AFV serves as a 'baseline value' for measuring the ESPISOE index to determine the actual ESPISOE value (AEV) and expected ESPISOE value (EEV), representing a benchmark for the ESPISOE value SOEs should achieve or aspire to attain.
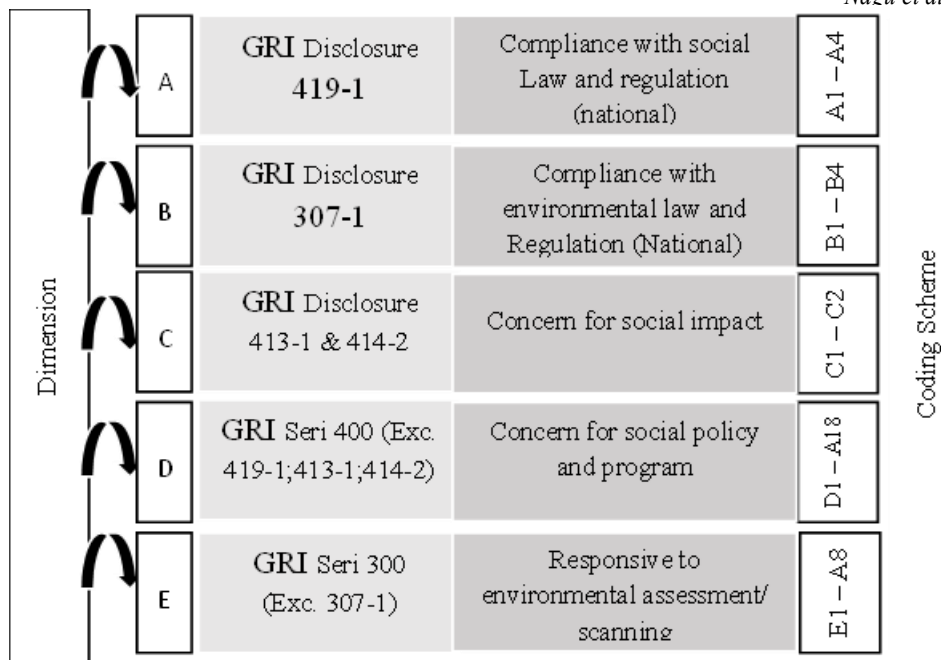
Fig. 3.1 Dimension of EPISOE Index

This research project involved multiple investigators who read and verified the results obtained by the primary investigators. This procedure was implemented to address concerns regarding validity, as suggested by Chen et al. (2015). ATLAS.ti software was employed to code and interpret the data, necessitating the investigation of human resources. These human resources are multidisciplinary and responsible for coding the information contained in the report and assessing the intensity and presence of implementing particular environmental and social performance measures.

This study employed a paragraph-based approach called coding scores to define text-recording units for analysis. This method considers paragraphs as the basic measurement unit and is more practical for coders to assess information content than focusing on individual words, phrases, sentences, themes, or the entire text (Weber, 1990). The coding analysis units were based on the sentences in each paragraph. Categorisation was conducted with "little" as at least one sentence and "much" as more than one sentence per paragraph in the annual report.

The categorization of whether information content is considered a "special topic" or "general topic" in an SOE's annual report is contingent upon the location of the information in question, specifically the "main product material." If this information is included in the environmental topic, it is classified as a special topic. Conversely, if included in a topic outside the environment, it is considered a general topic.

Following coding of all dimensions and indicators using ATLAS.ti version 8, frequency values were calculated, representing the number of times a particular score was assigned during the coding process. These frequency values serve as the foundation for developing the ESPISOE Index. The ranking of the frequency of this index facilitates a more comprehensive comparison of the disclosure scores.

Dimension (Indicator) of ESPISOE				
A	**Compliance with laws and social regulations (national)**			
	A1.	Fines for non-compliance with laws and regulations in the social area (non-court)		
	A2.	The sanction for non-compliance with laws and regulations in the social area (non-court)		
	A3.	Fines for non-compliance with laws and regulations in the social area (court)		
	A4.	The sanction for non-compliance with laws and regulations in the social area (court)		
B.	**Compliance with environmental laws and regulations (national)**			
	B1.	Fines for non-compliance with laws and regulations in the environmental area (non-court)		
	B2.	The sanction for non-compliance with laws and regulations in the environmental area (non-court)		
	B3.	Fines for non-compliance with laws and regulations in the environmental area (court)		
	B4.	The sanction for non-compliance with laws and regulations in the environmental area (court)		
C.	**Concern for social impacts**			
	C1.	Local community (social impact-PKBL)		
	C2.	Supplier social assessment (social impact)		
D.	**Concern for social policies and programs**			
	D1.	Employment	D10.	Security practices
	D2.	Labor & management relation	D11.	Rights of Indigenous Peoples
	D3.	Occupational health and safety	D12	Human rights assessment
	D4.	Training and Education	D13.	Local communities (gender, committee, and complaint)
	D5.	Diversity and equal opportunity	D14.	Supplier social assessment (new supplier assessment)
	D6.	Non-discrimination	D15.	Public policy
	D7.	Freedom of association and collective Bargaining	D16	Customer health safety
	D8.	Child labor	D17.	Marketing and labeling
	D9.	Forced or compulsory labor	D18	Customer Privacy
E.	**Responsive to environmental assessments**			
	E1.	Materials		
	E2.	Energy		
	E3.	Water		
	E4.	Biodiversity		
	E5.	Emissions		
	E6.	Effluent and waste		
	E7.	Supplier environmental assessment		

	E8.	Local community (PKBL-environmental conservation & AMDAL)

TABLE 3.1   GRI Standard-Based Coding Scheme of ESPISOE

Value scores	Description: If information content disclosed in the annual report (Archival document)	
0	No disclosure	No disclosure
1	Very low	Little; general topic; and relevant to GRI Standard
2	Low	Little, Special Topic and relevant to GRI Standard
3	Medium	Much; general topic; and detailed and complete under GRI Standard
4	High	Many; special topics are detailed and complete under GRI Standard

TABLE 3.2   Assessment Criteria For Coding Scoring – ESPISOE Index

The formula for calculating the AEV and EEV is as follows:

$$AEV = \frac{\sum AFV \ \text{x} \sum WSC}{\sum TGRIs}$$

Where:

AEV   = Actual ESPISOE Value for sub-indicator

AFV   = Absolute Frequency Value

WSC   = Weighted Score Criteria for scoring for scoring

Tigris   = Total sub-indicator of GRI Standard

$$EEV = \frac{\sum AFV_{MIN} \ \text{x} \sum WSC_{MAX}}{\sum Tigris}$$

Where:

EEV   = Expected ESPI Value

  AFV$_{MIN}$ = Minimum Absolute Frequency Value

WSC$_{MAX}$ = Weighted Score Criteria for maximum score

Tigris = Total sub-indicator of GRI Standard

Description	Number
Total ISOEs meeting the sample criteria	62
Total ISOEs with environmentally-sensitive industry type	39
Total ISOEs with non-environmentally-sensitive industry type	23
Total ISOEs-Listed (L)	20
Total ISOEs-non-listed (NL)	42
Total of observation years	11
Total of ISOE annual reports that should be available	682
Total of ISOE annual report not available (corrupt file or not publication on the web)	88
Total annual reports available	594

TABLE 4.1 Description of ISOEs and Availability of Annual Report Under Study

Results and Discussions

Table 4.1 and 4.2. presents 62 Indonesian SOEs that meet the specified sampling criteria. Of these, 39 (63%) were engaged in industrial activities deemed environmentally sensitive, whereas 23 (37%) were involved in non-environmentally sensitive industries. Of the 594 annual reports, 375 (63%) correspond to SOEs within environmentally sensitive industry types, whereas 219 (37%) pertain to SOEs in non-environmentally sensitive sectors.

Companies/Industry	Code of Company	Industry Type	Ownership	The Number of AR
Mining				
Aneka Tambang	ANTM	ES	L	11
Pertamina	PTMN	ES	NL	11
TB Bukit Asam	PTBA	ES	L	11
Timah	TINS	ES	L	11
Gas, Steam and Cold Air Procurement				
Perusahaan Gas Negara	PGAS	ES	L	11
Processing Industry				
Peruri	PRR	ES	NL	6
Bio Farma	BFRM	ES	NL	11
Dahana	DHN	ES	NL	9
Garam	GRM	ES	NL	7
Indofarma	INAF	ES	L	11
Inti	INTI	ES	NL	9
Kimia Farma	KAEF	ES	L	9
Kratakatau Steel	KRAS	ES	L	10
Len Industri	LEN	ES	NL	8
Pupuk Indonesia HC	PIHC	ES	NL	11

Semen Baturaja	SMBR	ES	L	11
Semen Indonesia	SI	ES	L	11
Construction				
Perumnas	PRMS	ES	NL	11
Adhi Karya	ADHI	ES	L	11
PT. Hutama Karya	HK	ES	NL	10
Pembangunan Perumahan	PTPP	ES	L	11
Waskita Karya	WSKT	ES	L	10
Wijaya Karya	WIKA	ES	L	11
Agriculture, Forestry, & Fisheries				
Perhutani	PHTN	ES	NL	8
Perkebunan Nusantara III	PTPN3	ES	NL	6
Real Estate				
Taman Wisata Candi BP & RB	TWC	ES	NL	8
Transportation & Warehouse				
Angkasa Pura I	AP1	ES	NL	9
Angkasa Pura II	AP2	ES	NL	11
ASDP Indonesia Ferry	ASDP	ES	NL	7
Bhanda Ghara Reksa	BGR	ES	NL	7
Garuda Indonesia	GIIA	ES	L	11
Jasa Marga	JSMR	ES	L	11
Kawasan Berikat Nusantara	KBN	ES	NL	6
Kereta Api Indonesia	KAI	ES	NL	11
Pelabuhan Indonesia I	PLND1	ES	NL	8
Pelabuhan Indonesia II	PLND2	ES	NL	11
Pelabuhan Indonesia III	PLND3	ES	NL	10
Pelabuhan Indonesia IV	PLND4	ES	NL	9
Pos Indonesia	POS	ES	NL	10
Financial Service and Insurance				
Jaminan Kredit Indonesia	JKI	NES	NL	9
Asuransi ABRI	AABRI	NES	NL	8
Asuransi Jasa Indonesia	AJI	NES	NL	10
Asuransi Jiwasraya	AJ	NES	NL	6
Asuransi Kerugian Jasa Raharja	AJR	NES	NL	9
Asuransi Kredit Indonesia	AKI	NES	NL	9
Bank Mandiri	BBMI	NES	L	11
Bank Negara Indonesia	BBNI	NES	L	11
Bank Rakyat Indonesia	BBRI	NES	L	11
Bank Tabungan Negara	BBTN	NES	L	11
Danareksa	DNRKS	NES	NL	9
Kliring Berjangka Indonesia	KBI	NES	NL	10
Pegadaian	PGDN	NES	NL	11
Permodalan Nasional Madani	PNM	NES	NL	8
Perusahaan Pengelola Aset	PPA	NES	NL	11
Reasuransi Indonesia Utama	RIU	NES	NL	10

Taspen	TSPN	NES	NL	9
Biro Klasifikasi Indonesia	BKI	NES	NL	10
Sucofindo	SCFD	NES	NL	11
Information & Telecomunication				
Antara	ANTR	NES	NL	7
Telkom	TLKM	NES	L	11
Wholesale & Retail Sale				
Bulog	BLG	NES	NL	8
Sarinah	SRNH	NES	NL	9

TABLE 4.2   The Sampled Indonesian State-Owned Enterprises (Isoes) Under Study

The expected ESPISOE value (EEV) for the total dimensions, calculated using the formula developed in the Research Method section, is presented in Table 4.3. The table indicates that the EEV for dimensions A and B was 0.87, that for dimension C was 0.15, that for dimension D was 1.31, and that for dimension E was 1.41, leading to total values of 0.87, 0.15, 1.31, and 3.59, respectively.

Observation Year	*EEV* Dimension A	*EEV* Dimension B	*EEV* Dimension C	*EEV* Dimension D	*EEV* Dimension E	*EEV* Total Dimension (A- E)
2008	0.77	0.47	0.08	0.71	1.96	3.99
2009	0.77	0.47	0.08	0.71	1.96	3.99
2010	0.77	0.47	0.08	0.71	1.96	3.99
2011	0.77	0.47	0.08	0.71	1.96	3.99
2012	0.77	0.47	0.08	0.71	1.96	3.99
2013	0.77	0.47	0.08	0.71	1.96	3.99
2014	0.77	0.47	0.08	0.71	1.96	3.99
2015	0.77	0.47	0.08	0.71	1.96	3.99
2016	0.77	0.47	0.08	0.71	1.96	3.99
2017	0.77	0.47	0.08	0.71	1.96	3.99
2018	0.77	0.47	0.08	0.71	1.96	3.99
SUM	8.47	5.19	0.89	7.86	21.52	43.93
ESPI (Average)	**1.41**	**0.87**	**0.15**	**1.31**	**3.59**	**7.32**

Table 4.3   Expected Espisoe Value (Eev)

As indicated in Table 4.4, the highest ESPISOE index by dimension pertains to dimension E with a value of 18.931. This index suggests that the most prominent issue disclosed by SOEs is their responsiveness to environmental assessment. This is achieved by concerns related to social performance, including concern for social policies and programmes (dimension D), which holds an index of 18.732, followed by concerns for social impacts (dimension C) with an index of 1.3021, compliance with environmental laws and regulations (national) (dimension B) with an index of 0.323, and compliance with laws and social regulations (dimension A) with an index of

0.121. These findings indicate that SOEs disclose more information regarding environmental performance than social performance to stakeholders.

Table 4.5 reveals that the ESPISOE index for SOEs is 2.856, with the highest ESPISOE index for dimension E at 2.268. The table also indicates that only 28 SOEs (45%), with an index exceeding 0.000, disclosed issues concerning dimensions A and B. Conversely, all SOEs (100%) disclosed issues related to dimensions C, D, and E. This finding suggests that SOEs tend to keep issues related to non-compliance, such ⬚Ranking⬚ as fines and sanctions, private, in their social and environmental performance reports. On the other hand, SOEs disclose more issues related to social impact, concerns for social policies and programs, and responsiveness to environmental assessments. Table 3.2 illustrates that the SOEs that received the gold category from the Proper rating provider during the 2013-2018 period ranked among the top ten positions: PTBA (rank 2),

SI (rank 3), ANTM (rank 4), and PIHC (rank 10). The other two SOEs that received the gold category were positioned 17th (BFRM) and 25th (PTMN

Tables 4.5 and 4.6 (extracted from Table 3.5), as well as Fig. 4.1, indicate that among the top 10 Indonesian SOEs (representing 21% of the sampled SOEs), TINS (mining industry), PTBA (mining industry), and SI (processing industry) ranked first, second, and third, respectively, based on their ESPISOE index values of 2.856, 2.480, and 2.380. The only financial service industry among the top ten SOEs, BBRI, is ranked eighth, with an ESPISOE index of 0.980.

Ranking	Dimension	Description	Total AEV
1	Dimension E	Responsive to environmental assessments	18.931
2	Dimension D	Concern for social policies and programs	18.732
3	Dimension C	Concern for social impacts	1.301
4	Dimension B	Compliance with environmental laws and regulations (national)	0.323
5	Dimension A	Compliance with laws and social regulations (national)	0.121
Total dimension (A – E) for 62			39.408

TABLE 4.4   ESPISOE Index (AEV) by Dimension

As indicated in Table 4.4, the highest ESPISOE index by dimension pertains to dimension E with a value of 18.931. This index suggests that the most prominent issue disclosed by SOEs is their responsiveness to environmental assessment. This is achieved by concerns related to social performance, including concern for social policies and programmes (dimension D), which holds an index of 18.732, followed by concerns for social impacts (dimension C) with an index of 1.3021, compliance with environmental laws and regulations (national) (dimension B) with an index of 0.323, and compliance with laws and social regulations (dimension A) with an index of

0.121. These findings indicate that SOEs disclose more information regarding environmental performance than social performance to stakeholders.

Table 4.5 reveals that the ESPISOE index for SOEs is 2.856, with the highest ESPISOE index for dimension E at 2.268. The table also indicates that only 28 SOEs (45%), with an index exceeding 0.000, disclosed issues concerning dimensions A and B. Conversely, all SOEs (100%) disclosed issues related to dimensions C, D, and E. This finding suggests that SOEs tend to keep issues related to non-compliance, such as fines and sanctions, private, in their social and environmental performance reports. On the other hand, SOEs disclose more issues related to social impact, concerns for social policies and programs, and responsiveness to environmental assessments. Table 3.2 illustrates that the SOEs that received the gold category from the Proper rating provider during the 2013-2018 period ranked among the top ten positions: PTBA (rank 2),

SI (rank 3), ANTM (rank 4), and PIHC (rank 10). The other two SOEs that received the gold category were positioned 17th (BFRM) and 25th (PTMN

Tables 4.5 and 4.6 (extracted from Table 3.5), as well as Fig. 4.1, indicate that among the top 10 Indonesian SOEs (representing 21% of the sampled SOEs), TINS (mining industry), PTBA (mining industry), and SI (processing industry) ranked first, second, and third, respectively, based on their ESPISOE index values of 2.856, 2.480, and 2.380. The only financial service industry among the top ten SOEs, BBRI, is ranked eighth, with an ESPISOE index of 0.980.

Ranking	ISOE Code	Actual ESPISOE Value of dimension						Ranking	ISOE Code	Actual ESPISOE Value					
		A	B	C	D	E	Total			A	B	C	D	E	Total
1	TINS	0.003	0.005	0.069	0.511	2.268	2.856	32	LEN	0.000	0.000	0.016	0.291	0.215	0.523
2	PTBA	0.003	0.019	0.069	0.412	1.976	2.480	33	PRMS	0.000	0.027	0.014	0.262	0.212	0.516
3	SI	0.000	0.007	0.054	0.379	1.940	2.380	34	WSKT	0.001	0.006	0.016	0.410	0.080	0.514
4	ANTM	0.000	0.029	0.056	0.492	0.607	1.185	35	PLND4	0.001	0.017	0.016	0.254	0.154	0.443
5	PGAS	0.001	0.001	0.044	0.464	0.573	1.085	36	ADHI	0.001	0.001	0.017	0.248	0.163	0.430
6	KRAS	0.001	0.005	0.062	0.448	0.530	1.047	37	AKI	0.000	0.000	0.012	0.150	0.267	0.429
7	TLKM	0.001	0.000	0.024	0.523	0.478	1.026	38	PGDN	0.023	0.000	0.017	0.238	0.144	0.422
8	BBRI	0.003	0.001	0.022	0.620	0.333	0.980	39	AABRI	0.000	0.000	0.016	0.207	0.196	0.418
9	GIIA	0.002	0.000	0.021	0.462	0.487	0.972	40	INAF	0.001	0.001	0.004	0.163	0.241	0.411
10	PIHC	0.000	0.003	0.035	0.351	0.531	0.921	41	SRNH	0.000	*0.000*	0.009	0.269	0.130	0.408
11	BBNI	0.005	0.000	0.025	0.553	0.289	0.873	42	JKI	0.000	*0.000*	0.012	0.243	0.146	0.401
12	BBTN	0.004	0.000	0.012	0.668	0.186	0.870	43	TWC	0.000	*0.000*	0.010	0.229	0.149	0.388
13	AP1	0.006	0.010	0.029	0.491	0.313	0.849	44	DNRS	0.000	*0.000*	0.012	0.218	0.145	0.376
14	KBN	0.006	0.038	0.025	0.219	0.493	0.782	45	PLND3	0.001	0.001	0.014	0.231	0.126	0.374
15	BMRI	0.002	0.000	0.017	0.396	0.342	0.758	46	PPA	0.000	0.000	0.009	0.224	0.126	0.360
16	PTPP	0.000	0.004	0.018	0.366	0.319	0.707	47	SCFD	0.000	0.000	0.009	0.241	0.101	0.352
17	BFRM	0.000	0.000	0.030	0.301	0.356	0.686	48	BLG	0.001	0.000	0.007	0.162	0.172	0.343
18	JSMG	0.005	0.021	0.034	0.464	0.138	0.662	49	ASDP	0.000	0.000	0.014	0.205	0.118	0.337
19	TSPN	0.003	0.000	0.012	0.491	0.133	0.640	50	PHTN	0.003	0.014	0.010	0.217	0.089	0.334
20	PLND2	0.002	0.014	0.019	0.315	0.278	0.628	51	HK	0.000	0.000	0.013	0.196	0.106	0.316
21	KAI	0.001	0.014	0.014	0.288	0.304	0.622	52	GRM	0.003	0.000	0.011	0.182	0.106	0.302
22	AP2	0.001	0.007	0.021	0.384	0.200	0.614	53	INTI	0.000	0.000	0.009	0.177	0.116	0.302
23	PLND1	0.002	0.015	0.028	0.275	0.292	0.612	54	POS	0.000	0.000	0.017	0.174	0.072	0.263
24	KAEF	0.000	0.000	0.020	0.371	0.221	0.611	55	BGR	0.000	0.000	0.011	0.160	0.082	0.253
25	PTMN*	0.027	0.001	0.042	0.329	0.205	0.604	56	RIU	0.000	0.000	0.011	0.154	0.074	0.239
26	AJI	0.000	0.000	0.020	0.291	0.284	0.596	57	BKI	0.000	0.000	0.011	0.185	0.041	0.238
27	WIKA	0.000	0.001	0.024	0.342	0.226	0.593	58	ANTR	0.000	0.000	0.005	0.160	0.053	0.218
28	PTPN3	0.000	0.057	0.019	0.317	0.191	0.584	59	KBI	0.000	0.000	0.005	0.131	0.057	0.193
29	AKJR	0.000	0.000	0.017	0.370	0.149	0.536	60	AJ	0.000	0.000	0.005	0.154	0.030	0.189
30	PRR	0.000	0.000	0.022	0.244	0.265	0.531	61	PNM	0.000	0.000	0.007	0.138	0.034	0.179
31	SMBR	0.000	0.000	0.032	0.283	0.215	0.530	62	DHN	0.000	0.000	0.013	0.039	0.062	0.115
Total [1] to [31]		0.083	0.255	0.939	12.420	15.124	28.820	Total [32] to [62]		0.038	0.068	0.362	6.312	3.807	10.588
Total [1] to [62]										0.121	0.323	1.301	18.732	18.931	39.408

TABLE 4.5 ESPISOE Index (AEV) by Company

Ranking	Company codes	ESPISOE Index of Dimension					
		A	B	C	D	E	Total
1	TINS	0.003	0.005	0.069	0.511	2.268	2.856
2	PTBA	0.003	0.019	0.069	0.412	1.976	2.480
3	SI	0.000	0.007	0.054	0.379	1.940	2.380
4	ANTM	0.000	0.029	0.056	0.492	0.607	1.185
5	PGAS	0.001	0.001	0.044	0.464	0.573	1.085
6	KRAS	0.001	0.005	0.062	0.448	0.530	1.047
7	TLKM	0.001	0.000	0.024	0.523	0.478	1.026
8	BBRI	0.003	0.001	0.022	0.620	0.333	0.980
9	GIIA	0.002	0.000	0.021	0.462	0.487	0.972
10	PIHC	0.000	0.003	0.035	0.351	0.531	0.921

TABLE 4.6   ESPISOE Index for Dimension (Big Ten) Under Study
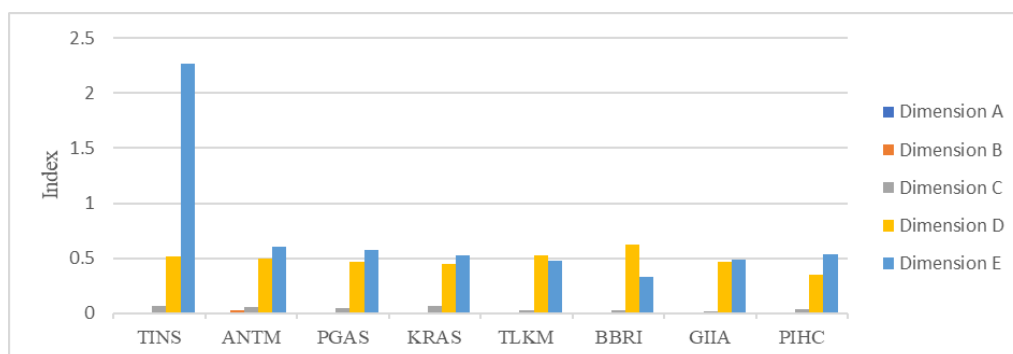
Figure 4.1 Espisoe Index for Dimension (Big Ten) Under Study

Table 4.6 displays the top ten SOEs with a high ESPISOE index based on ranking, focusing on the big ten. This table indicates that all Indonesian SOEs possess a high index within the environmental (E) dimension, with TINS achieving an index of 2.268 and BBRI attaining an index of 0.620 for dimension D. Additionally, TINS and PTBA achieved indices of 0.069 and 0.003, respectively, for dimension C, whereas ANTM achieved an index of 0.029 for dimension B. These results suggest that SOEs exhibit commendable responsiveness to environmental assessments and scanning as well as to social policies, programs, and environmental impacts. The table also indicates good compliance with social and environmental regulations among the top ten SOEs, with dimension A reflecting fines and sanctions for violations of national social laws and regulations.

Ranking	Company	ESPISOE Index of Dimension					
		A	B	C	D	E	Total
Environmentally Sensitive							
1	TINS	0.003	0.005	0.069	0.511	2.268	2.856
2	PTBA	0.003	0.019	0.069	0.412	1.976	2.480
3	SI	0.000	0.007	0.054	0.379	1.940	2.380

4	ANTM	0.000	0.029	0.056	0.492	0.607	1.185
5	PGAS	0.001	0.001	0.044	0.464	0.573	1.085
6	KRAS	0.001	0.005	0.062	0.448	0.530	1.047
7	GIIA	0.002	0.000	0.021	0.462	0.487	0.972
8	PIHC	0.000	0.003	0.035	0.351	0.531	0.921
9	AP1	0.006	0.01	0.029	0.491	0.313	0.849
10	KBN	0.006	0.038	0.025	0.219	0.493	0.782
Non-Environmental Sensitive							
1	TLKM	0.001	0.000	0.024	0.523	0.478	1.026
2	BBRI	0.003	0.001	0.022	0.620	0.333	0.980
3	BBNI	0.005	0.000	0.025	0.553	0.289	0.873
4	BBTN	0.004	0.000	0.012	0.668	0.186	0.870
5	BMRI	0.002	0.000	0.017	0.396	0.342	0.758
6	TSPN	0.003	0.000	0.012	0.491	0.133	0.640
7	AJI	0.000	0.000	0.020	0.291	0.284	0.596
8	AKJR	0.000	0.000	0.017	0.370	0.149	0.536
9	AKI	0.000	0.000	0.012	0.150	0.267	0.429
10	PGDN	0.023	0.000	0.017	0.238	0.144	0.422

Table 4.7   Five Dimensions of Espisoes for Big Ten of Isoes

Table 4.7 provides evidence of high index levels of Environmental Sustainability Business (ESB) practices in dimensions E, D, and C for Industry-Specific Operating Units (ISOUs) in both environmentally sensitive and non-environmentally sensitive industries. This suggests that ISOUs are highly responsive to environmental assessments and maintain significant concern for social policies and programs, as well as their social impacts. The table also reveals that non-environmentally sensitive ISOUs have a disclosure index of 0.00 for fines and sanctions related to non-compliance with laws and social regulations (dimension A) and the environment (dimension B). This finding indicates that non-environmentally sensitive SOEs exhibit exceptional compliance with national laws and regulations both socially and environmentally. However, ISOEs in environmentally sensitive industries are subject to fines and sanctions for violations of national social and environmental laws and regulations. The indicators of fines and sanctions for violations of social laws and regulations in dimension A, as indicated in API and KBN, had an index of 0.006, followed by TINS with an index of 0.003, PTBA with 0.003, GIIA with 0.002, PGAS with 0.001, and KRAS with 0.001, thus supporting this finding. Furthermore, KBN is the only ISOU with indicators of fines and sanctions for noncompliance with laws and regulations in the environmental aspect, with an index of 0.038.

The ESPISOE index, which measures the level of synergy between financial performance and social and environmental responsibility, reached a value of only 2.856, or 39.0% of the expected (EEV) index of 7.32. This indicates that the Environmental, Social, and Governance (ESG) performance of Indonesian State-Owned Enterprises (SOEs) is still very low and inconsistent with the requirements of Law No. 19/2003 of the Republic of Indonesia, which mandates that these two tasks be conducted synergistically. The findings also reveal that SOEs primarily focus on financial performance, often neglecting social and environmental responsibility. This is inconsistent with the four theories underpinning this study—stakeholder theory (Deegan, 2014), regulation theory (Deegan, 2014; Zheng et al., 2014), performance theory (Deegan, 2014), and corporate theory (Zenger, 2016)—which emphasise the importance of optimising all three

functions (profit, social, and environmental) while providing equal rights to all stakeholders. The ESPISOE index is also lower than the ESP index of SOEs in other countries such as Sweden (71%) (Argento et al., 2019), Spain (45%) (Sánchez et al., 2016), and China (43%) (Rutledge et al., 2014).

The ISOE Index by dimension indicates a high level of compliance with laws and regulations across both social and environmental fields. This correlates with Law no. 19/2003. A high ESP index for ISOEs signifies commendable environmental, social, and policy performances. However, there remains concern regarding responsiveness to environmental assessment aspects, and the level of responsiveness to social impacts, policies, and programs is low. This disparity underscores the inconsistency with Law no. 19/2003. A low ESP disclosure index suggests ample room for improvement in the financial performance of ISOEs, particularly concerning environmental and social issues concerning stakeholders.

Based on stakeholder, regulatory, performance, and corporate theories, it can be inferred that stakeholders possess the right to information and that companies are obligated to provide pertinent information to stakeholders. Environmental and social performance information must be disclosed to stakeholders. The level of disclosure of the ESPISOE index was positively correlated with the environmental and social performance of Indonesian SOEs. This study revealed several results, demonstrating both high and low ESPISOE scores. The ESP index, which is related to compliance with social and environmental laws and regulations, indicates a high level of compliance. These findings support the aforementioned theories and can be generalised to privately owned and state-owned companies.

Second, the ESP index was low for issues of concern regarding social impacts, social policies and programs, and responsiveness to environmental assessment/scanning. These results indicate that the disclosure of information regarding these three issues must be revised. This finding conflicts with stakeholder, regulation, performance, and corporate theories. Therefore, this study offers a new interpretation that can be derived from these four theories. Although these four theories can be applied to companies, especially SOEs, they tend to avoid disclosing information in order to mitigate potential damage to their image or reputation. Consequently, when a company discloses negative information about its poor performance regarding social impacts, social policies, and programs, as well as its low responsiveness to environmental assessment/scanning, it may erode stakeholders' trust in SOEs. Thus, public confidence in the government may diminish, adversely affecting the government's financial performance as an owner of SOEs.

Based on the results of this study, the development of a disclosure index, such as the ESP Index, as part of implementing Law No. 19/2003 can serve as a reference for SOEs to evaluate environmental and social performance more comprehensively. By utilising this ESP Index, SOEs can enhance and cultivate the trust of various stakeholders, including the public. This will improve the government's future financial performance.

Conclusion

Indonesian State-Owned Enterprises (SOEs) are mandated by Law No. 19/2003 and Law No. 40/2007 to uphold their environmental and social responsibility. Despite these legal obligations, compliance remains inconsistent, leading to various issues, including violations of labour laws, environmental regulations, and social conflicts. The lack of adherence to established policies and noncompliance with environmental and social responsibility programs further exacerbates

these challenges. Previous studies have largely concentrated on broader aspects of environmental and social performance, neglecting the critical evaluation of compliance with the aforementioned laws. This gap underscores the necessity of a structured approach to assess the environmental and social performance of SOEs in Indonesia and aims to address the development of an Environmental and Social Performance Index for Indonesian State-Owned Enterprises (ESPISOE) based on the Global Reporting Initiative (GRI) standards.

The ESPISOE Index, a management tool that integrates ESG practices within Indonesian SOEs, was developed using archival data from 2008 to 2018. The index, based on the GRI standards, includes criteria such as community relations, workplace diversity, employee relations, and environmental performance. Findings reveal significant disparities in ESG performance among SOEs, with Timah (TINS) leading, followed by Tambang Batubara Bukit Asam (PTBA), Semen Indonesia (SI), Aneka Tambang (ANTM), and Perusahaan Gas Negara (PGAS). This study provides insights into SOE compliance with Law No. 19/2003 and normative accountability, identifying issues such as noncompliance with employment laws, hazardous waste management violations, social conflicts, and deviations from social responsibility and environmental policies. The ESPISOE Index offers a novel framework for assessing and improving the ESG performance of Indonesian SOEs, thereby filling critical research gaps.

The implications of this study are multifaceted and extend beyond mere academic interests. First, the ESPISOE index serves as a strategic management tool designed to assist State-Owned Enterprises (SOEs) in integrating environmental, social, and governance (ESG) considerations into their core business practices. This index not only provides a framework for SOEs to evaluate their performance against established benchmarks but also facilitates a systematic approach to embedding sustainability into their operational ethos. By adopting this index, SOEs can align their operations more effectively with national regulations and global standards, which are becoming increasingly vital in today's environmentally conscious marketplaces. This alignment is crucial, as it enhances the credibility and reputation of these enterprises among stakeholders, including investors, customers, and regulatory bodies, who are increasingly prioritising sustainability in their decision-making processes.

The findings of this study have significant implications for policymakers and regulatory bodies, highlighting the performance gaps within the SOE sector. These insights can prompt authorities to develop and implement stronger frameworks and incentives to ensure compliance with the ESG standards. For example, enhanced regulatory oversight could encourage SOEs to adopt best practices for sustainability, fostering an environment where responsible business practices are mandated. Furthermore, the results can promote greater transparency and accountability among SOEs, which is essential for building public trust. By fostering a culture of sustainability aligned with public and investor expectations, SOEs can improve operational performance and contribute to broader Sustainable Development Goals (SDGs). Integrating the ESPISOE index and the insights from this study can lead to a transformative shift in SOE operations, meeting current demands and paving the way for a sustainable future.

Future research should explore the longitudinal impact of the ESPISOE index on the performance of Indonesian SOEs over time, particularly in relation to the changes in regulatory frameworks and market dynamics. Investigating the relationship between index scores and financial performance can yield valuable insights into business cases for sustainability. Furthermore, comparative studies involving SOEs from other countries could provide a broader perspective on the best practices and innovative approaches to environmental and social

governance. It would also be beneficial to examine the role of stakeholder engagement in shaping the sustainability strategies of SOEs as well as the influence of local communities on corporate social responsibility initiatives. Finally, qualitative research methods can be employed to capture the experiences and perceptions of employees and community members regarding social and environmental practices, thereby enriching their understanding of their performance beyond quantitative metrics.

Declaration of Conflict of Interest (CoI):

The authors declare that they have no known competing financial interests or personal relationships that could have influenced the work reported in this study.

Data Availability Statement:

The datasets generated and/or analysed during the current study are available from the corresponding author upon reasonable request.

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