The Role of Internal Audit in Enhancing the Effectiveness of Internal Control over Sustainability Reporting (ICoSR) and Environmental, Social, and Governance (ESG) Compliance: A Case Study of an Aluminium Manufacturing Company

INDIVIDUAL PROJECT

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We hereby declare that this Thesis is from student,s own work, has been read and presented to Institut IPMI Board of Examiners, and has been accepted as part of the reguirement needed to obtain a Master of Business Administration Degree and has been found be satisfactory.

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NON PLAGIARISM DECLARATION FORM

This thesis presents the results of our original research. Where contributions from others are included, every effort has been made to clearly indicate them by citing the relevant literature and acknowledging collaborative research and discussions. Furthermore, this work is submitted as partial fulfillment of the requirements for the Master of Business Administration degree and has not been accepted in substance for any other degree, nor is it currently being submitted concurrently in pursuit of any other degree.

Jakarta, 28 August 2026

ARRYE GENAP PARHUSIP

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Abstract

This study examines The Role of Internal Audit in Enhancing the Effectiveness of Internal Control over Sustainability Reporting (ICoSR) and Environmental, Social, and Governance (ESG) Compliance at PT Indonesia Asahan Aluminium (Persero) to support its Initial Public Offering (IPO) readiness for the fourth quarter of 2026. The study employs a qualitative method with a single embedded case study design, analyzing data that includes sustainability reports from 2024–2025, as well as results from interviews, document analysis, observations, and Focus Group Discussions (FGDs) with key informants. The findings indicate that while sustainability and ESG governance frameworks have been established, ICoSR implementation remains in the early stages, and the role of Internal Audit in providing assurance regarding sustainability reporting and ESG compliance is not yet optimal. Key challenges include divergent understandings of ESG, organizational silos, limited information integration, and the absence of formal ESG audit guidelines and assurance mechanisms. The study concludes that strengthening Internal Audit through enhanced ESG competencies, specialized audit programs, early involvement in the sustainability reporting process, and the implementation of a structured ICoSR framework requires strong commitment from top management ("Tone at the Top"). Such synergy is essential to enhance the reliability and credibility of sustainability and ESG information, bolster stakeholder confidence, and support the success of INALUM's IPO in the fourth quarter of 2026.

Keywords: Internal Audit; ICoSR; ESG Compliance; Tone at the Top; IPO Readiness.

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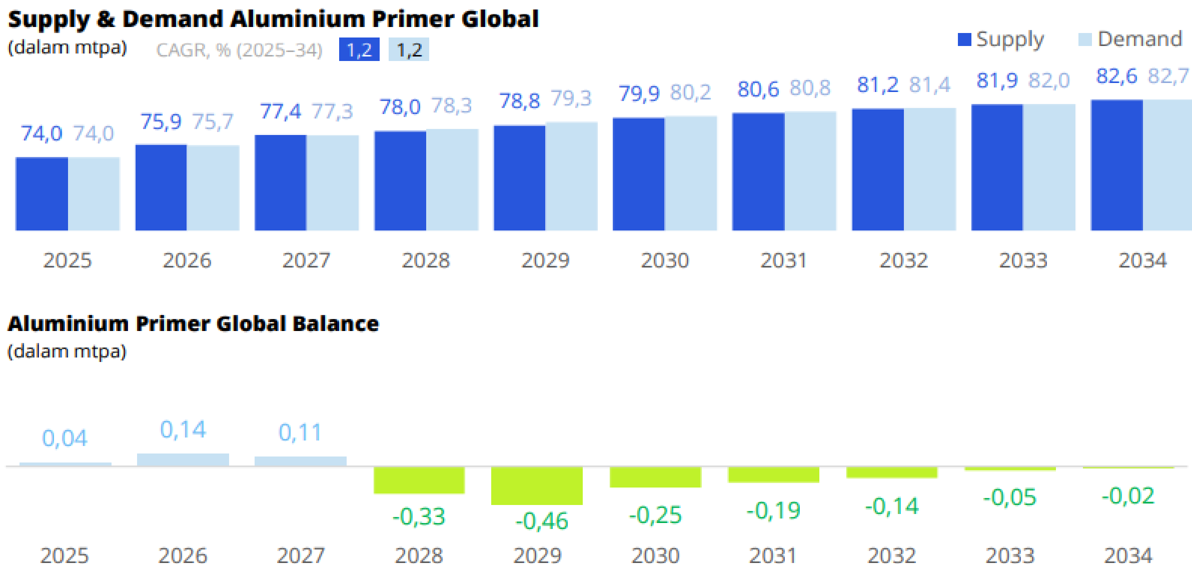
CHAPTER I

1.1 Industry Background

Aluminium: central to a sustainable future, Aluminium products are essential enablers of a low carbon future and the increased use of the metal will lead to reduced economy-wide emissions. Fleets of lightweight, autonomous, electric vehicles delivering leased mobility services to a growing global population powered by renewable energy grids; net positive, modular, intelligent buildings producing more energy than they consume, and adapting in real time to the varied needs of their occupants; lightweight and protective packaging solutions bringing nutritional and pharmaceutical benefits to ten billion people by 2050, minimising wastage and reducing burdens on logistics – all will require the material and energy benefits that aluminium brings and in increasing quantities.

While aluminium is part of the solution for a sustainable future (because of its unique combination of properties: lightness, strength, durability, electrical and thermal conductivity, formability and recyclability), the industry recognises that it has the potential to be part of the problem if the sector does not plan and act quickly to reduce its greenhouse gas emissions in line with societal climate goals. Increasing demand for aluminium will only be enhanced by transitioning to a low carbon trajectory. And such paths will be different for different actors within the aluminium sector around the world and along the value chain (International Aluminium Institute, 2024). According to the International Aluminium Institute (IAI, 2024), global aluminium consumption is projected to increase by around 40–50% by 2050 compared to current consumption levels, while the International Energy Agency (IEA, 2023) places aluminium as one of the critical materials supporting the clean energy transition. (IAI,2024).

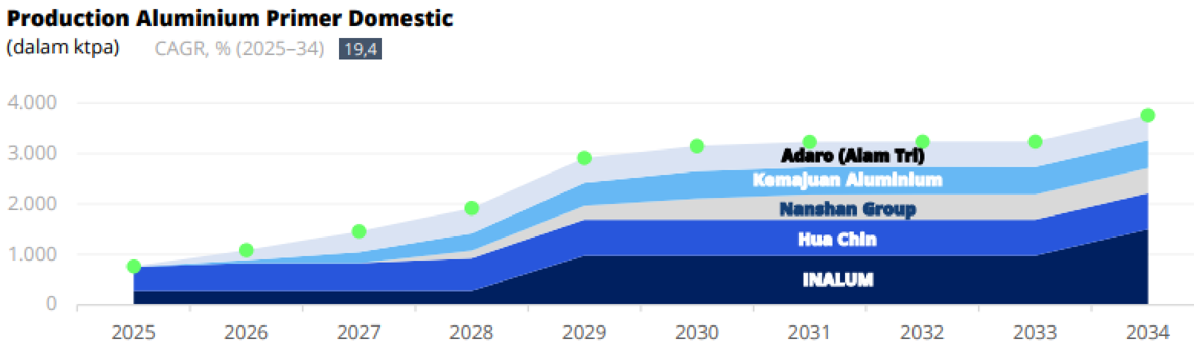
Table 1.1 Supply & Demand Aluminium Global, Aluminium Primer Global Balance



Source: WoodMac, AME, CRU LTO Q3 2025 & STO Nov 2025, Analisis Internal INALUM

The growing trend in global aluminium demand is also reflected in the development of the national aluminium industry. In this context, PT Indonesia Asahan Aluminium (INALUM) plays a very strategic role. INALUM is the only primary aluminium smelter in Indonesia with a production capacity of around 250 thousand tons of primary aluminium per year (250,000 metric tons per annum). In addition to carrying out its function as a national aluminium producer, since 2017 INALUM has also been trusted by the government as the Indonesian Mining Industry Holding (MIND ID) which manages state-owned mining companies. This role is in line with the national mineral downstream policy as mandated in Law Number 3 of 2020 concerning Mineral and Coal Mining, which aims to increase the added value of mineral resources through domestic processing and refining in order to create sustainable economic growth and improve the welfare of the Indonesian people. (Inalum, 2024).

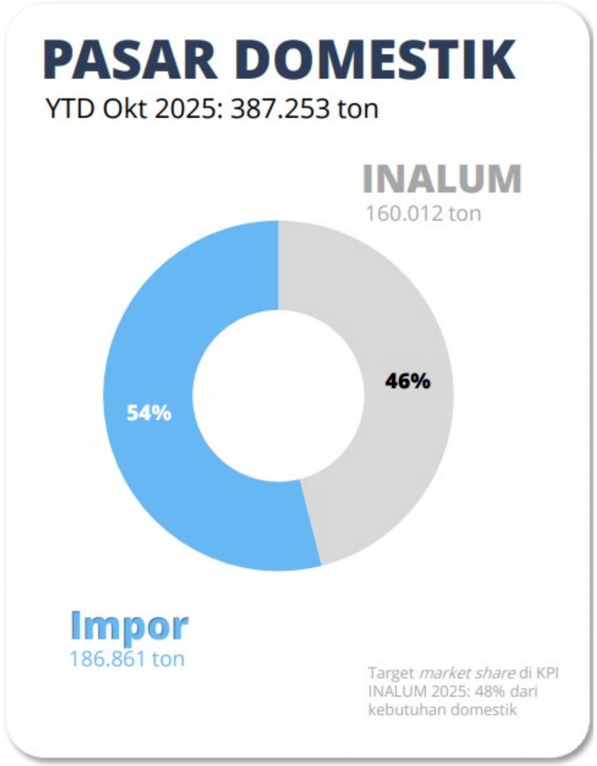
Chart 1.1 Trend Production Aluminium Primer Domestic



Source: WoodMac, AME, CRU LTO Q3 2025 & STO Nov 2025, Analisis Internal INALUM

Despite its dominant position in the domestic primary aluminium market, INALUM still faces significant challenges. Based on company data, INALUM controls an average of 46% of the domestic market share for Primary Aluminium Ingot products, while 54% of domestic aluminium needs are still imported. However, the company's market share in the value-added aluminium segment is still relatively low, at around 9%, as it is still dominated by imported products. This situation indicates that the greatest growth opportunities lie in the development of downstream products with higher added value. Industry analysts predict that increasing domestic demand for processed aluminium products will open up new market opportunities for INALUM, so the company needs to formulate strategies that are able to maintain its position as a market leader while increasing competitiveness in the value-added product segment.(Inalum,2024).

Chart 1.2 Domestic Market Demand for Primary Aluminium



Source: WoodMac, AME, CRU LTO Q3 2025 & STO Nov 2025, Analisis Internal INALUM

Table 1.2 Top Three Aluminium Ingot Import Suppliers in 2024

Source: INALUM Annual report 2024

1.2 Company Profile

PT Indonesia Asahan Aluminium is a State-Owned Enterprise (BUMN) that has a dual role as a holding and operator in the Indonesian mining industry. The company's status has undergone several changes; from changing to a Persero in 2014, then to a non-Persero on April 13, 2023 based on PP No. 45 and 46 of 2022. he Government of the Republic of Indonesia approved PT INALUM (Persero) as a holding company for the mining industry in 2017. In 2019 the INALUM brand was used for operational activities while MIND ID became the trade name for its holding functions.

Following the division of mining industry holding functions between MIND ID and PT INALUM (Persero), MIND ID handled the mining industry holding functions while PT INALUM (Persero) concentrated on aluminium downstream projects in Indonesia, on February 17, 2023 and MIND ID was founded as a legal company in Jakarta under the name PT Mineral Industri Indonesia (Persero).

With a strong commitment to sustainable growth, PT Indonesia Asahan Aluminium (Persero) incorporates environmental and social responsibility and compliance into its long-term business strategy and business operations. INALUM (Persero), the first major aluminium manufacturer in Indonesia to employ renewable electricity produced by the hydroelectric power plant in Paritohan, Toba Regency, is still going strong and developing low-carbon, efficient, and successful operations, every development project that INALUM (Persero) now undertakes aims to have a long-lasting positive influence on the environment as well as the lives of the local inhabitants in the areas where the company operates. PT INALUM (Persero) is enhancing its position as an eco-friendly mining company through innovation and technological processes, energy efficiency, and sustainable waste management. In order to grow its eco-friendly operations and stay competitive in the domestic and international aluminium markets, PT INALUM (Persero) has formed strategic alliances, this strategy has strengthened the company's conviction that expansion in the smelting sector and a dedication to environmental preservation and nature can coexist in a sustainable future, an annual sustainability report is created by PT INALUM (Persero) and posted on the company's official website, the company is firmly committed to putting a sustainability system into place.

The implementation of sustainability and ESG (Environmental, Social, and Governance) systems that are in line with the company's vision and goal is a top priority for PT INALUM (Persero)(INALUM Annual Report, 2024).

1.3 Vision, Mission and Corporate Culture

Vision

"To Become a Leading Global Company Based on Environmentally Friendly Integrated Aluminium".

Mission

- To operate an integrated, profitable, safe, and environmentally friendly aluminium smelter to create added value for our stakeholders.
- Contribute to regional and national economic growth through the smelter's operations and the development of business processes by applying sustainable principles.
- Actively participate in empowering communities near the company's operating sites through social and environmental responsibility programs and partnership activities aimed at appropriate community development.
- Enhancing human resource competence in a planned and sustainable manner to ensure operational continuity and the development of an environmentally friendly aluminium industry.

Corporate Culture

PT INALUM (Persero) implements a corporate culture grounded in the AKHLAK values established for State-Owned Enterprises (SOEs), these values serve as the foundation and behavioral guide for every member of the organization in performing their duties professionally, upholding integrity, and demonstrating adaptability, while remaining focused on creating sustainable value for the company and its stakeholders (Inalum, 2024).

Figure 1.1 INALUM Corporate Culture

Source: INALUM Annual Report 2024

1.4 Products

INALUM continuously strives to be a leader in quality, sustainability, and customer satisfaction. Therefore, INALUM consistently delivers high-quality aluminium products. A variety of INALUM's aluminium products can be found in the following appendix.

- **Aluminium Ingot**

The first product variant produced by INALUM weighs 22.7 kg per ingot with an aluminium content of 99.90% and 99.70%. The aluminium ingots will subsequently undergo several additional processes to be transformed into high-value finished products, such as automotive and aircraft components and building construction materials. The quality of PT INALUM (Persero)'s aluminium ingots meets the standards established by JIS H2102 (Virgin Aluminium Ingot) and JIS H1305 (Optical Emission Spectrochemical Analysis Method for Aluminium and Aluminium Alloys).

Table 1.3 Aluminium Ingot Grade/Class

Grade/Class		*Element Analyzed*			*Each of TI & Mn*	*Sum of Elements*	*Aluminium Purity*
INALUM	JIS H2102:2009	Si	Fe	Cu			
S1-A	-	0,04% Max	0,04% Max	0,01% Max	0,01% Max	0,08% Max	99,92%
S1-B	-	0,04% Max	0,06% Max	0,01% Max	0,01% Max	0,10% Max	99,90%
S2	-	0,05% Max	0,10% Max	0,01% Max	0,01% Max	0,15% Max	99,85%
G1	*Class 1*	0,10% Max	0,20% Max	0,01% Max	0,02% Max	0,30% Max	99,70%

Source: INALUM Annual Report 2024

- **Aluminium Billets**

INALUM produces aluminium billets in the 6061, 6063, 6005, and 6463 series with diameters of 5, 7, and 8 inches. Aluminium billets are used as alloy materials for various modes of transportation, ranging from railroad cars, car frames, motorcycle frames, and aircraft frames, and are also widely used in the construction of building roofs.

Aluminium billets produced by PT INALUM (Persero) have several advantages, including :

a. ABB electromagnetic stirrers, ensuring a more homogeneous product;

b. Hycast vertical direct casting with a Hycast gas cushion, recognized for its excellence in the billet manufacturing industry, guaranteeing product quality and maximizing the separation of hydrogen and other inclusions; and

c. Herwitch-Austria batch homogenizers, producing products requiring lower extrusion pressures, higher mechanical properties, and easy final processing.

The company continuously improves product quality through unmatched excellence, with minimal surface segregation, thinner shell zones, finer grain structure, smoother surface appearance, less oxide generation, and lower surface porosity.

Table 1.4 Aluminium Billet Product Type

Produk	Tipe	Komposisi Kimia (%)								
		Si	Mg	Cu	Cr	Mn	Ti	Fe	Zn	Unsur Lain
6063	B1	0,38 – 0,46	0,50 – 0,58	0,10 max	0,10 max	0,10 max	0,01 – 0,02	0,25 max	0,10 max	0,05 max
6061	SC	0,70 – 0,75	1,00 – 1,10	0,17 – 0,27	0,05 – 0,10	0,05 – 0,10	0,02 – 0,03	0,15 – 0,25	0,02 max	0,05 max
6005	B2	0,62 – 0,70	0,49 – 0,59	0,10 max	0,03 – 0,10	0,04 – 0,10	0,02 – 0,04	0,10 – 0,25	0,10 max	0,05 max
6463	B1	0,30 – 0,40	0,45 – 0,55	0,15 – 0,25	0,05 max	0,05 max	0,01 – 0,02	0,10 – 0,16	0,05 max	0,05 max

Source: INALUM Annual Report 2024

- **Aluminium Foundry Alloy**

INALUM produces Aluminium Foundry Alloy type A356.2 using a degassing process using nitrogen to remove hydrogen content and separate impurities so that the Aluminium Foundry Alloy products produced are of high quality. This product can be used to produce rims, vehicle engine blocks, vehicle frames and other automotive needs. The production process for INALUM's main alloy, which has the Inalloy trademark, uses ODT technology from Australia using a

Reverberatory Furnace with a Magnetic Stirrer which guarantees a homogeneous mixture. Ceramic Foam Filter is used to filter out inclusions to maintain alloy quality.

The company consistently performs statistical quality control for its primary alloy products, supported by the accredited INALUM laboratory. Statistical quality control techniques ensure that the alloy products are of excellent quality and meet the composition standards established by the INALUM laboratory, which has been accredited by the National Accreditation Committee (KAN). Each shipment/batch will be accompanied by a factory certificate from the INALUM laboratory (Inalum Annual Report,2024)

Table 1.5 Aluminium alloy product grade

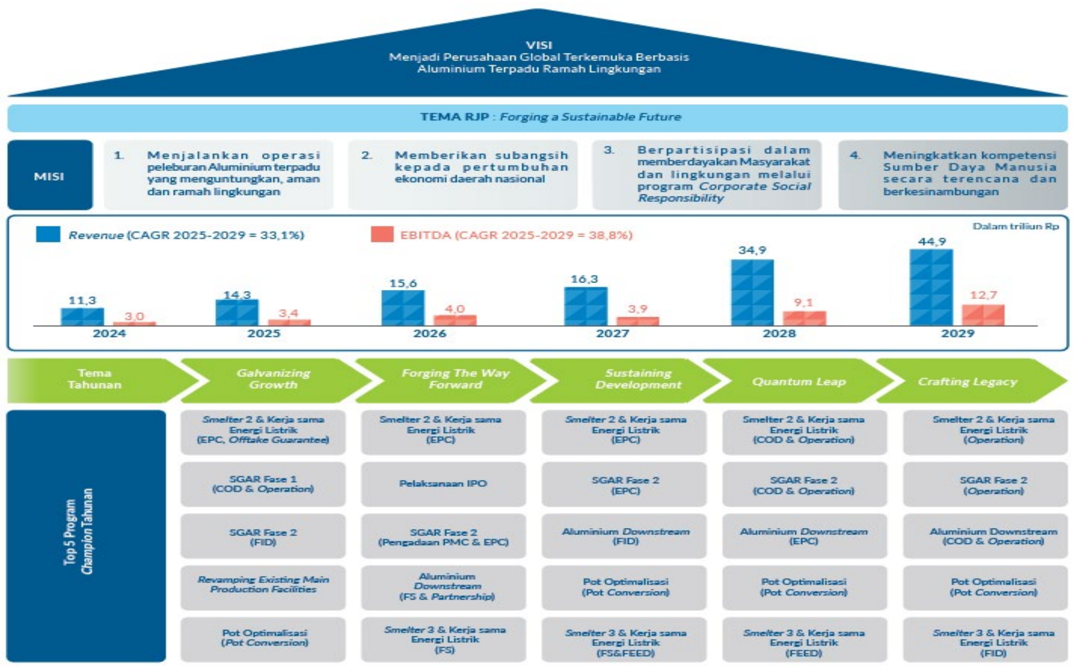
Produk	*Grade*	Komposisi Kimia (%)										
		Si	Fe	Ti	Mn	Ni	Zn	Cu	Mg	Sr	Unsur Lain	Total Unsur Lain
A356.2	A-3	6,70 – 7,30	0,10 max	0,10 – 0,20	0,02 max	-	0,02 max	0,01 max	0,34 – 0,42	0,022 – 0,030	0,05 max	0,15 max
AC2B	-	5,7 – 6,4	0,19 max	0,028 max	0,027 max	0,3 max	0,3 max	1,8 – 2,2	0,19 – 0,27	-	-	-
A941	-	2,6 – 3,1	0,25 max	0,01 max	0,02 max	-	0,02 max	0,02 max	0,02 max	0,001 – 0,005	0,02 max	0,15 max

Source: INALUM Annual Report 2024

1.5 Long-Term Strategic Plan

As a member of the Indonesian Mining Industry Holding (MIND ID), PT Indonesia Asahan Aluminium (INALUM) has prepared a Long-Term Corporate Plan (LTCP/RJP) 2025–2029 with the vision "To Become a Leading Global Environmentally Friendly Integrated Aluminium Company" and a consolidated revenue target of IDR 45 trillion by 2029. The plan is based on a strategic environmental analysis covering political, economic, social, technological, and environmental (PESTEL) aspects. The analysis identifies various opportunities, such as increasing demand for aluminium due to the growth of the electric vehicle industry, infrastructure development, mineral downstream policies, and the implementation of low-carbon technologies. On the other hand, the company also faces challenges in the form of increasing global competition and international environmental regulations, including the European Union's Carbon Border Adjustment Mechanism (CBAM). Through the theme "Forging a Sustainable Future", INALUM has established key strategies in the form of increasing operational efficiency, expanding production capacity, strengthening supply chains, expanding domestic and international markets, implementing ESG and sustainability, and optimizing its business portfolio through strategic partnerships. All of these strategies are aligned with MIND ID's vision to become a world-class mining company (Global Fortune 500) (Inalum Annual Report, 2024).

Figure 1.2 INALUM Long-Term Strategic Plan



Source: INALUM Annual Report 2024

1.6 Business Issue

PT Indonesia Asahan Aluminium (INALUM) is the only primary aluminium smelter in Indonesia and a member of the Indonesian Mining Industry Holding (MIND ID), which plays a strategic role in supporting the downstreaming of national minerals. Through its 2025–2029 Long-Term Corporate Plan (LTCP) themed "Forging a Sustainable Future," INALUM is committed to strengthening the implementation of Environmental, Social, and Governance (ESG) as part of its sustainable growth strategy. PT INALUM (Persero) continues its transformation and targets an Initial Public Offering (IPO) in the fourth quarter of 2026; therefore, high sustainability standards and the implementation of ESG principles—accompanied by transparency and accuracy in financial performance, sustainability, and environmental responsibility reporting—are crucial for enhancing corporate value and investor appeal.

To support the success of the company's transformation, PT INALUM (Persero) must ensure that the information on ESG implementation presented in its sustainability report is accurate, reliable, and in accordance with sustainability reporting standards through the implementation of Internal Control over Sustainability Report (ICoSR). The company's internal audit function is responsible for providing independent and adequate assurance regarding the effectiveness of ICoSR implementation, evaluating the application of ESG and sustainability practices, and ensuring that ESG and sustainability reports are prepared in accordance with global standards. Therefore, the business issue addressed in this study conducted at PT INALUM (Persero) is: "How can the role of the company's Internal Audit function enhance the effectiveness of Internal Control over Sustainability Reporting (ICoSR) to produce a high-quality and accountable sustainability report, so that the results of the sustainability report can increase the company's value and attract investors in support of PT INALUM (Persero)'s successful Initial Public Offering (IPO) in the fourth quarter of 2026." (Inalum Annual Report, 2024).

1.7 Description Background

In preparing its sustainability report, PT INALUM (Persero) conducted an identification process involving all stakeholders, both internal and external to the company. The results of this identification process regarding the company's business sustainability issues were compiled into a single document in the sustainability report. Regarding the implementation of ESG principles at PT INALUM (Persero), the company, through the President Director's Decision No. SK-001/DIRUT/2024, has established an Environmental, Social, and Governance (ESG) Implementation Committee. The Supervisory Board of the company's ESG Team consists of the President Director, while the Steering Committee consists of the Director of Strategic Business Development and the Director of Human Resources. This team is also supported by an Executive Board comprising the Chair, Vice Chair, Secretary, Environmental Aspects Coordinator, Social Aspects Coordinator, Governance Aspects Coordinator, and members of the company's Social and Environmental Responsibility Committee.

Awareness of the implementation of Environmental, Social, and Governance (ESG) principles continues to grow, particularly in the mining industry, which has a significant impact on the environment and communities. The application of sustainability and ESG principles has become crucial for mining companies, like PT INALUM (Persero), in order to support the company's business sustainability, foster investor trust, and protect the company's values and reputation in the face of growing demands from national and international regulations to conduct business in accordance with sustainability principles.

Numerous national and international frameworks and legislation facilitate the application of ESG concepts in Indonesia's mining industry, in order to guarantee the quality, accountability, and transparency of the data presented, the Financial Services Authority (OJK) has mandated that all publicly traded businesses on the Indonesia Stock Exchange include ESG and sustainability information in their reports, as a holding company for Indonesia's mining sector, PT INALUM (Persero) applies ESG standards in compliance with national and international laws, and applying sustainability principles is essential for increasing a company's competitiveness in local and international markets, drawing in investors, and reducing dangers to its reputation and legal standing. As a result, it is anticipated that regular ESG implementation will boost corporate value, improve stakeholder relations, and promote PT Indonesia Asahan Aluminium's long-term viability, so additionally the Indonesian government is adamant about reaching Net-Zero Emissions (NZE) by 2026. The Nationally Determined Contribution (NDC) paper and Presidential Regulation of the Republic of Indonesia No. 98 of 2021 both specify this. However sustainability reporting remains weak in terms of standards and internal controls compared to financial reporting. Although various standards such as GRI, TCFD, IFRS S1, and IFRS S2 already exist there is no single established global benchmark so the risks of greenwashing and a lack of data reliability remain high, therefore Internal Control over Sustainability Reporting (ICOSR) based on the COSO framework is needed to ensure the reliability, accuracy, and transparency of sustainability reports and internal Audit plays a strategic role in strengthening ICOSR by providing assurance, advisory services, and risk-based insights in accordance with the Global Internal Audit Standards (GIAS) 2024, thus strengthening the role of Internal Audit is key to fostering accountability, preventing greenwashing, and enhancing stakeholder confidence in a company’s sustainability performance.

The practice of Sustainability Reporting in Indonesia has been developing since the enactment of Law Number 40 of 2007 concerning Limited Liability Companies, which requires companies whose business activities are related to natural resources to implement social and environmental responsibilities. This commitment is further strengthened through Financial Services Authority Regulation (POJK) Number 51/POJK.03/2017 concerning the Implementation of Sustainable Finance for Financial Services Institutions, Issuers, and Public Companies, which requires the preparation of Sustainability Reports and sustainable finance action plans. Although this provision currently only applies to public companies, the regulation is becoming increasingly relevant for PT Indonesia Asahan Aluminium (INALUM), which in its 2025–2029 Long-Term Corporate Plan (RJPP) targets an Initial Public Offering (IPO) in 2026. On the other hand, the increasing demands for the implementation of Environmental, Social, and Governance (ESG), including through the issuance of IFRS S1 and IFRS S2, require companies not only to prepare sustainability reports but also to guarantee the quality, accuracy, and reliability of the ESG information disclosed. As a national strategic company, INALUM has integrated ESG principles into its business strategy and consistently publishes Sustainability Reports. This condition places Internal Control over Sustainability Reporting (ICoSR) as a critical element to ensure that reported ESG data is accurate, complete, consistent, and traceable, with the support of the Internal Audit function as an independent assurance provider that evaluates the effectiveness of controls and enhances the credibility of sustainability reporting. However, research on the role of Internal Audit in strengthening the implementation of ICoSR, especially in the aluminium industry in Indonesia, is still limited, so this research is expected to provide academic and practical contributions in improving the quality of Sustainability Reporting and supporting the success of INALUM's business transformation and sustainability towards a globally competitive public company.

1.8 Problem Statement

The implementation of Environmental, Social, and Governance (ESG) at PT Indonesia Asahan Aluminium is part of the company's strategy to support business sustainability, enhance transparency, and meet regulatory requirements and stakeholder expectations. Although the company has established an ESG Committee and adheres to various sustainability standards, the implementation of ESG and sustainability reporting still faces challenges, particularly regarding data reliability, the effectiveness of internal controls, and the risk of greenwashing. These conditions indicate that ESG implementation requires not only regulatory compliance but also adequate governance support and control mechanisms to ensure that the sustainability information disclosed by the company is accurate, transparent, and trustworthy.

In this context, Internal Audit plays a strategic role in strengthening Internal Control over Sustainability Reporting (ICOSR) through risk-based assurance, advisory, and insight functions in accordance with the Global Internal Audit Standards (GIAS)

2024. However, the effectiveness of Internal Audit's role in supporting ESG implementation and improving the quality of corporate sustainability reporting still requires further study. Therefore, this research is focused on answering the following research questions:

1. Environmental, Social, and Governance (ESG) implementation at PT Indonesia Asahan Aluminium (Persero) has been supported by sustainability governance and related initiatives; however, its implementation across organizational functions and levels still requires strengthening to ensure consistent contribution to the company's business sustainability.
2. The application of Internal Control over Sustainability Reporting (ICoSR) has not yet been fully structured and integrated based on the COSO framework, which may affect the reliability, accuracy, and transparency of sustainability information reported by the company.
3. Environmental, Social, and Governance (ESG) implementation and Sustainability Reporting face risks and challenges related to differences in ESG understanding, organizational silos, limitations in information integration and data reliability, and the potential for greenwashing, which may affect the quality and consistency of reported sustainability information.
4. The role of Internal Audit in providing assurance, advisory, and insight over ESG implementation and ICoSR has not yet been fully optimized in accordance with the Global Internal Audit Standards (GIAS) 2024, particularly due to the need for ESG-specific competencies, audit programs, guidance, and formal assurance mechanisms.
5. The strengthening of the Internal Audit role is necessary to enhance the accountability, transparency, and credibility of Sustainability Reporting and ESG information; however, the extent to which Internal Audit can contribute to strengthening stakeholder trust and the reliability of sustainability information requires further examination.

6. The integration of ESG implementation, ICoSR, and the strengthened role of Internal Audit requires strong commitment and direction from top management through an effective Tone at the Top to support reliable Sustainability Reporting, long-term business sustainability, and INALUM's readiness for its planned Initial Public Offering (IPO) in the fourth quarter of 2026.

1.9 Research Questions

Based on the background and research problem, the research questions in this study are formulated as follows:

1. How does the implementation of Environmental, Social, and Governance (ESG) aspects influence the business sustainability of PT Indonesia Asahan Aluminium (Persero)?
2. How effective is the application of Internal Control over Sustainability Reporting (ICOSR) based on the COSO framework in enhancing the reliability, accuracy, and transparency of the company's sustainability reporting?
3. How do key risks and challenges affect the effectiveness of ESG implementation and the quality and consistency of sustainability reporting at PT Indonesia Asahan Aluminium (Persero)?
4. How does Internal Audit fulfill its assurance, consulting, and insight roles in strengthening ICoSR and ESG compliance based on the 2024 Global Internal Audit Standards (GIAS)?
5. How can strengthening the role of Internal Audit in ICoSR enhance accountability, transparency, credibility, and stakeholder trust regarding a company's ESG reporting?
6. How can the integration of ESG implementation, the application of ICOSR, and the strengthening of the Internal Audit role support the long-term sustainability of PT Indonesia Asahan Aluminium's business?

1.10 Research Objectives

1. To analyze the implementation of Environmental, Social, and Governance (ESG) at PT Indonesia Asahan Aluminium in support of the company's business sustainability.
2. To analyze the effectiveness of implementing COSO-based Internal Control over Sustainability Reporting (ICOSR) in enhancing the reliability, accuracy, and transparency of the company's sustainability reporting.
3. To identify the key risks and constraints affecting the implementation of ESG and the quality of the company's sustainability reporting, particularly regarding data reliability, the effectiveness of internal controls, and the potential for greenwashing.
4. To analyze the role of Internal Audit in providing risk-based assurance, advisory, and insights regarding ESG implementation and the application of Internal Control over Sustainability Reporting (ICOSR) in accordance with the Global Internal Audit Standards (GIAS) 2024.
5. To analyze the impact of strengthening the role of Internal Audit on enhancing the accountability, transparency, and credibility of the company's sustainability reporting to bolster stakeholder trust.
6. To formulate a strategy for integrating ESG implementation, the application of Internal Control over Sustainability Reporting (ICOSR), and the strengthening of the Internal Audit role in supporting the long-term sustainability of PT Indonesia Asahan Aluminium's business.

1.11 Relationship with and value added to previous research

1.12 Research Scope

This study focuses on analyzing the implementation of Environmental, Social, and Governance (ESG) principles, the application of Internal Control over Sustainability Reporting (ICOSR) based on the COSO framework, and the strengthening of the internal audit role in accordance with the Global Internal

Audit Standards (GIAS) 2024 to support business sustainability at PT Indonesia Asahan Aluminium. The scope of the study covers three main aspects: ESG policies and practices in environmental, social, and governance aspects; an evaluation of the effectiveness of ICOSR in improving the reliability, accuracy, transparency, and credibility of sustainability reporting; and the role of internal audit in providing risk-based assurance, advisory, and insights. This study also identifies various implementation risks and challenges, such as data quality, the effectiveness of internal controls, compliance with sustainability standards, and the potential for greenwashing. The units of analysis include the internal audit function, the ESG Committee, and the company's sustainability reporting policies and processes, with the timeframe limited to the period since the establishment of the ESG Committee via CEO Decision Letter No. SK-001/DIRUT/2024. The study does not address the technical operational aspects of aluminium production or financial performance comprehensively, but rather focuses on strategic and managerial aspects related to governance, internal controls, risk management, and long-term business sustainability.

1.13 Project Structure

This thesis is organized into five chapters, each designed to systematically address the research objectives and answer the research questions.

Chapter 1: Introduction

This chapter explains the background of the research based on the increasing demands for the implementation of Environmental, Social, and Governance (ESG) and the importance of Internal Control over Sustainability Reporting (ICoSR) in producing reliable sustainability reports. This chapter describes the business issues of PT Indonesia Asahan Aluminium (INALUM), especially in supporting ESG implementation and the Initial Public Offering (IPO) plan, which demands accurate and credible Sustainability Reporting quality. In addition, this chapter contains the problem formulation, research objectives, research benefits, research scope, and the systematics of the thesis writing.

Chapter 2 – Literature Review

This chapter discusses the theoretical basis and previous research that serve as the conceptual basis for this research, including the theories of Internal Audit, Environmental, Social, and Governance (ESG), Internal Control over Sustainability Reporting (ICoSR), COSO Internal Control Framework, Enterprise Risk Management (ERM), Three Lines Model, Sustainability Reporting, and sustainability reporting standards such as GRI Standards and IFRS Sustainability Disclosure Standards (IFRS S1 and IFRS S2). This chapter also presents a conceptual framework for this research that illustrates the relationship between the role of Internal Audit, ICoSR effectiveness, ESG compliance, and the quality of Sustainability Reporting.

Chapter 3 – Research Methodology

This chapter explains the research methodology using a qualitative approach with a Single Embedded Case Study design at PT Indonesia Asahan Aluminium (INALUM). This chapter describes the types and sources of data, data collection techniques through in-depth interviews, document analysis, observation, and focus group discussions (FGD), informant selection techniques using purposive sampling, and data analysis methods with thematic analysis and pattern matching approaches. In addition, this chapter explains the steps to ensure the validity and credibility of the research through data triangulation, member checking, and audit trails.

Chapter 4 – Analysis And Discussion

This chapter presents findings and an in-depth analysis regarding ESG implementation, the adoption of Internal Control over Sustainability Reporting (ICoSR), and the role of Internal Audit at PT Indonesia Asahan Aluminium (INALUM). Interviews with key divisions revealed that ESG implementation has progressed through the establishment of an ESG Committee and the adoption of MIND ID's Sustainability Pathway; however, challenges persist, including uneven ESG understanding, inter-divisional silos, and limited integrated information systems. The implementation of ICoSR—based on the COSO 2013 framework—remains in its early stages and lacks formal structure, with key weaknesses involving manual processes, a lack of supporting documentation, and a sub-optimal assurance function within Internal Audit. The role of Internal Audit regarding ICoSR and ESG remains limited due to the absence of specific ESG audit guidelines and formal assurance for the Sustainability Report, even though assurance, advisory, and insight functions have been identified in alignment with the 2024 Global Internal Audit Standards (GIAS).

Chapter 5 – Conclusions And Recommendations

This chapter concludes that the Internal Audit function plays a strategic and multidimensional role in strengthening control effectiveness, the reliability of ICoSR reporting, and ESG compliance at INALUM; however, its implementation requires significant improvement. The study recommends enhancing auditor competence through ESG certification, developing specialized audit programs, leveraging technology and data analytics, and fostering cross-functional collaboration from the initial stages of sustainability report preparation. Furthermore, developing an ICoSR implementation roadmap, updating Standard Operating Procedures (SOPs), and preparing for the global IFRS S1 and S2 standards are crucial steps leading up to the 2026 IPO. Strengthening the Internal Audit role integrated with the SOE "AKHLAK" values and the "Three Lines" model is expected to prevent greenwashing, boost stakeholder confidence, and support INALUM’s long-term business sustainability.

CHAPTER II
LITERATURE REVIEW AND THEORITICAL FRAMEWORK

2.1 Literature Review (Elaborated based on theory used)

2.1.1 Stakeholder Theory

Stakeholder Theory was developed by R. Edward Freeman, who argued that a company's success is determined not only by its ability to generate profits for shareholders, but also by its ability to create value for all stakeholders, such as employees, customers, suppliers, the government, the community, investors, and the environment. According to R. Edward Freeman, a company must take into account the needs and interests of all stakeholders in order to achieve sustainability and better long-term performance. Freeman defines a stakeholder as: "Any group or individual that can influence or be influenced by the achievement of an organization's objectives." The goal of stakeholder management is to develop methods for strategically managing the various groups and relationships associated with the organization.

This theory is closely linked to the ESG (Environmental, Social, and Governance) concept and sustainability. ESG is a framework that helps companies manage their impact on the environment, society, and corporate governance. From a stakeholder perspective, companies are not only responsible for generating profits but also for protecting the environment (Environmental), providing social benefits to the community and employees (Social), and implementing transparent and ethical governance (Governance). Thus, the implementation of ESG and Sustainability is a tangible manifestation of the Stakeholder Theory. Companies that are able to meet stakeholder expectations through sustainable business practices will gain trust, enhance their reputation, reduce business risks, and create long-term value for all relevant parties. Therefore, ESG and sustainability are no longer merely moral obligations but business strategies that support a company’s sustainability in the future (R. Edward Freeman, 1984).

2.1.2 Legitimacy Theory

Legitimacy theory is a theory that helps explain a company's behaviours or operations concerning social and environmental issues (Rankin et al., 2018). This notion is based on the social contract and a social contract offers a structure that dictates how a business might engage with the local communities in an efficient manner, communities might have optimistic expectations and hopes about the company's operations with this contract in place, allowing the business to ensure its future, a business only needs to fulfilll the expectations and aspirations of the local community, not all social contracts take the shape of formal agreements, according to Deephouse (1996), in order for a business to be in harmony with community life, it must adhere to all local norms, a conflict between a business and the community will occur if the business's operations go against the values of the local community, aquarrel like this could endanger the company's existence and make it challenging for it to continue operating in the community., acompany's operations should ideally function smoothly and successfully if it can satisfy the requirements and expectations of the local community and enhance the community's well-being (Febriana and Suaryana, 2012). In relation to the application of sustainability and ESG (environmental, social, and governance) principles, the business uses ESG principles to make sure that its operations meet stakeholder expectations and are consistent with local norms and way of life, through the implementation of good governance and the transparent application of ESG and sustainability principles in line with actual on-the-ground actions, the company cultivates a positive perception from the local community and gains the trust of investors and shareholders, the disclosure of ESG variables and sustainability principles is meant to obtain and retain public legitimacy in addition to complying with legislation and enhancing business performance by applying these principles in line with legitimacy theory, strong legitimacy typically results in long-term corporate sustainability, improved reputation, and support from stakeholders, but a business presents its operational procedures as following sustainability principles but, in fact, these principles are not being used on the ground, this is known as "greenwashing." Legitimacy theory is also pertinent to this problem, because it is impossible to guarantee the veracity of the information shown in sustainability reports, greenwashing activities can cause investors and stakeholders to lose faith in the company.

2.1.3 The Triple Bottom Line Theory

Sustainability is no longer just "green" jargon in today's business world; it is now a crucial factor in deciding a company's course and reputation, the Triple Bottom Line (TBL), a notion that has emerged, has altered our understanding of how to gauge a company's success, the application of ESG principles is about more than just boosting profits; what really counts is how a company helps to ensure the sustainability of our world and improve people's lives. John Elkington first proposed this theory, challenging the conventional wisdom that financial gain is insufficient if it is not in line with environmental sustainability and social well-being, nowadays, a lot of businesses are starting to understand that putting sustainability and ESG principles into practice is a long-term corporate strategy for long-term success rather than a burden, consumers today are growing more critical; they consider a product's values throughout the manufacturing process in addition to its selling aspects, currently organisations can use the Triple Bottom Line (TBL) as a framework to balance social impact, economic gains, and environmental responsibilities and this idea was initially presented by John Elkington in his 1994 book "Cannibals with Forks: The Triple Bottom Line of 21st Century Business." In his book John Elkington questioned the antiquated strategy that was then widely adopted in the business sector, which prioritised profit over sustainability or ESG principles. As a result, John Elkington created a brand-new 3P philosophy based on the ideas of People, Planet, and Profit, and for a business process to be deemed sustainable, these three factors must coexist.

- **People**: emphasizes the importance of social responsibility toward employees, communities, and the surrounding environment.
- **Planet**: emphasizes the importance of ensuring that every business process adheres to environmental sustainability principles and minimizes negative impacts related to environmental damage in the course of business operations.
- **Profit:** Profit is what all companies aim for, but within the concept of sustainability, profit is not the sole measure of a company's success; rather, it is part of the balance between environmental and social considerations.

The TBL concept has continued to evolve over time, becoming the foundation for various frameworks in the implementation of ESG (Environmental, Social, and Governance) principles as well as the Global Reporting Initiative (GRI), currently many companies not only report on their financial performance but also on their ESG performance, sustainability reports, and the implementation of social and environmental responsibilities, in the past, a company's success was measured by how much profit it generated each year; today, a company is considered successful if it can generate profits while continuing to apply sustainability and ESG principles, this demonstrates the application of the Triple Bottom Line (TBL) principle, whereby a business not only seeks profit but also has a positive impact on environmental conservation (John Elkington, 1994).

2.1.4 The Theory of Sustainability

Sustainability is a multidimensional concept that encompasses three main pillars: environmental, economic, and social. In practice, sustainability emphasizes the responsible management of resources to ensure long-term sustainability and efficiency. This includes the prudent use of resources, the protection of current environmental quality, and meeting the needs of future generations without compromising sustainability for those generations (Gürses et al., 2021).

2.1.5 Internal Audit Theory

Figure: Global Internal Audit Standards

Source: Global Internal Audit Standars

The Institute of Internal Auditors' Global Internal Auditing Standards guide the professional practice of internal auditing worldwide and serve as a basis for evaluating and improving the quality of the internal audit function. The core of these Standards is 15 principles that enable effective internal auditing. Each principle is supported by a standard that contains requirements, considerations, and examples of evidence of appropriate implementation. All of these elements help internal auditors achieve the principles and fulfill the Internal Audit Objective.(GIAS, 2024)

Internal Audit and the Public Interest

The public interest encompasses the social and economic interests and well-being of the public as a whole and the organizations operating within that public (including the interests of employers, employees, investors, the business and financial community, clients, customers, regulators, and governments). The determination of the public interest must be conducted in a contextual manner, taking into account ethical and fairness principles, prevailing cultural norms and values, and the consequences that may affect individuals and social groups differently.

Internal audit serves to support the public interest by strengthening governance, risk management, and internal controls. The role of internal audit contributes to operational efficiency, reporting, safeguards, asset protection, and the promotion of an ethical culture, thereby enhancing public trust in the organization. Internal audit carries out its role; the IIA, through the International Internal Audit Standards Board (IIASB), establishes and maintains Global Internal Audit Standards based on input from various stakeholders to ensure that these standards reflect the needs and interests of the public (Global Internal Audit Standards, 2024).

Application and Elements of the Standards

The Global Internal Auditing Standards establish principles, requirements, application considerations, and examples of the professional practice of internal auditing globally. These Standards apply to any individual or function that provides internal audit services, whether the organization employs internal auditors directly, contracts with individuals or functions that provide internal audit services through an external service provider, or both. Organizations that receive internal audit services vary in sector and industry affiliation, objectives, size, complexity, and structure. (The Institute Of Internal Auditors, 2024). This standard applies to the internal audit function and individual internal auditors, including the chief audit executive. While the chief audit executive is responsible for the application of all principles and standards and their appropriateness in the performance of the internal audit function, all internal auditors are responsible for complying with the principles and standards relevant to the performance of their job responsibilities, which are primarily presented in Domain II: Ethics and Professionalism and Domain V: Performing Internal Audit Services.

This standard is organized into five domains:

- Domain I: Objectives of Internal Auditing.
- Domain II: Ethics and Professionalism.
- Domain III: Governance of the Internal Audit Function.
- Domain IV: Managing the Internal Audit Function.
- Domain V: Performing Internal Audit Services.

Domains II through V contain the following elements:

- Principles: general descriptions of a group of interrelated requirements and implementation considerations.
- Standards, which include:
  - Requirements: mandatory practices for internal audits.
  - Implementation Considerations: general and recommended practices to consider when implementing the requirements.
  - Examples of Evidence of Conformity: ways to demonstrate that the requirements in the Standard have been implemented.

The Standard uses the word “shall” in the Requirements section and the words “should” and “may” to define general practices and recommended practices in the Implementation Considerations section. Each standard concludes with a list of examples of evidence of conformity. These examples are not requirements or the only way to demonstrate conformity with the standard; rather, they are provided to assist the internal audit function in preparing for quality assessments, which require demonstrative evidence. This Standard uses certain terms as defined in the accompanying glossary. To properly understand and apply the Standard, it is necessary to understand and adopt the specific meanings and usage of the terms as described in the glossary. (The Institute of Internal Auditors, 2024).

2.1.6 Three Lines Model (IIA 2026)

Purpose and Context

To fulfilll its mission, strategy, and goals, a business needs efficient governance structures and procedures, risk management, compliance, and controls, the organization's management is the responsibility of the board of directors, it gives the corporation the resources it needs and gives top management the power to take the necessary steps, such as controlling corporate risks, the board of directors needs reasonable certainty that the organization is functioning efficiently and in line with its set goals in order to perform its oversight role, in order for the Board of Directors and senior management to obtain trustworthy information to support decision-making, comprehend the organization's performance and risks, and make sure that the strategy is in line with stakeholder expectations, it is necessary to implement effective governance, risk management, compliance, and controls. Building stakeholder trust in the information the organization provides depends on this information's dependability, so the organization must be responsible for the accuracy of the information.

The "Three Lines Model" offers a framework for an organization's risk management system that describes how duties are divided to support the oversight and governance activities of the company, as the first line of defence or risk owner, management is in charge of managing risks and carrying out operational tasks, and internal audit as the third line, offers independent assurance on the sufficiency and efficacy of risk management and control procedures, while risk management, as the second line, contributes support, monitoring, and guidance regarding particular risks, despite having distinct roles these three lines must cooperate to ensure that the board of directors receives accurate information that aligns with the organization's goals and risk tolerance.

Although the governance structure, risk management implementation, and compliance procedures differ from company to organization based on their unique business processes, the three-lines model's concepts are applicable to all organisations, in its governance framework so organisations usually specify roles and responsibilities in compliance with relevant laws and regulations.

The purpose of this three-line model position statement is to:

- Explains the roles, responsibilities, and relationships among the identified parties in corporate risk management.
- Recommends that decision-makers require reliable and accountable information.
- An organization makes decisions regarding its structure and processes based on a combination of external and internal factors.
- The importance of contributions made through a coordinated approach within the corporate risk management system, providing assurance and advice on achieving organizational objectives, creating and protecting value for the organization, and enhancing the trust of stakeholders and investors.

This update highlights the challenges faced by the board of directors and senior management in organizing and coordinating the various assurance and advisory functions within an organization, a well designed system is necessary to ensure that each function operates effectively, remains independent, and provides relevant information for the decision making process especially in the face of an increasingly complex organizational environment. In the context of risk management, the Three Lines Model provides a framework that helps organizations clarify the division of roles and responsibilities in support of effective governance, the implementation of good governance ultimately not only supports the achievement of organizational goals but also helps ensure that the interests of stakeholders and society are taken into account in the management of the organization.

Principles

The following guidelines highlight the value of assurance and consulting services in an organization's risk governance system as well as how internal audit's independence as a third line of defence can boost trust in the data provided to the board of directors.

1. The organization’s objectives, risk tolerance, expectations, and oversight of risk management implementation are established by the board of directors.
2. Oversight can be considered effective when the information obtained is reliable and balanced regarding the performance of each risk management and risk control unit.
3. Accountability through the definition of roles and responsibilities for risk management bodies is established by the board of directors.
4. Information sources, including independent sources, provide the board of directors with assurance that governance, risk management, compliance, and control processes are operating in accordance with their objectives, achieving their goals, and driving timely corrective actions.
5. Consulting services provided by internal audit complement assurance by providing insights, perspectives, and options that support improvement and informed decision-making.

Independence

An essential idea for promoting efficient governance is independence, in order to guarantee that assurance and advisory activities continue to be trustworthy, impartial, and free from undue influence, it reflects a combination of organisational structures and safeguards, however, independence shouldn't be mistaken for seclusion and perceptions of independence may inadvertently restrict cross-functional communication or lead to role misalignment if they are not well understood or carefully exercised, therefore maintaining independence also necessitates encouraging openness, responsibility clarity, and positive interaction between positions with the position of a role within the governance structure and the degree to which it can function independently constitute organisational independence.

Essential elements of independence are:

- Reporting lines and authority: who the role reports to, and whether it has the mandate to escalate issues without restriction, the positioning within the organization must enable the role to carry out its responsibilities in an unbiased manner, which typically involves functional reporting to the board and administrative reporting to the CEO.
- Autonomy over scope and planning: the ability to decide what assurance work is performed, how it is performed, and what conclusions are drawn.
- Unrestricted access to assets, facilities, properties, information, people, and systems: independence is compromised when access to evidence is filtered or controlled.
- Control over resources: sufficient personnel, expertise, and budget to carry out responsibilities without dependence on the functions being

reviewed, resource limitations affecting assurance must be reported to the appropriate party.

- Protection from retaliation or undue influence: particularly for assurance providers who may raise difficult or sensitive issues.

In addition to organizational positioning, independence and objectivity are reinforced through practical safeguards that address real-world overlaps and evolving roles. These safeguards include:

- Transparent and documented allocation of responsibilities.
- Independent review of activities where self-review or oversigh risks may arise.
- Explicit board approval of expanded remits.
- Timely communication of any actual or perceived threats to objectivity.

These elements collectively shape the structural environment that enables (or constrains) independence.

Assurance and Advice

By leveraging the three lines, boards and senior management can strengthen their oversight and decision-making without needing to know every operational detail.

- Assurance helps confirm whether governance, risk management, compliance, and control processes are adequate and effective.
- Advice helps identify emerging issues, areas for improvement, and opportunities to enhance performance and resilience.

Advice and assurance are complementary types of value that aid in decision-making and governance, the three lines all provide assurance and advise, but each line's responsibility, proximity to operations, and level of independence are reflected in the differences in their nature, depth, and protections, while more autonomous positions offer more comprehensive, system-wide assurance and recommendations, roles closer to operations typically provide more precise and detailed inputs to guarantee that assurance and advisory actions improve accountability and do not jeopardise a practitioner's objectivity or subsequent assurance, suitable protections are required in every situation.

Assurance Engagements

In order to accomplish goals in spite of different risks, assurance engagements usually evaluate how well controls are designed and implemented. Since the goal of these engagements is to offer an unbiased assessment of the efficacy of procedures or controls, independence is necessary, the reviewer's assurance cannot be trusted if:

- Designs or operates the process.
- Evaluates their own decisions made previously.
- Is influenced by management preferences.

To protect the reviewer's objectivity there should normally be a minimum of 12 months between taking responsibility for a process or decision and offering assurance in that activity, it is also assumed that structural isolation from the process or decision owner's supervisory hierarchy enhances a reviewer's neutrality.

Advisory Engagements

Assisting management with process improvement, risk identification, or solution design is known as advisory work, it is more cooperative by nature and could put any participating assurance provider at risk for self-review or familiarity, advisory engagements can bring substantial benefit without jeopardising the integrity of future assurance when protections are in place, however, a cooperative approach shouldn't lessen professional scepticism or the obligation to voice important issues in a clear and concise manner, advisory interactions should promote progress while upholding appropriate professionalism, neutrality, and a readiness to confront when needed.

To protect independence and avoid impairing future assurance work:

- The roles and objectives of consulting services provided by internal audit must be clearly defined.
- Consultants are independent and must avoid making management decisions.
- The board of directors must be aware of the nature and scope of the consulting work performed by internal audit.

The Three Lines Model

Assurances and recommendations for improvement are provided throughout the organization to evaluate and enhance the organization's ability to achieve its objectives through effective and efficient governance, risk management, compliance, and control processes.

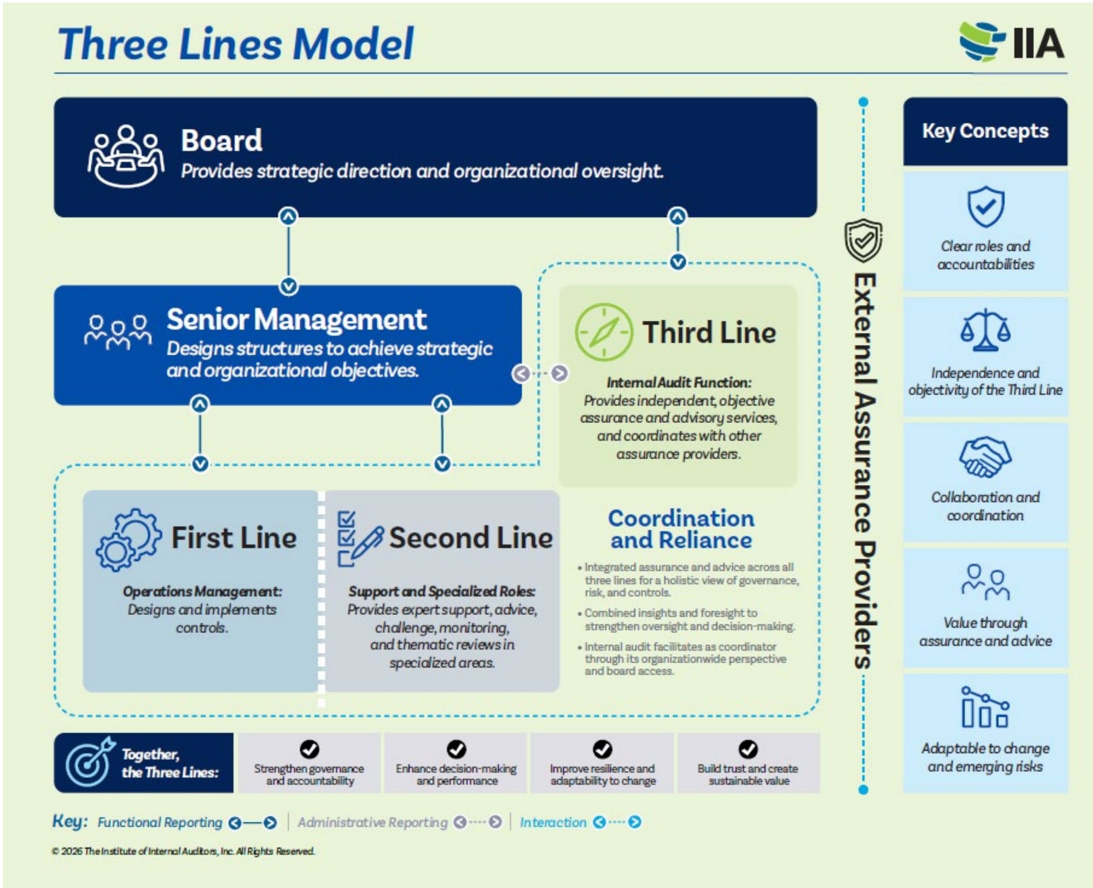


Figure: The Institute of Internal Auditors Three Lines Model

Source: (The Institute of Internal Auditors, 2026)

Other Providers of Assurance or Advice

Organizations often receive assurance and advice from external parties who are not considered part of the three lines, each with a different purpose and audience:

External Audit (Statutory or Financial Statement Audit)

External auditors provide assurance to stakeholders outside the organization and typically focus on the reliability of financial statements or other legally required disclosures. Their scope is defined by law or regulation, and their objective is not to replace internal assurance providers, but to offer an independent opinion for stakeholders, creditors, regulators, or the public.

Regulatory Inspections and Compliance Reviews

Regulators and other external parties, such as accreditation agencies, may conduct inspections or require organizations to demonstrate compliance with specific rules (for example, health and safety, data protection, industry-specific risk requirements). These assurance activities also serve external parties and help enforce compliance with mandatory standards. The degree of advice and assurance given may vary among the types of reviewers, and the information they provide may be useful to the organization for understanding the adequacy of controls (The Institute of Internal Auditors, 2026)

2.1.7 COSO Internal Control Theory

Internal control is a crucial component and serves as a benchmark to ensure that established company objectives are achieved. The internal control framework developed by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) is an international standard widely used by companies to build, implement, and evaluate internal control systems. COSO was first introduced in 1992 and updated in 2013 through the COSO Internal Control – Integrated Framework (2013).

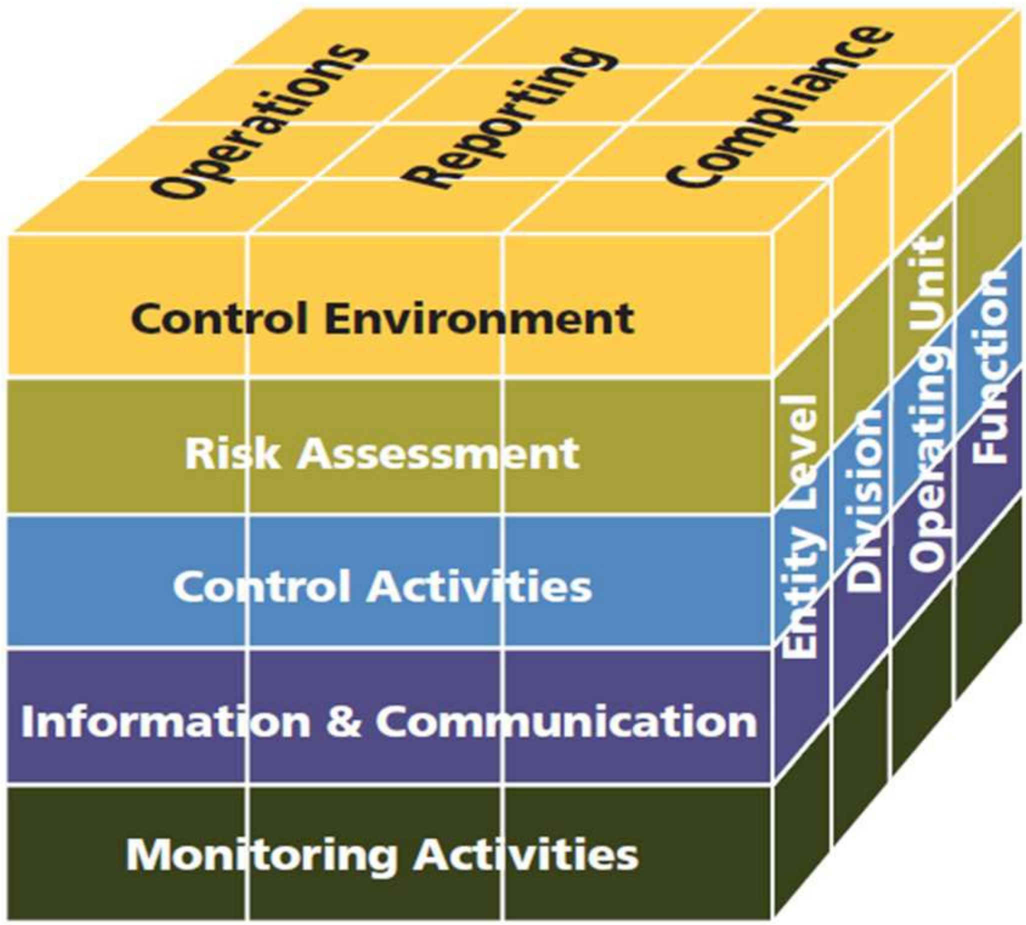


Figure: COSO Internal Control – Integrated Framework (2013)

Source: COSO Internal Control – Integrated Framework (2013)

According to the COSO framework, there are three objectives in implementing an internal control system:

1. Operational Objectives: The internal control function aims to safeguard the company's resources and improve the efficacy and efficiency of its operations with including its performance and financial goals
2. Reporting Objectives: The internal control system is necessary for the company to guarantee that financial and non-financial reports prepared for internal and external purposes are accurate, timely, transparent, and

compliant with regulations set by regulatory bodies, standard-setting organisations, and company policies

3. Compliance Objective: Internal controls are used to improve the company's adherence to applicable laws, regulations, and requirements.

The COSO framework lists five internal control components, which include:

1. The collection of norms, procedures, and frameworks that serve as the basis for putting internal controls in place is known as the Control Environment, the most essential component of this environment, according to the COSO framework, is a culture where all employees understand the significance of controls.

2. Risk assessment is a dynamic process that risk managers do on a regular basis to identify and analyse risks that could impede the accomplishment of the company's goals and to decide how to control or manage such risks, the robustness of the organization's control environment affects the process of detecting and quantifying a company's risks, every business owner will have a high degree of risk awareness in an effective risk management system, on the other hand, risk management knowledge is still poor throughout all business units in companies with inadequate risk management.

3. A risk management system's control activities include a variety of rules and guidelines designed to assist management in reducing risks in order to accomplish the organization's goals, these could include data verification, approval procedures, or personnel job segregation, usually, the company's current rules, systems, and business procedures incorporate these tasks, however the degree to which management and every employee follow the risk management system with discipline is crucial to their efficacy.

4. Information and Communication: Information is crucial for risk management in a business, it originates from the interactions between internal control components and from stakeholders' expectations, both inside and outside the company, from the stages of design and implementation to the assessment of controls, communication itself functions as the bloodstream that transports information throughout the company and everyone in an organization will find it easier to make responsible and intelligent judgements when information is handled effectively and at the appropriate time.
5. The process of evaluating the efficacy of the internal control system across all functions and operational units in order to guarantee appropriate implementation is known as monitoring and follow-up, top management and the board of directors use the monitoring's findings to adjust internal controls as needed to keep the system flexible and adaptable.

Applying the principles outlined in the COSO Framework is crucial if a company wants to guarantee the accuracy and accountability of the control systems and the integrity of the ESG data compiled and reported in its sustainability report and this will increase stakeholder confidence in the quality of the reports presented (COSO Internal Control Integrated Framework, 2013).

2.2 Definition and Basic Concepts of Environmental, Social, and Governance (ESG)

In this publication, given the absence of a single, universally accepted definition and in line with common conventions that use the terms “sustainability” and “ESG” interchangeably, we use the following terminology: “Sustainability” is defined as meeting the needs of the present generation without compromising the rights of future generations, while “Sustainable Business” refers to an organization’s activities aimed at achieving long-term viability and delivering value to all stakeholders, which in turn encompasses related terms such as sustainable business information, reporting, and management. The terms Environmental, Social, and Governance (ESG) and sustainability are frequently used interchangeably these days, ESG is actually more of a tool for reporting sustainable business practices to stakeholders and investors outside the corporation, this idea functions as a strategic means of evaluating how responsible a business is for society, the environment, and its governance, a non-financial indicator that enhances financial statements and shows how the business affects different stakeholders, ESG is now a crucial pillar for businesses due to pressure from investors, stakeholders, and other pertinent parties addressing environmental rules, with the adoption of ESG-based corporate governance pushes businesses to concentrate on creating long-term value in addition to short-term profit, the three primary elements are explained in more detail below.

a. **Environmental**

Greenhouse gas (GHG) emissions, water consumption, garbage disposal, and the use of other natural resources, such forests, are all included in environmental information, this includes value chains and economic transformation in addition to the utilisation of energy and material resources, there are dangers (and opportunities) for current value as economic players move from fossil fuel-dependent assets, activities, and investments to alternatives with low or zero emissions an for instance businesses that produce diesel-powered trucks (and their input components) must take into account the possibility that their customers and rivals could move to electric vehicles which could result in a decrease in asset value and expected value (both tangible and intangible even if not yet recognised).

b. **Social**

The term "social" describes the resources or value that come from interpersonal connections. Human resources (or its synonyms, "human capital" or "human capital resources") are the subject of an abundance of ESG data, metrics, indicators, and disclosures, this contains data on training, diversity, and staff turnover rates, it might also cover the safeguarding of personal information gathered by a company, the SEC enacted new rules in 2020 that mandate disclosures of human capital resources that are relevant to comprehending the operations of a registered entity and for instance organisations in the financial services, healthcare, and technology sectors greatly depend on having access to qualified experts, this also covers human-related consequences and product safety issues for some industries, such pharmaceuticals, the "Social" category encompasses an organization's function and impact in domains like human rights.

c. **Governance**

The way a company handles its business and conducts its transactions is referred to as governance, this covers corporate ethics like anti-corruption and anti-bribery. Some also categorize compliance with data security and privacy protection as part of this category. In addition, the processes established by an organization for internal and external audits demonstrate a commitment to good governance and oversight, as well as ensuring that activities are conducted responsibly. Of course, this is not an absolute classification. Some sustainability issues may fall into multiple categories. For example, anti-bribery and anti-corruption may represent “social” issues, as a means of promoting fair access to resources and opportunities; at the same time, they may be considered governance issues in terms of oversight by the board of directors and the audit committee (Azimli, A., & Cek, K. 2023).

2.3 The Role of Internal Auditors in ESG Implementation

The internal audit function plays a strategic role in ensuring that ESG implementation is carried out effectively and on target within an organization or business unit, through both assurance and consulting services provided by the internal audit unit. In the Three Lines Model, the internal audit function not only ensures compliance with regulations but also evaluates the effectiveness of ESG strategies and identifies risks that could hinder the achievement of sustainability goals. Internal auditors play a key role as the third line in a company's ESG implementation system; the following are examples of the auditor's primary roles.

a. **Ensuring Compliance with Applicable Laws and Regulations**

   The Internal Audit function verifies whether the company complies with applicable regulations, such as Law No. 32 of 2009 and PROPER criteria. Internal auditors also ensure that ESG reporting complies with GRI or SASB standards, including the accuracy of environmental, social, and governance data reported to stakeholders.

b. **Conducting an ESG Risk Assessment for the Company**

   Internal Audit evaluates the company's management of ESG-related risks, such as environmental violations, conflicts with local communities, or weaknesses in governance. Examples of a company's failure to manage waste properly can result in fines under Law No. 32 of 2009; for social issues, these include the empowerment of communities surrounding the company's facilities or locations, and discrimination during the hiring process. The role of internal auditors is to help management create efficient and successful risk mitigation plans.

c. **Monitoring the follow-up on the implementation of the company's ESG strategies**

   To ascertain whether ESG efforts, such as programs for community empowerment or emissions reduction, have been carried out as intended, internal auditors perform control evaluations and for the company to have a quantifiable beneficial impact, internal auditors must make sure that ESG goals are in line with PROPER targets or the UN Sustainable Development Goals (SDGs).

d. **Improving Transparency and Accountability**

   Internal auditors make sure that the information supplied to investors, regulatory bodies, and the public is correct and not deceptive by integrating the audit process and more especially the internal audit of the ESG reporting process and into the annual performance program with maintaining stakeholder trust while guaranteeing adherence to SASB and GRI standards is a top priority.

e. **Providing Recommendations for Improvements**

Internal auditors offer suggestions to enhance ESG performance such as strengthening anti-corruption rules, improving waste management systems, or boosting employee training, based on the results of audit reports created by the internal audit team, the audit team's suggestions for improvement assist the business in reaching its long-term sustainability objectives, as strategic partners, auditors play a critical role in helping businesses adopt ethical and sustainable business practices (Radzi et al., 2023).

2.4 The Triple Bottom Line Concept of Sustainability (Profit, People, Planet)

The Triple Bottom Line (TBL) concept, introduced by John Elkington in 1994, is a sustainability framework that emphasizes a balance among three key pillars: Profit, People, and Planet. TBL encourages organizations to move beyond a sole focus on financial profit by considering the social and environmental impacts of their operations. In the context of ESG, TBL serves as a foundation that links financial, social, and environmental sustainability with ethical governance. This chapter discusses the concept of TBL and its integration into the ESG framework, with a focus on how internal auditors can use this concept to support ESG audits and risk assessments. By understanding and applying TBL, auditors can provide strategic insights that ensure an organization's sustainability balance (C1–C6).

a. **Profit**

The Profit aspect focuses on financial sustainability, encompassing an organization's ability to generate revenue, manage costs, and deliver economic value to shareholders. However, TBL emphasizes that profits must be achieved ethically and sustainably. For example, a company that improves operational efficiency to reduce costs while complying with environmental standards demonstrates financial sustainability. Healthy profits enable

organizations to invest in social initiatives (such as employee training) or environmental initiatives (such as energy-efficient technology). Internal auditors can evaluate whether a company's profits are used to support ESG objectives, such as budget allocations for sustainability programs.

b. People

The People aspect emphasizes an organization's social responsibility toward its stakeholders, including employees, local communities, customers, and business partners. Organizations must create a safe, fair, and inclusive work environment and contribute to the well-being of society. For example, a company can implement training programs to improve employee skills or fund the development of community infrastructure, such as health centers. In an ESG audit, internal auditors verify that social initiatives, such as diversity policies or CSR programs, actually have a positive impact, rather than being mere claims intended to enhance the organization's image.

c. Planet

The Planet aspect focuses on managing environmental impacts, including reducing the carbon footprint, waste management, and efficient use of resources. For example, a manufacturing company can adopt energy-efficient technologies or use recycled raw materials to minimize its environmental impact. Compliance with environmental regulations, such as net-zero emissions targets, is also part of this responsibility. Internal auditors evaluate environmental data, such as Scope 1–3 greenhouse gas (GHG) emissions, to ensure that the company complies with standards like ISO 14001 and is not engaged ingreenwashing practices (John Elkington, 1994).

Table 2.1 The Pillars of TBL and the Role of Internal Audit

The Pillars of TBL	Main Focus	Examples of the Role of Internal Audit
Profit	Financial sustainability	Verification of budget allocations for ESG
People	The well-being of stakeholders	Impact evaluation of social programs
Planet	Environmental Impact Management	Verification of emissions data and compliance

The success of the Triple Bottom Line lies in the balance between Profit, People, and Planet. Companies that generate large profits but exploit workers or pollute the environment cannot be considered sustainable. Conversely, companies that integrate all three aspects for example, by using profits to fund social programs and green technology create long-term value. Internal auditors play a critical role in identifying imbalances, such as inadequate budget allocations for environmental initiatives, and recommending improvements to support holistic sustainability.

2.5 Integrating the Triple Bottom Line (TBL) into Environmental, Social, and Governance (ESG)

The ESG framework is the operational embodiment of TBL, with each ESG component environmental, social, and governance reflecting the pillars of Planet, People, and ethical Profit. Integrating TBL into ESG enables internal auditors to evaluate sustainability performance in a structured manner, ensuring that the company not only complies with regulations but also creates value for stakeholders.

Environment → Planet

The environmental component of ESG aligns with the Planet pillar, focusing on managing environmental impacts such as GHG emissions, water use, and waste management. For example, energy companies that invest in solar power plants support the Planet pillar by reducing reliance on fossil fuels. Internal auditors use standards such as the Global Reporting Initiative (GRI 300) to verify environmental data, such as the accuracy of Scope 1–3 emissions reporting or compliance with ISO 14001. These audits also include an analysis of environmental risks, such as potential fines resulting from regulatory violations, to ensure that companies manage their impacts responsibly.

Social → People

The social component of ESG reflects the "People" pillar, emphasizing relationships with employees, communities, and other stakeholders. Social practices include occupational health and safety, diversity, and CSR activities. For example, a retail company that launches a training program for local workers improves community well-being while meeting ESG social objectives. Internal auditors evaluate indicators such as employee satisfaction levels, the percentage of female employees, or the impact of CSR programs on the community. Audit techniques such as interviews with employees or reviews of HR documents help ensure that social initiatives are effective and not merely cosmetic.

Governance → Ensuring Profits Are Sustainable and Ethical

The governance component of ESG ensures that profits are achieved ethically and support the People and Planet pillars. Governance encompasses structures such as the independence of the board of commissioners and the board of directors, anti-corruption policies, and transparency in reporting. For example, companies that publish sustainability reports verified by independent auditors demonstrate accountability and support financial sustainability without compromising ethics. Internal auditors examine the existence of whistleblowing systems, compliance with codes of ethics, and the allocation of profits to ESG initiatives. Strong governance creates a cycle of sustainability in which profits are reinvested to support social and environmental programs (Global Reporting Initiative (GRI), 2021).

Table 2.2 Relationship Between TBL, ESG, and Audit Techniques

The Pillars of TBL	ESG components	Audit Indicators	Audit Techniques
Profit	Governance	ESG Budget Allocation	Financial analysis, Benchmarking
People	Social	Level of diversity, impact of CSR	Interviews, HR document review
Planet	Environmental	GHG emissions, water use	Environmental data testing, observations

TBL and ESG Synergy

Integrating TBL into ESG provides a measurable framework for implementing sustainability principles. To track performance in the areas of Profit (operational efficiency), People (staff well-being), and Planet (emissions reduction), ESG provides indicators and standards like GRI or SASB, internal auditors utilise this framework to perform strategic evaluations (C6) to suggest improvements and in-depth analyses (C4), such as comparing emissions intensity to industry standards and for instance an auditor may advise investing in low-carbon technologies to balance TBL if they discover that the company's profits are not going toward environmental projects, this synergy in audit practice allows auditors to recognise TBL imbalance issues, such as labour exploitation to maximise profits, and to offer recommendations that are in line with sustainable objectives and for instance auditors can offer diversity training to bolster the People pillar and utilise a risk heatmap to evaluate reputational threats arising from social noncompliance, as a result TBL-based ESG audits promote long-term value development in addition to ensuring compliance.

2.6 ESG FRAMEWORK AND STANDARDS

Organisations now need ESG frameworks and standards in order to manage sustainability and satisfy stakeholders, understanding the ESG framework is essential for assessing an organization's success in reaching its sustainability objectives in the context of internal audits, the purpose of the ESG framework, the variety of ESG standards, the framework's applicability to businesses, and the integration of ESG into management systems are all covered in this chapter and internal auditors can comprehend their position in guaranteeing compliance and the efficacy of ESG practices with this method.

2.6.1 The Role of the ESG Framework

The ESG framework serves as a guide for measuring, reporting, and managing an organization’s performance in environmental, social, and governance aspects. As for the primary function of this framework, it serves as a consistent and measurable basis for evaluating the impact of sustainability initiatives on an organization. We can see an example of how the Global Reporting Initiative (GRI) framework is used to help organizations identify performance indicators such as carbon emissions or employee satisfaction levels that are relevant to the company’s ESG goals. The ESG framework also supports transparent reporting to stakeholders, such as investors, customers, and regulators. Structured ESG reports enable companies to demonstrate their commitment to sustainability for example, how they reduce waste or promote gender equality. Furthermore, the working paper strongly supports strategic decision-making by providing data that can be used to identify risks and opportunities. To illustrate, an organization that implements an ESG framework may prioritize investments in environmentally friendly technologies to mitigate environmental regulatory risks. For internal auditors, the ESG framework serves as a tool to verify the accuracy of data and ensure that reports reflect the organization’s actual practices.

2.6.2 The Diversity of ESG Standards

Currently, a multitude of ESG standards are utilized worldwide—ranging from GRI, SASB, CDP, and TCFD to the UN SDGs. Each standard brings a distinct focus and perspective. Why is there such diversity? Because every industry, region, and stakeholder group possesses unique needs and business processes. For example SASB focuses on particular measures that are very important to investors while GRI is intended to offer thorough sustainability reporting for a wide audience, understanding these distinctions is crucial for organisations in order to choose the framework that best suits their unique needs, for instance a business in the energy sector might gain more from TCFD since this framework focuses on the financial risks related to climate change, on the other hand a nonprofit organization that focuses on social issues might discover that the UN SDGs are a better fit for coordinating its initiatives with global development objectives, although this diversity provides flexibility, it also necessitates a thorough understanding to guarantee that organisations do not make mistakes when putting these principles into practice, the internal auditor's function becomes vital in this situation, auditors can guarantee compliance and help organisations better meet stakeholder expectations by comprehending climate-related challenges and the particular focus of each standard. (Global Reporting Initiative (GRI), 2021)

Table 2.3 Comparison of ESG Standards

Standards	Aspect	Focus	User
GRI	Environment, Social, Governance	Comprehensive reporting on sustainability impacts	Investors, customers, the community, regulators
SASB	Environment, Social, Governance	Industry-specific financial metrics	Investors, publicly traded companies
TCFD	Environment (climate)	Climate risks and opportunities with financial implications	Investors, creditors, market regulators
CDP	Environment (carbon, water, forests)	Environmental Data Transparency	Green investors, business partners, regulators

Standards	Aspect	Focus	User
IFRS S2	Environment (climate)	Global Climate Risk Disclosure	Global investors, regulators, public companies
UN SDGs	Environment, Social, Economy	Global Sustainable Development Goals	Companies, governments, nonprofit organizations

2.6.3 Relevance for Companies

The ESG framework is highly relevant to companies, but its implementation must be tailored to the industry, size, location, and interests of stakeholders. The choice of ESG framework is influenced by the unique business operations of each organization, for example a mining company operating in an area with strict environmental regulations would give priority to standards like CDP for reporting on emissions and water usage while a technology company would concentrate more on social aspects like workforce diversity measured against SASB or GRI standards, the use of the ESG framework is also influenced by the size of the company to satisfy stakeholders and investors, big businesses with substantial resource management operations can adopt and use several standards at once, however small and medium-sized businesses frequently choose to start reporting on their use of ESG principles using a single standard, like GRI. Geographical location also matters, for example businesses operating in the EU are subject to applicable EU legislation, which may affect the reporting structure they use, the choice of an ESG framework is also influenced by expectations from local communities close to operational sites, investors, and senior management. While local communities often prioritise social impact, which is handled through GRI, investors generally prefer SASB-based reporting because it focuses on financial effect, to make sure the company chooses an appropriate structure and produces data that satisfies the demands of stakeholders and investors so internal auditors must comprehend this context.

2.6.4 Integration of ESG into Management Systems

One of the most important steps in incorporating sustainability concepts into corporate strategy, risk reporting, and the internal audit role is integrating ESG implementation into management systems, ESG reporting should show how a company incorporates sustainable principles into its daily operations, going beyond simple disclosure so for example a business may include emission reduction goals in its long-term strategic strategy, such as switching to electric operated buses from gasoline-powered ones, ESG frameworks make it easier to identify risks pertaining to environmental, social, and compliance issues when it comes to risk reporting, and for instance supply chains may be impacted by climate change risks, and corporate governance violations may result in penalties and reputational harm, ESG frameworks, like the TCFD, give stakeholders the ability to monitor and report ESG-related risks, empowering them to take proactive measures, by confirming that ESG risks are appropriately identified and managed through internal control systems and internal auditors play a crucial role.

Another essential element of ESG integration is internal audits, internal auditors use the ESG framework to assess the organization's compliance with specific requirements, such as confirming the veracity of reported emissions statistics or confirming the impact of social programs, for instance auditors can verify if the whistleblower system is operating efficiently or whether workforce diversity reports match HR records, organisations can guarantee that sustainability becomes a fundamental component of their culture and decision-making procedures by incorporating ESG concepts into their management systems.

2.7 GRI (Global Reporting Initiative)

The Global Reporting Initiative (GRI) is the most widely used of the numerous sustainability reporting systems now in use, this is due to the fact that the GRI provides methodically developed standards that assist organisations in giving an accurate account of their effects on the environment, society, and governance. Internal auditors use the GRI as a benchmark to determine if a sustainability report accurately captures the reality on the ground or is purely a formal exercise, it is not just a framework or a collection of documents to be committed to memory, as a result this part will not only give readers an overview of the GRI's origins and goals but it will also look at its structure, guiding principles and how different kinds and sizes of organisations use this framework in their daily operations.

2.7.1 History and Purpose of the GRI

The original goal of GRI, which was founded in 1997 as a result of a partnership between CERES and UNEP was to develop a reporting framework for quantifying and disseminating environmental impacts but like many brilliant concepts, GRI didn't end there, as demands for transparency from investors, customers, and regulators increased, it expanded to include social and governance issues in response to changing circumstances, its main goal was very clear: to offer an open, standardised reporting platform that allows businesses to convey their ESG performance consistently over time and across multiple businesses, companies can reveal a variety of information through GRI, including anti-corruption strategies, workforce diversity, and carbon emissions but GRI also stresses that reports should be open to acknowledging setbacks and difficulties in addition to highlighting achievements understanding the purpose of this is more than simply a technical effort for internal auditors, it serves as the basis for confirming that the final reports accurately and pertinently reflect data rather than only a visually appealing story.

2.7.2 GRI Standard Framework

The GRI Standards are designed as a modular system consisting of two main categories: Universal Standards and Topic Standards. This structure allows organizations the flexibility to select indicators relevant to their operations, while still maintaining global consistency.

a. Universal Standards

Universal Standards consists of three main series:

- GRI 1: Foundation explains the basic principles and guidelines for using the GRI standards. It includes information on how to get started with reporting and how to select material topics.
- GRI 2: General Disclosures focuses on general information about the organization, such as its profile, strategy, governance, and stakeholder engagement. For example, an organization reports on the structure of its board of commissioners and board of directors or its diversity policies.
- GRI 3: Material Topics helps organizations identify the topics that are most significant to their operations and stakeholders, such as climate change or workplace safety. This process involves a materiality analysis to prioritize relevant issues.

b. Topic Standards

Topic Standards include specific indicators for environmental, social, and governance aspects. For example:

- GRI 302: Energy is used to report energy consumption and efficiency such as the total amount of renewable energy used.
- GRI 403: Occupational Health and Safety measures performance in occupational health and safety such as the rate of workplace accidents.
- Other Topic Standards include emissions (GRI 305), diversity and equity (GRI 405), and anti-corruption (GRI 205), organizations select Topic Standards based on material topics identified through GRI 3.

This modular structure allows organizations to customize their reports while remaining compliant with global standards, internal auditors must understand this structure to verify that organizations are using the appropriate standards and reporting data that aligns with their material topics.

2.7.3 Reporting Principles

The GRI has established ten reporting principles to ensure that sustainability reports are accurate, relevant, and credible, these principles are divided into two categories: principles for determining the content of the report and principles for determining the quality of the report.

a. Principles for Report Content:

- **Sustainability Context**: The report should place the organization's performance in the context of broader sustainability issues such as its impact on global climate change.
- **Materiality**: Organizations should focus on topics that reflect their significant impacts and are important to stakeholders, for example a mining company might prioritize reporting on waste management.
- **Stakeholder Engagement**: Organizations must consult with stakeholders, such as local communities or employees to identify material issues.
- **Completeness:** The report must cover all material topics and relevant data to provide a comprehensive picture of ESG performance.

b. Principles for Report Quality:

- **Accuracy**: Data must be accurate and free of material errors and for example is carbon emissions must be calculated using globally accepted methodologies.

- **Balance:** The report must reflect both the positive and negative aspects of the organization’s performance such as acknowledgment of compliance violations.
- **Clarity**: Information must be presented in a way that is easy for stakeholders to understand.
- **Comparability**: Data must be consistent over time allowing for comparisons between periods or between organizations.
- **Reliability**: The data must be verifiable through an audit or independent testing.
- **Timeliness**: Reports must be published periodically usually annually to ensure that the information remains relevan.

Internal auditors use this principle to evaluate the quality of GRI reports with ensuring that the data is accurate, complete, and reflects the organization’s actual performance (Global Reporting Initiative (GRI), 2021)

2.7.4 Organizations’ Use of GRI

Global organisations frequently utilise the GRI framework to create sustainability reports because of GRI's adaptability and widespread awareness, thousands of businesses in a variety of industries, including manufacturing, energy, and finance, have embraced it, companies like Unilever and Nestlé, for instance utilise GRI to report on their ESG performance which includes governance procedures, diversity initiatives, and emissions reductions, businesses utilise GRI to satisfy stakeholder expectations such as those of customers worried about social and environmental effects or investors looking for information on ESG risks, in other areas, including the European Union, where sustainability reporting is becoming more and more required, GRI also assists companies in meeting legislative requirements, GRI also makes it possible for businesses to compare their performance to that of rivals which can improve their reputation and competitiveness.

In actuality companies create GRI reports by completing procedures like data gathering, materiality analysis, and third-party verification, to show its dedication to the green energy transition, an energy firm can, for instance report energy consumption (GRI 302) and greenhouse gas emissions (GRI 305), internal auditors are essential in ensuring that these reports adhere to GRI standards, including making sure that reporting guidelines are followed and the data is correct, additionally they can assess if the reported material subjects accurately represent the impact of the organization (Global Reporting Initiative (GRI), 2021).

2.7.5 SASB (Sustainability Accounting Standards Board)

SASB is a sustainability reporting system created to assist businesses in providing investors with financially significant ESG data, in contrast to other frameworks like GRI, SASB takes an industry-specific approach to sustainability challenges that affect a company's financial performance, the industry-based approach of SASB, its emphasis on financial materiality, the elements of SASB reporting, and its use by public firms are all covered in this chapter.

a. Industry-Based Approach

Using the Sustainable Industry Classification System (SICS), SASB has created reporting guidelines for 77 industries divided into 11 sectors, due to variations in business structures, resource dependencies, and operational implications, this approach acknowledges that sustainability concerns differ across industries, for instance greenhouse gas emissions (GRI 305) might be a significant concern for an energy company, whereas workforce diversity or data security might be important concerns for a technology company, every SASB industry standard highlights sustainability issues that are most likely to have a short-, medium-, and long-term impact on a company's cash flows, financing availability or cost of capital, for instance SASB emphasises waste management and environmental effects in the mining sector, whereas it focuses on concerns like working conditions in the supply chain in the retail sector, businesses can concentrate on pertinent issues, lessen the reporting burden, and enhance comparability among businesses in the same industry with this industry-based approach, internal auditors can confirm that a company is reporting on subjects that are actually relevant to its sector by using SASB standards.

b. Focus on Financial Materiality

Unlike the Global Reporting Initiative (GRI), which focuses on an organization’s impact on society and the environment for various stakeholders, the SASB emphasizes financial materiality, that is ESG issues that can affect a company’s financial performance or value, the SASB is designed to provide useful information to investors such as the impact of climate risk on the supply chain or the effect of governance practices on a company’s reputation. For example, an energy company that reports Scope 1 emissions (direct emissions) in accordance with SASB standards demonstrates how environmental regulations can affect operating costs or revenue, this focus ensures that SASB reports are relevant to investors who want to understand the financial risks and opportunities related to ESG, the main difference from GRI is that GRI covers broader impacts, such as social contributions to communities, while SASB has a narrower scope, covering only issues with financial implications, internal auditors must understand this distinction to ensure that an organization’s SASB report focuses on financially relevant topics and does not stray into less material issues (SASB (*Sustainability Accounting Standards Board*), 2011).

2.7.6 SASB Reporting Components

The three primary parts of the SASB standards are activity measurements, accounting metrics, and disclosure themes, these elements are intended to generate reports that are comparable, quantifiable, and consistent.

a. Disclosure Topics

Sustainability issues that are deemed financially significant for each industry are disclosure topics, each industry standard typically covers five to six topics, for instance fuel economy and emissions are important problems in the transportation sector whereas cybersecurity risk management is a major concern in the finance sector, these subjects are determined by evidence-based research and feedback from businesses, investors, and industry professionals.

b. Accounting Metrics

Accounting metrics are used to assess performance on disclosure-related subjects and can be either quantitative or qualitative, for instance the metric for greenhouse gas emissions may be the quantity of CO2e emitted in metric tonnes (Scope 1), investors can assess the performance of businesses in the same industry thanks to these indicators, which are intended to guarantee standardisation and comparability, in order to guarantee consistent measurement of measurements and SASB additionally offers technological protocols.

c. Activity Metrics

Activity metrics provide context regarding the scale of a company's operations, such as the number of employees, revenue, or production capacity, these metrics help investors understand ESG data in the context of a company's size and activities, for example a manufacturing company might report the number of metric tons of products produced to provide context for metrics on waste generated, internal auditors must verify that these metrics are accurate and relevant to the material topics being reported (SASB (*Sustainability Accounting Standards Board*), 2011).

2.7.7 CDP (Carbon Disclosure Project)

A worldwide nonprofit organization, CDP offers a framework for environmental reporting with an emphasis on hazards associated with forests, water consumption, and carbon emissions. CDP offers transparency to stakeholders including investors and regulators while assisting organisations in measuring and managing their environmental effect, understanding CDP is crucial for assessing the calibre of an organization's environmental reporting in the context of internal auditing, the main focal areas of CDP, the CDP questionnaire, the CDP score methodology, and the advantages of taking part in CDP are all covered in this chapter.

a. CDP's Main Focus

The CDP focuses on reporting and transparency regarding three key environmental aspects: carbon emissions, water use, and forest risks. Its goal is to help organizations manage their environmental impact and provide relevant data to stakeholders, particularly investors who are concerned with sustainability.

- **Carbon Emissions**

  CDP encourages organizations to report their greenhouse gas (GHG) emissions, including Scope 1 emissions (direct emissions from operations), Scope 2 emissions (from purchased energy), and Scope 3 emissions (from the supply chain and product use). For example, a manufacturing company might report emissions from its factories (Scope 1) and the electricity it uses (Scope 2). This reporting helps organizations identify opportunities to reduce emissions, such as switching to renewable energy.

- **Water Use**

  The CDP also emphasizes water resource management, particularly for industries that rely on water, such as agriculture or mining. Organizations are asked to report on the amount of water used, water recycling, and risks related to water scarcity. For example, a beverage company might report on water conservation strategies at its production facilities to reduce its environmental impact.

- **Forest Risks**

  The CDP asks organizations to disclose the impact of their operations on deforestation, particularly in industries such as agribusiness and paper. This includes reporting on the use of raw materials such as palm oil or timber, as well as efforts to support forest conservation. For example, a food company might report its use of sustainably certified palm oil to reduce the risk of deforestation. CDP's focus on these three aspects helps organizations understand their environmental impacts and respond to stakeholder expectations. Internal auditors can use CDP data to evaluate whether an organization is reporting accurate and relevant environmental data (CDP (carbon disclosure project), 2000).

b. CDP Questionnaire

The CDP questionnaire is the primary tool for collecting environmental data from organizations. Climate change, water, and forests are the three primary categories of surveys, every questionnaire includes specific enquiries concerning the hazards, management, and environmental strategies of a firm.

- Climate Change Questionnaire

  Evaluating an organization's water resource management practices, including water use, reuse, and shortage risk, the quantity of water utilised in operations or methods to lessen the effects in areas that are vulnerable to drought may be the subject of questions, for instance a textile manufacturer may disclose that it uses water-saving technologies in its dyeing procedures.

- Water Questionnaire

  Assessing how an organization manages water resources, including water use, reuse, and the risk of water scarcity. Questions may cover the amount of water used in operations or strategies to mitigate impacts in drought-prone regions. For example, a textile company might report the use of water-saving technology in its dyeing processes.

- Forest Questionnaire

  Focuses on how a company affects the management of natural resources and deforestation, the source of raw resources including timber or palm oil, as well as the sustainability certificates used, are among the topics of inquiry, for instance a paper manufacturer may be required to disclose the proportion of raw materials that come from sustainable forests.

  Because of the questionnaire's adaptability, businesses from a range of sectors can provide pertinent information to confirm that the submitted data is consistent with internal records such as energy or water usage statistics, internal auditors must comprehend the format of the questionnaire (CDP (carbon disclosure project), 2000).

c. Benefits of Participating in the CDP

Organisations can gain a lot by participating in the CDP especially when it comes to attracting eco-friendly investors and commercial partners.

- Attractiveness to Green Investors

  Businesses with excellent environmental performance are becoming more and more important to investors, organisations can show their dedication to sustainability, such as cutting emissions or effectively managing water, by reporting through CDP, a high CDP score, like an A or B, can boost investor confidence and make green funding more accessible, for instance investors interested in the energy transition would provide finance to an energy company with an A score.

- Enhancing Reputation with Business Partners

  Customers and suppliers are examples of business partners who frequently favour doing business with companies that follow ethical environmental standards, an organization's proactive management of environmental hazards such as water scarcity or deforestation, is demonstrated by participation in CDP, which can improve commercial partnerships, for instance a retail business might draw in eco-aware clients by using CDP to disclose its usage of sustainable raw materials.

- Better Risk Management

  CDP assists businesses in recognising and controlling environmental risks, such as how supply chains are affected by climate change, organisations can create plans to lower these risks such investing in low-carbon technologies or diversifying their water supplies, by filling out the CDP questionnaire, internal auditors can confirm that these tactics are successfully applied and backed by reliable data.

- Compliance with Regulations
- Environmental reporting is becoming more and more required in several areas, including the European Union, organisations can meet regulatory obligations and get ready for future, stricter reporting standards by taking part in CDP (CDP (carbon disclosure project), 2000).

2.7.8 TCFD (Task Force on Climate-related Financial Disclosures)

A framework called the TCFD was created to assist companies in disclosing climate-related risks and opportunities that have an impact on their financial performance, in order to assist investors and other stakeholders in making decisions, the Financial Stability Board (FSB) established the TCFD in 2015 with an emphasis on the openness of climate-related information, understanding the TCFD is crucial for assessing how businesses handle climate-related risks and fulfilll reporting requirements in the context of internal auditing, the goals of the TCFD its four pillars, the different kinds of climate-related risks, and the accompanying legal requirements are all covered in this chapter.

a. Purpose of the TCFD

The TCFD seeks to assist businesses in disclosing opportunities and hazards associated with climate change that have an impact on their bottom line, this framework is intended to guarantee that the climate data presented is pertinent to creditors, investors, and other stakeholders that want information to evaluate the financial stability of a business, businesses can use the TCFD to find opportunities for innovation, such investing in low-carbon technologies, as well as how climate change impacts their operations, supply chains, or business models, the TCFD can be used, for instance, by an energy company to report financial risks associated with tighter emissions rules or opportunities emerging from the switch to renewable energy, in order to increase resilience to climate-related hazards the TCFD also urges organisations to incorporate climate considerations into their strategy and decision-making procedures, internal auditors must comprehend the TCFD's purpose in order to confirm that the company accurately and pertinently discloses climate-related risks and opportunities and to make sure that this data supports strategic decision-making.

b. The Four Pillars of TCFD

The four primary pillars of the TCFD with Governance, Strategy, Risk Management, and Metrics & Targets, offer a framework for reporting on climate change, organisations can incorporate climate concerns into their management procedures with the use of these pillars.

- **Governance**

  The organization's climate-related governance is the main focus of this pillar, the responsibilities of the board of directors and commissioners in managing and reducing climate-related risks and opportunities must be disclosed by organisations, for instance a business can state that the board of directors has set goals for reducing emissions or that the board of commissioners has a special committee to assess climate policy, the efficacy and documentation of this governance framework must be confirmed by internal auditors.

- **Strategy**

  Organisations must identify climate-related risks and opportunities that have an immediate, medium, and long-term impact on their business strategy in order to comply with this pillar, this involves using scenario analysis to assess how resilient their approach would be in different climate scenarios including a 1.5°C or 2°C rise in global temperatures, for instance a retail business might discuss how flooding-related supply chain interruptions impact its business, internal auditors are responsible for making sure that this scenario analysis is data-driven and realistic.

- **Risk Management**

  This pillar focuses on how a company recognises, evaluates, and controls risks associated to climate change, climate-related concerns should be incorporated into organisations' current risk management procedures, a mining corporation might, for instance, disclose how it handles the possibility of severe weather interfering with its operations, the efficacy and compliance of these risk management procedures with TCFD requirements can be assessed by internal auditors.

- **Metrics & Targets**

  This pillar mandates that organisations submit specified reduction targets together with indicators used to quantify climate impacts, such as greenhouse gas emissions (Scopes 1, 2, and 3), for instance a car manufacturer might set a goal to cut Scope 3 emissions by 30% by 2030, internal auditors are required to confirm that the targets are reasonable and that these measures are computed accurately (Task Force on Climate-related Financial Disclosures (TCFD), 2015).

2.7.9 UN SDGs (Sustainable Development Goals)

The 17 UN Sustainable Development Goals (SDGs) are a global framework designed to solve the social, environmental, and economic issues facing the globe by 2030, the SDGs, which were approved by every UN member state in 2015, offer direction for businesses and other organisations to support sustainable development, the SDGs assist companies in coordinating their strategy with global goals in the context of ESG, with an emphasis on the function of internal auditors in assessing an organization's contribution to the SDGs this chapter covers the 17 SDGs, their applicability to ESG, their incorporation into ESG strategies, and instances of implementation.

a. SDGs Goals

Each of the 17 interrelated UN Sustainable Development Goals (SDGs) has a specific target to solve global issues like poverty, inequality, and climate change, an outline of these 17 objectives is as follows:

- No Poverty: End poverty in all its forms everywhere.
- Zero Hunger: End hunger, achieve food security, and promote sustainable agriculture.
- Health and Well-being: Ensure healthy lives and promote well-being for people of all ages.
- Quality Education: Ensure inclusive and equitable education and promote lifelong learning opportunities.
- Gender Equality: Achieve gender equality and empower women and girls.
- Clean Water and Sanitation: Ensure access to clean water and sanitation for everyone.
- Affordable and Clean Energy: Ensure access to affordable, reliable, and sustainable energy.
- Decent Work and Economic Growth: Promoting inclusive economic growth and decent work for all.
- Industry, Innovation, and Infrastructure: Build resilient infrastructure and promote innovation.
- Reduced Inequality: Reducing inequality within and among countries.
- Sustainable Cities and Communities: Making cities inclusive, safe, resilient, and sustainable.
- Responsible Consumption and Production: Ensuring sustainable consumption and production patterns.
- Climate Action: Taking immediate action to address climate change and its impacts.
- Life Below Water: Conserve and sustainably use the oceans and marine resources.
- Life on Land: Protecting and restoring terrestrial ecosystems and combating deforestation.

- Peace, Justice, and Strong Institutions: Promoting peaceful and inclusive societies and access to justice.
- Partnerships for the Goals: Strengthening global partnerships for sustainable development.

Every goal includes particular objectives and metrics for tracking advancement to assess whether the organization has chosen SDGs that are pertinent to its operations and internal auditors must comprehend these objectives (UN SDGs, 2015).

b. The Relevance of the SDGs to ESG

The SDGs are worldwide objectives that can be mapped to an organization's ESG strategy with resulting in a synergy between commercial practices and global sustainability, organisations can better match their actions with global priorities by connecting each of the ESG pillars with environmental, social, and governance to a particular SDG.

- **Environment**

  SDGs such as SDG 7 (Clean Energy), SDG 13 (Climate Action), and SDG 15 (Life on Land) align with the environmental aspects of ESG. For example, companies that reduce carbon emissions support SDG 13 while meeting ESG environmental targets.

- **Social**

  SDGs such as SDG 3 (Health), SDG 5 (Gender Equality), and SDG 8 (Decent Work) reflect the social aspects of ESG, for example, companies that increase workforce diversity support both SDG 5 and the social aspects of ESG.

- **Governance**

  SDG 16 (Peace, Justice, and Strong Institutions) relates to ESG governance, such as implementing a code of conduct or a whistleblowing system, the relevance of the SDGs to ESG lies in their ability to provide a global framework that organizations can adopt to demonstrate their commitment to sustainability by mapping ESG initiatives to the SDGs, companies can demonstrate their positive impact to stakeholders, such as investors or local communities. Internal auditors must understand this relationship to evaluate whether organizations are selecting relevant SDGs and accurately reporting their contributions (UN SDGs, 2015).

2.8 Financial Services Authority (OJK) Regulation Number 51/POJK.03/2017

Financial Services Authority Regulation Number 51/POJK.03/2017 concerning the Implementation of Sustainable Finance for Financial Services Institutions, Issuers, and Public Companies requires companies to prepare Sustainability Reports and sustainable finance action plans. Although INALUM is not currently an issuer or public company, it plans to conduct an IPO in 2026, as stipulated in the 2025–2029 Long-Term Development Plan (RJPP). Therefore, implementing sustainability reporting principles and practices early on is a strategic step for INALUM to prepare governance that aligns with market expectations and applicable regulations for public companies. The OJK also issued guidelines regarding the elements of sustainability information disclosure, as stipulated in OJK Circular Letter Number 16/SEOJK.04/2021 concerning the Form and Content of Annual Reports of Issuers and Public Companies. The Circular Letter states that the information disclosed in the Sustainability Report must include at least:

a. Explanation of sustainability strategy;
b. Overview of sustainability aspects (economic, social, and environmental);
c. Brief profile of the Issuer or Public Company;
d. Explanation from the Board of Directors;
e. Sustainability governance;
f. Sustainability performance;
g. Written verification from an independent party, if any;

h. Feedback sheet for readers, if any; and
i. Response of the Issuer or Public Company to feedback on the previous year's report.

Details of the contents of the Sustainability Report can be found in Appendix 1 - Contents of the Sustainability Report According to OJK Circular Letter Number 16/SEOJK.04/2021.

The Sustainability Report can be prepared separately from the annual report or as an integral part of the annual report. If the Sustainability Report is presented separately from the Annual Report, the information disclosed in the Sustainability Report must include all of the above information and be prepared in accordance with the Technical Guidelines for Preparing Sustainability Reports for Issuers and Public Companies, as set out in Appendix II, which is an integral part of this Financial Services Authority Circular Letter.

If the Sustainability Report is presented separately from the Annual Report, the social and environmental responsibility section must include information that information regarding social and environmental responsibility has been disclosed in the Sustainability Report, which is presented separately from the Annual Report. The Sustainability Report, which is presented separately from the Annual Report, must be submitted concurrently with the Annual Report (OJK, 2017).

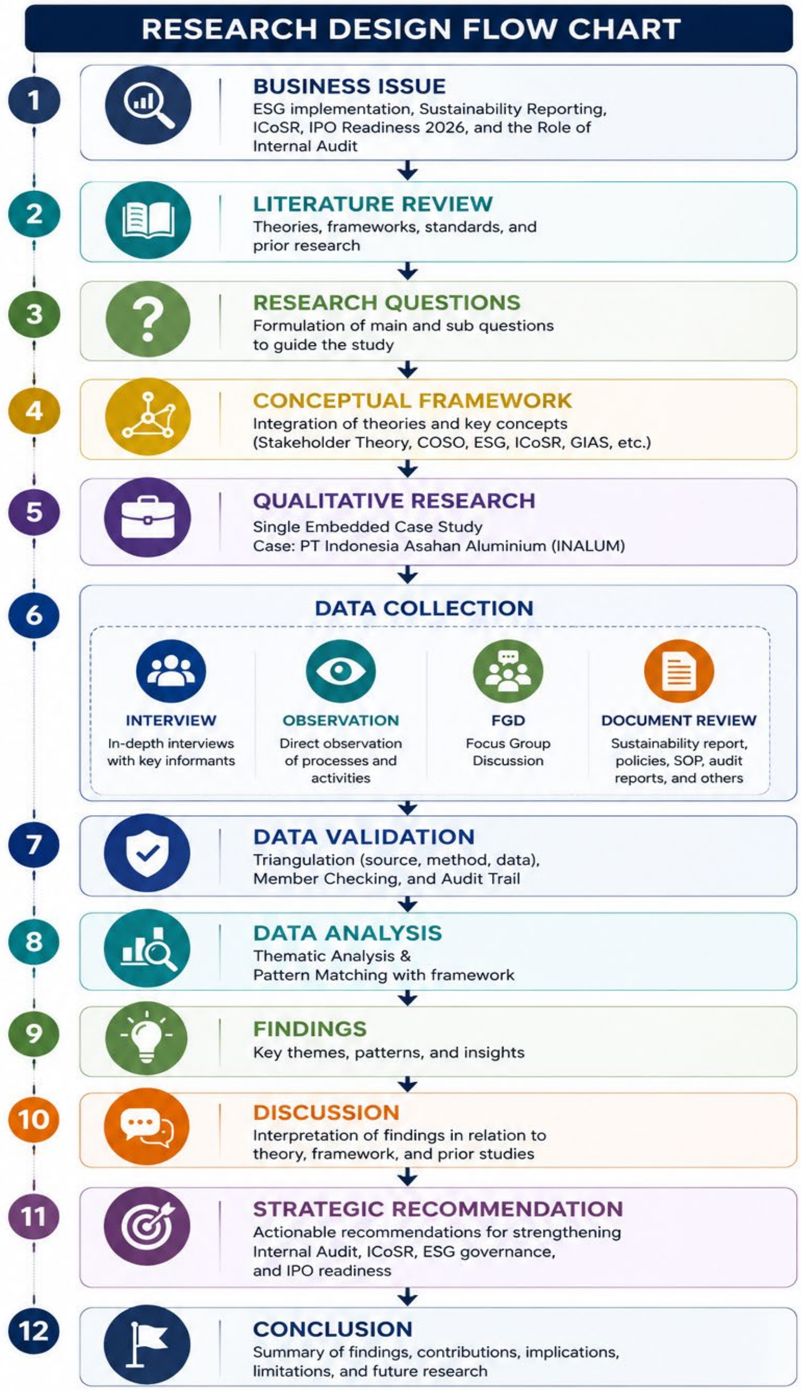
CHAPTER III
METHODOLOGY

3.1 Research Design

The research design framework is a structure that describes the stages, techniques, and methods used by the author to systematically address the research problem. This research design serves as a guideline for directing the entire research process, from identifying business issues and developing a theoretical basis, formulating research questions, and developing strategic recommendations based on the research findings. By using a structured research flow, each stage is interconnected, resulting in a comprehensive, valid, and academically accountable analysis.

As shown in Figure III.1, this research began with the identification of business issues related to the implementation of Environmental, Social, and Governance (ESG), Internal Control over Sustainability Reporting (ICoSR), the readiness of PT Indonesia Asahan Aluminium (INALUM) for its Initial Public Offering (IPO), and the role of the Internal Audit function in supporting the effectiveness of sustainability control and reporting reliability. A review of the literature, the formulation of research questions, and the creation of a conceptual framework serving as the theoretical foundation for the study were the next steps, using a single embedded case study at PT Indonesia Asahan Aluminium (INALUM), the study used a qualitative methodology, in-depth interviews, focus group discussions (FGDs), observations, and documentation studies were used to gather data, with triangulation, member checking, and audit trail procedures were then used to validate the data, thematic analysis and pattern matching were also used to analyse the data in order to generate research findings, which were subsequently addressed in light of theory and prior studies, the research's last phase offered strategic recommendations for businesses to boost IPO preparedness, enhance the application of ICoSR and ESG governance, and strengthen the role of internal audit, these recommendations were then compiled in the research conclusions.

Figure 3.1 Research Design Flow Chart



Source: Processed by the Author (2026)

3.2 Data Type

This research uses a qualitative approach with a literature study data collection method that focuses on gathering relevant information from various written sources. This literature review was conducted by reviewing literature including books, scientific journals, articles, company reports, and other documents (Azis, 2023) related to the concept of Environmental, Social, and Governance (ESG). These sources provide the author with an in-depth overview of the ESG policy at PT Indonesia Asahan Aluminium (Persero). The qualitative approach was chosen because the research aims to gain a deep understanding of how the internal audit function plays a role in strengthening the effectiveness of Internal Control over Sustainability Reporting (ICoSR), increasing the submission of sustainability reports (Sustainability Reporting), and supporting company compliance with Environmental, Social, and Governance (ESG) principles.

The case study method was chosen because it allows researchers to comprehensively explore phenomena within a real-world organizational context. The research aims not only to identify relationships between concepts but also to understand the processes, mechanisms, practices, challenges, and factors influencing the implementation of internal audit and internal control over sustainability reporting.

In addition to in-depth interviews, this research was enriched with document analysis using an Assessment Framework developed based on international standards, namely:

1. COSO Internal Control Integrated Framework (2013);
2. Global Internal Audit Standards (2024);
3. Three Lines Model;
4. IFRS S1 General Requirements for Disclosure of Sustainability-related Financial Information;
5. IFRS S2 Climate-related Disclosures.

The goal of using an assessment framework is to generate an evaluation that is methodical, objective, and grounded in international standards so that the study findings are both descriptive and evaluative.

3.3 Data Collection Method

In order to obtain a thorough knowledge of the application of Internal Audit over Internal Control over Sustainability Reporting (ICoSR) at PT Indonesia Asahan Aluminium (INALUM) this study makes use of both primary and secondary data, the goal of using both kinds of data is to improve the validity and reliability of the research findings by deepening the analysis through a triangulation process.

Through contacts between the researcher and informants who were informed about and participated in the preparation of sustainability reporting, internal control, ESG governance, and internal audit implementation, primary data was directly gathered from primary sources. In-depth interviews observations of operations and business procedures pertaining to sustainability reporting control, and conversations with pertinent parties to get clarification and validation of data gathered during the study were used as primary data gathering methods, the real state of Internal Audit's ICoSR implementation, including numerous obstacles, best practices, and chances for internal improvement is anticipated to be described by this main data.

In the meantime, secondary data was gathered by looking through a number of official corporate documents pertaining to risk management, internal control, governance, and sustainability reporting. The documents analyzed included the Sustainability Report, Annual Report, ESG Policy, Standard Operating Procedures (SOP), Internal Audit Charter, Enterprise Risk Management (ERM) documents, Corporate Governance Guidelines, Internal Audit Reports, and assurance documents for the Sustainability Report, if available. These documents were used to obtain objective evidence regarding the company's policies, procedures, control structures, and implementation of sustainability practices.

3.4 Data Collection Techniques

Data collection in this study was conducted through several complementary techniques, namely in-depth interviews, document analysis, observation, and Focus Group Discussions (FGDs) when necessary. The combination of these techniques aims to obtain comprehensive data, strengthen the triangulation process, and increase the validity and reliability of the research findings. Each technique is used to explore different aspects to provide a complete picture of the implementation of Internal Audit on Internal Control over Sustainability Reporting (ICoSR) at PT Indonesia Asahan Aluminium (INALUM).

3.4.1 In-depth Interview

The primary technique for collecting primary data was in-depth interviews using a semi-structured interview approach. This approach was chosen because it provided researchers with the flexibility to explore information in greater depth, tailored to the context of the informants' responses, without compromising the established research focus. The interview guide was developed based on the research conceptual framework and literature on Internal Audit, Internal Control over Sustainability Reporting (ICoSR), and ESG governance.

Interviews were conducted with informants purposively selected based on their roles, responsibilities, experience, and involvement in the sustainability reporting preparation process and the implementation of the company's internal controls. Interview topics included ESG audit implementation, the effectiveness of Internal Control over Sustainability Reporting (ICoSR), assurance of sustainability information, governance, ESG risk management, the Sustainability Reporting preparation process, ESG data quality control mechanisms, and challenges and strategies for improving the effectiveness of sustainability reporting control systems.

3.4.2 Document Analysis

Document analysis was conducted as a secondary data source to obtain objective evidence regarding the implementation of policies, procedures, and control practices within the company. This technique aims to verify information obtained through interviews and identify alignment between implemented practices and applicable standards and guidelines.

The analysis was conducted using an Assessment Framework developed based on the principles of Internal Control over Sustainability Reporting (ICoSR), the internal control framework, ESG governance, and internal audit practices. The documents analyzed included company policies, Standard Operating Procedures (SOPs), the Sustainability Report, the Annual Report, Internal Audit Reports, the risk register, Enterprise Risk Management (ERM), corporate governance guidelines, the Internal Audit Charter, and assurance documents for the Sustainability Report. The existence, completeness, consistency, and efficacy of control measures supporting the calibre of sustainability reporting were assessed for each document.

3.4.3 Focus Group Discussion (FGD)

In order to obtain a common understanding of the implementation of Internal Audit and Internal Control over Sustainability Reporting (ICoSR), this study also used Focus Group Discussions (FGDs) as a supporting technique where needed, in order to obtain a more thorough understanding of coordination, process integration, and the numerous difficulties in compiling Sustainability Reporting, the FGDs were designed to promote cross-functional talks.

Internal Audit, ESG (Sustainability), Risk Management, and Finance departments, all of which are directly involved in the sustainability reporting process and were scheduled to participate in the FGD, the goal of these group discussions was to identify potential for improvement in the company's

Internal Control over Sustainability Reporting system as well as inter-functional connections, coordination effectiveness, and the suitability of internal control methods, a more thorough and reliable interpretation was produced by using the FGD results as supporting information to bolster the observations, interviews, and document analysis.

3.5 Research Informants

Purposive sampling was utilised in this study to identify research informants, this method was selected because case study research need informants who are knowledgeable, experienced, and directly involved in the phenomenon under study in order to provide cases that are rich in information and align with the goals of the study, the selection of informants was predicated on the idea that the chosen individuals had sufficient knowledge, authority, and responsibility regarding the application of Environmental, Social, and Governance (ESG), corporate governance, risk management, Internal Audit for Internal Control over Sustainability Reporting (ICoSR), and the Sustainability Report preparation process at PT Indonesia Asahan Aluminium (INALUM).

The informant criteria for this study included: (1) an understanding of Sustainability Reporting and the sustainability reporting standards applied by the company; (2) direct involvement in the implementation of ESG strategies and the preparation of Sustainability Reports; (3) authority or responsibility for implementing internal control systems, particularly those related to the reliability of sustainability data and information; (4) understanding of the company's risk management process, including the identification, assessment, and mitigation of ESG risks; and (5) have an understanding of corporate governance, assurance mechanisms, and the role of each function in supporting sustainability reporting accountability.

Research informants were selected from various organizational units directly involved in ESG and Internal Control over Sustainability Reporting (ICoSR) implementation. The involvement of these various functions aimed to gain a comprehensive perspective on how internal control mechanisms are implemented, from ESG data collection and information validation to Sustainability Report preparation, assurance implementation by Internal Audit, and oversight by corporate governance bodies. Thus, the research identified interfunctional relationships, coordination effectiveness, and the role of each unit in building a reliable sustainability reporting system that aligns with good corporate governance principles.

Table 3.1 presents the research informant's plan along with their roles and contributions to the implementation of ESG and Internal Control over Sustainability Reporting (ICoSR) at PT Indonesia Asahan Aluminium (INALUM).

Table 3.1 Research Informants

Informants	Roles in Organizations	The link between ESG and ICoSR	Expected Information
Chief Audit Executive	Lead the Internal Audit function and develop risk-based audit strategies.	Providing assurance and consulting on the effectiveness of internal control, governance, risk management, and evaluation of control over Sustainability Reporting	The role of Internal Audit in evaluating the effectiveness of ICoSR, ESG audit approaches, assurance models, and improvement recommendations
Auditor Internal	Conduct operational audits, compliance audits, and risk-based audits	Conducting tests on the effectiveness of internal controls and verifying the implementation of ESG policies.	Implementation of audits on the Sustainability Reporting process, control testing, ESG audit techniques, and audit findings
Head of ESG/Sustainability Division	Coordinate the implementation of ESG strategies and the preparation of Sustainability Reports	Responsible for ESG data collection, preparation of sustainability indicators, coordination with	The mechanism for compiling Sustainability Reports, ESG data quality control, and ESG

Informants	Roles in Organizations	The link between ESG and ICoSR	Expected Information
		all work units, and compliance with sustainability reporting standards.	implementation challenges
Head of Risk Management Division	Develop and manage Enterprise Risk Management (ERM)	Mengintegrasikan risiko ESG ke dalam kerangka Enterprise Risk Management serta memastikan mitigasi risiko strategis perusahaan	Identification, measurement, mitigation, and monitoring of ESG risks and their integration with internal control systems
Head of Finance Division	Managing financial reporting and corporate information integration	Integrating financial and non-financial data in corporate reporting, including coordinating the presentation of sustainability information	Integration of Financial Reporting and Sustainability Reporting, data quality, and information validation mechanisms
Company Secretary	Managing corporate governance, relations with regulators and stakeholders	Coordinate the implementation of Good Corporate Governance (GCG), ESG communication, regulatory compliance, and information disclosure	Implementation of ESG governance, compliance with sustainability regulations, and communication to stakeholders
Chairman/Member of the Audit Committee	Carry out supervisory functions regarding reporting processes, internal control, risk management,	Monitor the effectiveness of internal controls, the quality of Sustainability Reporting, and follow-up on audit results.	Effectiveness of supervision of ICoSR, relationship with Internal Audit, and improving the quality of

Informants	Roles in Organizations	The link between ESG and ICoSR	Expected Information
	and internal audits.		governance and assurance

3.6 Project Flow

The ESG internal audit process is designed to evaluate and improve the effectiveness of a company's governance, risk management, and controls, as well as ESG reporting. The process outlined here is based on the Global Internal Audit Standard (GIAS) issued by the IIA (2024), which covers Domain V, Principle 13, and the standards outlined in Illustration 5.

Figure 3.1 Internal Audit Process according to GIAS

Source: GIAS

a. Effective ESG Audit Planning

1. Initiating Communication and Understanding the ESG Context

Standard 13.1 states that this phase involves the first correspondence with the management, sustainability committee, or owner of the ESG process, understanding the risk map, reporting goals, stakeholder expectations, and ESG governance structure is the aim, this forms the basis for establishing a cooperative relationship and outlining expectations for engagement.

2. Conducting ESG Risk and Materiality Assessments

Internal audit finds and evaluates ESG risks, such as reputational risk, greenwashing, or reporting that deviates from the standards framework, based on Standard 13.2, double materiality which evaluates the organization's impact on society and the environment in addition to its ESG impact, is applied in this study.

3. Determining the Purpose and Scope of the Assignment

Decide what will be audited such as the accuracy of carbon emissions data, the efficiency of ESG reporting control systems or adherence to sustainability reporting guidelines. This exercise makes reference to Standard 13.3.

4. Establishing Evaluation Criteria

According to Standard 13.4, internal audit must set objective criteria for the evaluation such as those based on internal policies, GRI, SASB, TCFD, or CSRD standards, these standards are crucial for determining if the company satisfies requirements for credible reporting and governance.

5. Developing an Audit Work Program

According to Standard 13.6, internal audit creates a work program based on the identified risks and scope as the last stage of the planning phase, this program outlines the testing protocols, audit steps, and kinds of evidence that must be gathered.

b. Professional and Efficient ESG Audit Implementation

1. Collecting ESG Evidence and Information

The audit team must collect documents, interview people, create ESG reports, and examine information systems in accordance with Standard 14.1, data on carbon emissions, workforce diversity ratios, energy regulations, and more are examples of evidence, the data's dependability and verifiability are the main concerns.

2. Evaluating Evidence and Identifying Findings

Based on Standards 14.2 and 14.3, internal audit assesses whether actual conditions meet the criteria. If nonconformities are found, such as inaccurate data, weak controls, or no reporting on material ESG aspects, these findings are thoroughly analyzed.

3. Providing Recommendations and Follow-up Plans

Internal audit provides risk-based recommendations that can improve the quality of reporting, strengthen controls, and improve the effectiveness of ESG governance in accordance with Standard 14.4, recommendations are formulated realistically and add value to the organization.

4. Documenting the Audit Process

Standard 14.6 requires that the entire audit process be adequately documented to ensure transparency and accountability, and to allow for future internal and external review.

c. ESG Audit Follow-up Reporting and Monitoring

1. Submitting ESG Audit Reports

A final report with conclusions, suggestions, and results is prepared by internal audit, along with an evaluation of the efficacy of ESG reporting and management based on Standard 15.1, the report is delivered to management, the board of directors, and the board of commissioners (which includes the audit committee and ESG committee).

2. Monitoring Follow-up on Recommendations

Standard 15.2-based internal auditing ensures that suggested changes have been carried out and have strengthened ESG governance.

CHAPTER IV
ANALYSIS AND DISCUSSION

This chapter presents findings and analysis based on in-depth interviews with key informants from various divisions at PT Indonesia Asahan Aluminium (INALUM), including the ESG Division, the Finance Division, auditors, the Head of the Internal Audit Division, the Risk Management Division, the Corporate Secretary Division, and the Chair and members of the Audit Committee. The analysis is further enriched by a review of the organizational structure of the Internal Audit Unit (SPI), the regulatory framework, and the implementation of COSO-based internal controls. The discussion is structured around the research questions and utilizes the theoretical frameworks of Stakeholder Theory, Legitimacy Theory, the Triple Bottom Line, and the COSO Internal Control Framework, supported by the Global Internal Audit Standards (GIAS) 2024.

4.1 Company Overview and Sustainability Commitments

PT Indonesia Asahan Aluminium (Persero) is a State-Owned Enterprise (SOE) engaged in the aluminium industry and plays a strategic role in the development of the national mining industry. The company's legal status has undergone several changes in line with SOE restructuring policies. In 2014, the company's status changed to Persero. Subsequently, pursuant to Government Regulation No. 45 of 2022 and Government Regulation No. 46 of 2022, the company's status changed to non-Persero, effective April 13, 2023. Since 2017, the Government of the Republic of Indonesia has designated PT Indonesia Asahan Aluminium as the Mining Industry Holding Company. As part of this development, the holding company has operated under the MIND ID brand since 2019, while the INALUM brand continues to be used as the company's operational brand. In line with this restructuring process, the establishment of PT Mineral Industri Indonesia (Persero) on February 17, 2023, further strengthens the strategic holding company's role in coordinating the member companies of the mining industry holding company, while PT Indonesia Asahan

Aluminium focuses its business activities on the aluminium industry and the development of aluminium downstream industries in Indonesia.

As a company operating in the metals industry, PT Indonesia Asahan Aluminium applies the principles of sustainable development in its operations. This commitment is realized through efforts to manage environmental, social, and corporate governance aspects in an integrated manner within its business processes. To support the reduction of greenhouse gas emissions, the company utilizes electricity generated by hydroelectric power plants (PLTA) as the primary energy source in its aluminium production process. In addition, the company also implements various programs to improve energy efficiency, optimize resource use, adopt more environmentally friendly technologies, and manage waste in accordance with applicable laws and regulations and sustainability standards. These initiatives reflect the company's efforts to support the transformation toward a sustainable aluminium industry.

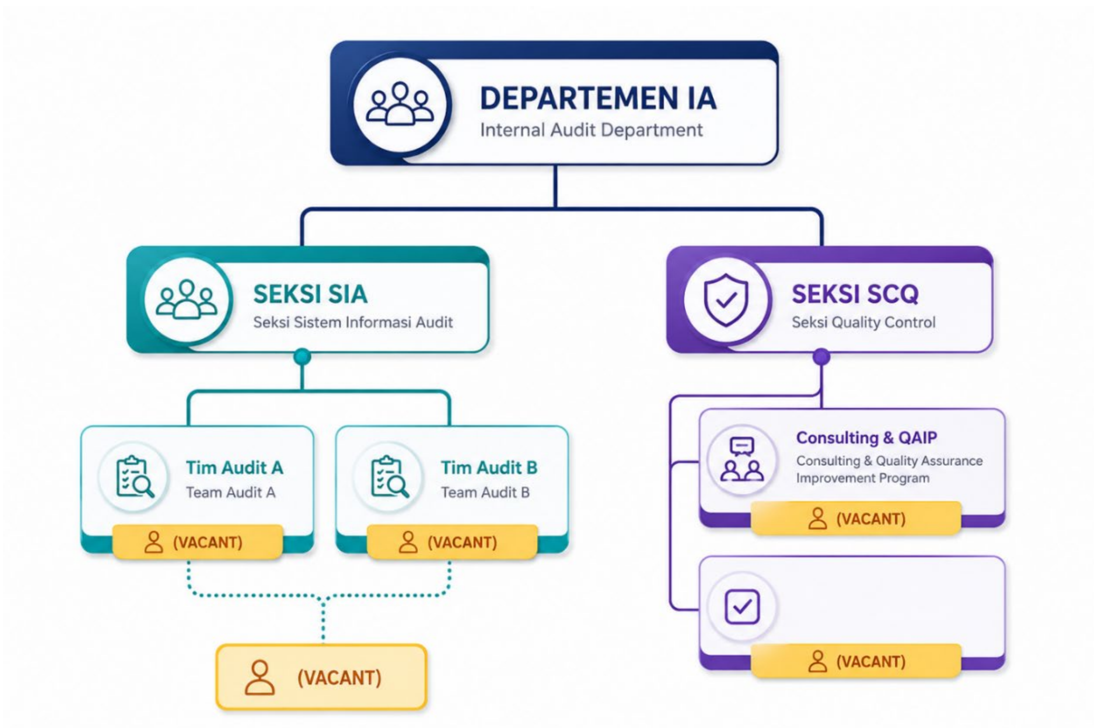
PT Indonesia Asahan Aluminium's commitment to applying sustainability principles is demonstrated through the implementation of Environmental, Social, and Governance (ESG) as part of the company's strategy. ESG principles are integrated into the company's vision, mission, business strategy, and corporate governance to create long-term value for stakeholders. This implementation encompasses environmental management, the development of corporate social responsibility, the adoption of good corporate governance (GCG), and the preparation of a Sustainability Report as a form of corporate transparency and accountability to stakeholders. Thus, the implementation of ESG not only serves as a form of regulatory compliance but also functions as one of the company's strategies to enhance competitiveness and support the achievement of sustainable development goals (Inalum Annual Report, 2024).

4.2 Internal Audit Division

The organizational structure of the Internal Audit Division of PT Indonesia Asahan Aluminium (INALUM) reports directly to the President Director, with the Chief Audit Executive (CAE) serving as the Division Head. PT INALUM's Internal Audit

Division has an Audit Charter, which was updated on March 8, 2024, and signed by the President Director and the Chairman of the Board of Commissioners. One of the responsibilities mandated to Internal Audit in the Audit Charter is to evaluate the efficiency and effectiveness of internal audit activities and to identify improvements that need to be made on an ongoing basis to ensure that Internal Audit performs its role in accordance with applicable standards, the Code of Ethics, and the Internal Audit Charter in order to produce high-quality audit results. The organizational structure of PT INALUM's Internal Audit Division is shown in the figure below.

Figure 4.1 The organizational structure of PT INALUM's Internal Audit Division



Source: Inalum Internal Audit, 2024

4.2.1 Duties, Functions, and Responsibilities of the Internal Audit Division

Internal Audit is an independent and objective assurance and consulting activity aimed at adding value and improving the company's operations through a systematic and structured approach, by evaluating and enhancing the effectiveness of internal controls. Internal Audit helps the organization achieve its objectives through a systematic and structured approach to evaluating and improving the effectiveness of risk management, control, and governance processes in accordance with the Company's vision and mission, as well as applicable laws, regulations, and company policies.

In carrying out their duties and responsibilities, Internal Auditors adhere to best practice standards, including those set forth in the Global Internal Audit Standards (GIAS) 2024, the Core Principles, and the Internal Audit Code of Ethics from The Institute of Internal Auditors (IIA). Based on Board of Directors Decree No. SK-001/DIR/2025 regarding the Organizational Structure, Job Descriptions, and Work Divisions of PT Indonesia Asahan Aluminium, the Internal Audit Division (IIA) consists of two departments with the following specific duties and authorities:

a. **Internal Audit Department**

   Responsible for the preparation and implementation of the Annual Audit Work Program (PKAT); the preparation and evaluation of the planning, implementation, and reporting of financial, performance, and compliance audits/reviews; evaluating the Internal Control System (SPI) over business processes; monitoring follow-up on audit findings; coordinating assurance activities with the BPK, BPKP, and other external parties; and collaborating with holding company members through joint audits and/or thematic audits.

b. **Department of Audit, Consulting, and Quality Assurance**

   Responsible for providing consulting services related to governance, risk, and internal control; evaluating and monitoring quality assurance activities; investigating audit findings or reports; identifying and proposing improvements to systems and processes; and implementing development programs aimed at continuously improving the quality and capabilities of the internal audit function (QAIP).

4.3 The Role of Internal Audit in Assessing and Strengthening the Effectiveness of Controls and the Reliability of Reporting on Internal Control over Sustainability Reports (ICoSR)

Based on the analysis of the organizational structure of PT INALUM's Internal Audit Unit (SPI) presented above, the role of Internal Audit can be categorized into three main functions in accordance with the Global Internal Audit Standards (GIAS) 2024: assurance, advisory, and insight.

4.3.1 The Role of Assurance

The internal audit function provides independent assurance to the Board of Commissioners and the Board of Directors regarding the effectiveness of the ICoSR system. This function is carried out through:

- An integrated audit process involves testing the controls that support ESG and sustainability reporting particularly regarding environmental aspects such as carbon emission reduction and the management of hazardous and toxic waste (B3), which are central to the 2060 Net Zero Emission (NZE) commitment. Internal auditors must ensure that the data presented in sustainability reports has undergone adequate and consistent control procedures and has successfully passed verification.
- Assessment of the five components of the 2013 COSO Framework: Internal Auditors evaluate Internal Control Over Sustainability Report (ICoSR) based on the components of the COSO Framework namely the control environment (including "tone at the top"), risk assessment, control activities, information and communication, and monitoring of follow-up on recommendations. The results of this evaluation serve as the basis for providing reasonable assurance regarding the effectiveness of Internal Control Over Sustainability Report (ICoSR).

4.3.2 Advisory Role (Consulting)

As a strategic partner to the company, the internal auditor contributes in two key areas. First, they provide adequate controls and offer input on the design and implementation of control procedures and ESG-related data collection particularly regarding the integration of data sourced from various operational divisions. Second, internal audit plays an advisory and insight-generating role in the adoption of reporting standards, such as IFRS S1 and S2. Through in-depth analysis of existing procedures, the company can determine which procedures to adopt based on the specific requirements of its industry.

4.3.3 The Role of Insights

The internal audit function should be future-oriented and risk-based. Internal auditors provide insights by identifying gaps between processes that compromise the reliability of information accuracy, and by analyzing risk trends both global and local along with their impact on the business strategy of PT Indonesia Asahan Aluminium (Persero), thereby enabling management to take proactive measures promptly.

4.4 The Effectiveness of Implementing COSO-Based Internal Control over Sustainability Reporting (ICoSR)

4.4.1 Research Findings

Interviews with several division heads regarding the implementation of Internal Control Over Sustainability Report (ICoSR) at PT Indonesia Asahan Aluminium (Persero) revealed that the initiative is still in its early stages and lacks a formal structure. INALUM's Head of Internal Audit stated that the audit of ICoSR implementation is scheduled for the fourth quarter of 2026 as part of the annual audit work program. The initial phase involves collaboration with an external party specifically, the Financial and Development Supervisory Agency (BPKP). The audit will be based on the 2013 COSO Framework; however, the technical control guidelines are currently being drafted by

INALUM's Internal Audit division. As the division does not yet possess these guidelines, the immediate priority is to develop the guidelines that will serve as the foundation for conducting the ICoSR audit at PT Indonesia Asahan Aluminium (Persero).

Based on the interviews conducted, the internal auditor identified several weaknesses in the execution of the audit of Internal Control Over Sustainability Reporting (ICoSR), as follows:

- Data sources are dispersed across various divisions or work units, creating risks regarding data accuracy and consistency during processing.
- Manual processes remain dominant in the preparation of sustainability reports—particularly during the collection of corporate operational data—making the process susceptible to human error during data entry.
- There is a lack of supporting documentation required to verify the figures reported in the sustainability reports.
- Employee understanding regarding sustainability implementation and reporting is not yet optimal.

The Head of the ESG Division at PT Indonesia Asahan Aluminium (Persero) acknowledged that the current data validation process relies on a routine monthly monitoring mechanism with MIND ID. However, internal audit oversight has not yet been implemented. By the time this study was concluded, no specific coordination had taken place with the Internal Audit Division regarding the preparation of the sustainability report.

4.4.2 Analysis of the COSO Framework

Based on the COSO Internal Control – Integrated Framework (2013), the effectiveness of the ICoSR at INALUM was evaluated as follows:

Table 3.1 The Effectiveness of the ICoSR at INALUM

COSO Components	The Situation at INALUM	Analysis
Control Environment	The culture of control is quite strong, with a clear separation of duties and management commitment, but understanding of ESG is not yet widespread.	The foundation is solid, but ESG awareness needs to be strengthened across the board.
Risk Assessment	ESG risks are identified through ERM, including climate change risks related to Lake Toba.	The risk register for sustainability reporting still needs to be refined.
Control Activities	General controls (tiered authorization) are already in place, but there are no specific ESG controls yet.	A control matrix and specific SOPs are required for ESG data.
Information & Communication	Cross-functional coordination is carried out through ad hoc teams, but the systems are not yet integrated.	Digitization and integrated ESG information systems are essential.
Monitoring Activities	Monitoring through monthly monitoring and evaluation (Monev) and third-party assurance (TÜV Rheinland).	The internal audit has not yet provided formal assurance regarding the Sustainability Report.

Source: Processed by the Author (2026)

4.4.3 Implementation of Internal Control over Sustainability Reporting (ICoSR) Based on COSO at INALUM

The implementation of COSO at INALUM plays a role in the following areas:

- Ensuring the integrity of annual financial and non-financial reports;
- Assessing the effectiveness of controls in the ESG data collection process;
- Integrating internal controls with the company's sustainability reporting system;
- Providing assurance evidence to external parties ahead of the 2026 IPO.

By adopting COSO as the foundational framework for ICOSR, INALUM can ensure that all data in the annual sustainability report is presented with the same level of reliability as financial statements, thereby ensuring the report's accuracy and enhancing investor confidence.

4.5 Risks and Challenges in Implementing ESG and Sustainability Reporting

4.5.1 Key Risks

The Chief Audit Executive identified climate change as the most significant ESG risk, given its impact on Lake Toba's water level: "The most significant risk is climate change in relation to the high water level of Lake Toba." (Chief Audit Executive). The Head of the Risk Management Division added that the company has identified various ESG risks within the ERM framework, including risks of data inaccuracy, reporting delays, non-compliance with regulations, inconsistencies in measurement methodologies, weak supporting documentation, and reputational risks resulting from greenwashing.

4.5.2 Implementation Challenges

Based on interviews with all informants, several key challenges were identified:

- Human Resource Competencies: The majority of auditors have an accounting background and are accustomed to working with financial data, not non-financial data.
- Inter-Departmental Coordination (Silos): The main weakness is the existence of strong silos, making it difficult to share data across departments.
- Speed of Data Provision: The ad hoc team has not yet made the preparation of the Sustainability Report a priority.
- Potential for Greenwashing: This phenomenon is difficult to avoid because all entities want to present their Sustainability Reports in the best possible light.

4.5.3 Challenges and Opportunities in Internal Auditing

In carrying out its role, internal audit faces multidimensional challenges, including the complexity and dynamics of ESG regulations, the qualitative and technical nature of ESG data, and limitations in resources and specialized expertise. However, these challenges present strategic opportunities:

- Elevating the role from compliance guardian to strategic partner.
- The use of Audit Data Analytics (ADA) technology to analyze operational big data.
- Continuous professional development through certification in the field of ESG auditing.

4.6 Sustainability Reporting Regulations and Standards

4.6.1 OJK Regulation No. 51/POJK.03/2017

OJK regulations require financial services institutions, issuers, and public companies to implement sustainable finance. Although INALUM is not yet a public company, its planned 2026 IPO makes the early adoption of sustainability principles a strategic move. The information disclosed in the Sustainability Report must include, at a minimum:

- Explanation of the sustainability strategy;
- Overview of sustainability aspects (economic, social, and environmental);
- Brief profile of the Issuer or Public Company;
- Statement from the Board of Directors;
- Sustainability governance;
- Sustainability performance;
- Written verification from an independent party (if any).

4.6.2 Global Standards

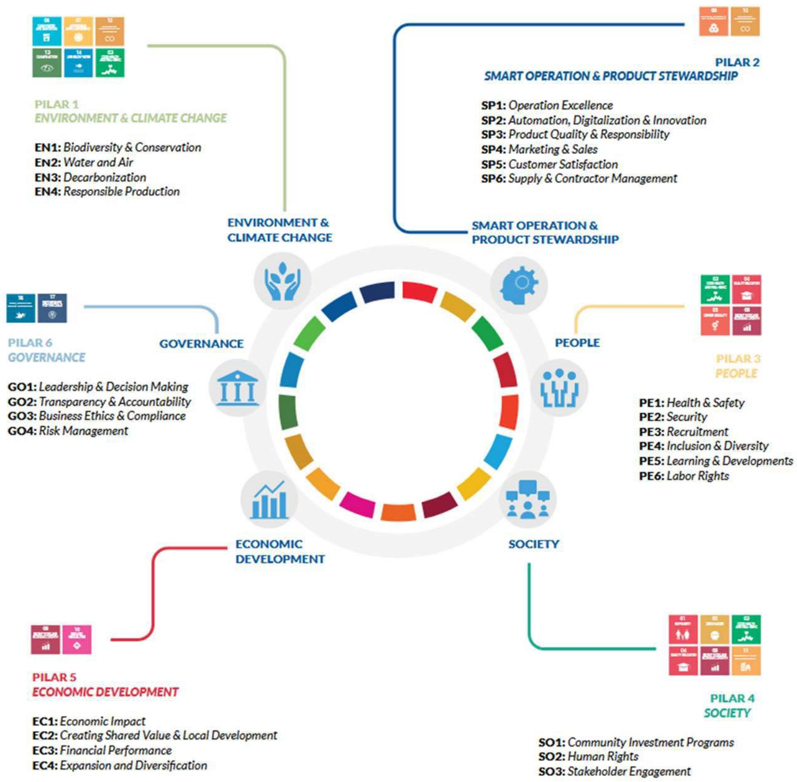
The company also adheres to global standards:

- GRI (Global Reporting Initiative): The most widely used sustainability reporting standard.
- TCFD (Task Force on Climate-related Financial Disclosures): Focuses on climate risk disclosures.
- IFRS S1 and S2: The latest global standards for financial disclosures related to sustainability and climate.
- Metals and Mining Sustainability Accounting Standard: A standard specific to the mining and metals industry.

4.6.3 MIND ID Sustainability Pathway

On March 15, 2024, MIND ID issued the Implementation Policy for the Sustainable Business Guidelines No. KP-010/DIR/2024 as a guide for all its members in conducting ESG materiality assessments and preparing Sustainability Reports. This report is based on the GRI Standards and POJK No. 51/POJK.03/2017 on Sustainable Finance, while remaining in compliance with applicable regulations and policies. The main framework of this report is the Sustainability Pathway, which encompasses 6 pillars (Environment & Climate Change, Operations & Products, Human Resources, Community, Economic Development, and Governance) as well as 27 ESG areas. As part of the MIND ID Group, INALUM applies this framework in all business planning, implementation, and decision-making to ensure alignment with ESG practices.

Figure 4.1 MIND ID Sustainability Pathway



Source: MIND ID (2024)

4.7 The Role Of AKHLAK BUMN in Strengthening Internal Audit for Internal Control Over Sustainability Report (ICoSR) dan Environmental, Social and Governance Compliance

The implementation of SOE AKHLAK values plays a significant role in supporting the effectiveness of internal audits regarding Internal Control Over Sustainability Reporting (ICoSR) and Environmental, Social, and Governance (ESG) compliance.

4.7.1 Trust

Trustworthiness: Steadfastly upholding the trust placed in us while carrying out corporate duties and responsibilities.

4.7.2 Competence

Competent: Continuously learning and developing personal capabilities for the advancement of the company.

4.7.3 Harmony

Harmony: Caring for one another and respecting differences in the workplace.

4.7.4 Loyal

Loyal: Possessing high dedication and prioritizing the interests of the nation and state above personal interests.

4.7.5 Adaptive

Adaptive: Quickly adapts to changes and continuously drives sustainable innovation.

4.7.6 Collaborative

Collaborative: Building synergistic cooperation to achieve the best results.

4.8 Audit Design for Internal Control over Sustainability Reporting (ICoSR)

Conducting an internal audit of ICOSR requires a structured and systematic audit design, aligned with ICOSR principles based on the COSO framework. This audit design comprises two main components: the Audit Program and the Risk Control Matrix (RCM). The Audit Program serves as the systematic and structured work plan used by internal auditors to execute the audit, while the RCM documents the auditor's understanding of business processes, risks, and controls.

4.8.1 Audit Program

The audit program prepared for this audit engagement includes, among other things, the audit objectives, scope, and period; statements of responsibility and independence by Internal Audit; the auditee subject to the audit; a summary of the regulatory review; risk assessment and determination of key audit areas;

problem identification; man-day calculations; and the audit methodology and program, as follows.

a. Audit Objective

   This audit aims to:

   - Provide reasonable assurance that the use of GRI standards in the preparation of INALUM's Sustainability Reporting is appropriate and adequate, and utilizes accurate data;
   - Identify potential internal control weaknesses in the Sustainability Reporting; and
   - Minimize findings during the external assurance process.

b. Audit Scope and Period

   The scope of the audit for this engagement encompasses all activities and processes involved in the preparation of INALUM's 2024 Sustainability Report. The audit period covers January through December 2024 (including relevant prior periods).

4.8.2 Responsibilities and Independence of Internal Audit:

Statement of Responsibility and Independence by Internal Audit The responsibility of the Internal Auditor is limited to conclusions and recommendations based on the data and information provided by the Auditee. The Auditee is responsible for overall effective governance, risk management, operational control processes, compliance and reporting, as well as the material accuracy of the data and information submitted to the Internal Auditor. There are no conflicts of interest involving Internal Audit and the parties associated with this engagement.

4.8.3 The auditee serving as the subject of the audit

For this audit engagement, the auditee is the 2024 Sustainability Report Team, as designated by the Decree of the Director of Strategic Support & Human Capital Number SK-002/DIRHC/2025. That Director's Decree outlines the composition of the Sustainability Report preparation team, comprising a team leader, team secretary, sustainability report coordinator, and members. Additionally, there is a Decree of the President Director (Number SK-001/DDIRUT/2024) regarding the Environmental, Social, and Governance (ESG) Implementation Committee and the Social and Environmental Responsibility (TJSL) Committee. One of the objectives of the ESG and TJSL Implementation Committee is to ensure that the implementation of ESG and TJSL within the company proceeds effectively and in compliance with applicable regulations and requirements.

4.8.4 Risk Assessment and Determination of Key Audit Areas

Based on the risk analysis associated with the Internal Control over Sustainability Reporting (ICOSR) audit, 27 risk descriptions were identified across six business processes, corresponding to the six pillars of the Sustainability Pathway.

The determination of key audit areas for this engagement adhered to the RIAS (Risk, Impact, Auditability, Significancy) principles and methodology, in accordance with established audit procedures. However, for this ICOSR audit, all identified risks were selected as audit subjects; consequently, the RIAS method was not re-mapped into a Risk Control Matrix (RCM). This approach was adopted because the audit was the first of its kind at INALUM, rendering all areas relevant and material for auditing.

4.8.5 Identification of problems

Based on the risk assessment, several issues have been identified that could potentially impact the effectiveness of internal control in the preparation of INALUM's Sustainability Reporting.

4.8.6 Man Day Calculation

The calculation of total man-days for the Internal Control Over Sustainability Reporting (ICOSR) audit is based on the audit stages, which consist of three main phases: audit planning, audit implementation, and audit reporting, totaling 90 man-days..

c. **Audit Methodology**

For this audit engagement, the audit methodologies and techniques to be employed include document tracing, analysis/review, physical/field inspection, confirmation, and interviews.

4.8.2 Audit Steps and Risk Control Matrix (RCM)

The Risk Control Matrix (RCM) serves not only as documentation recording the auditor's understanding of business processes, risks, and existing controls, but also as a primary means of assessing the effectiveness of internal controls over sustainability reporting. In other words, it encapsulates two vital roles: acting as a written record of the auditor's understanding and serving as a critical evaluation instrument used to test the reliability of controls.

4.9 Using Audit Findings to Improve Governance and Accountability

Internal audit findings and recommendations serve as a catalyst for continuous improvement with three key impacts:

First, specific and actionable recommendations enable management (the ESG Committee and coordinators) to directly address process weaknesses and close control gaps, thereby strengthening operational accountability.

Second, the internal audit report provides objective and independent input to the Supervisory Board and the Steering Committee, which is a direct application of the Three Lines Model, where the audit function (the third line) provides assurance to the governing body (the first line) regarding the status of ESG controls and risks.

Third, and most strategically, the existence of objective evidence that the ESG reporting process has undergone an independent audit assessment significantly enhances the credibility of the Sustainability Report in the eyes of all stakeholders—

investors, regulators, and the public—thereby building trust and strengthening the company's position as an accountable and transparent entity.

4.10 Conducting an Internal Audit of ICOSR in Accordance with International Assurance Standards

The internal audit of ICOSR was conducted in accordance with international assurance standards:

1. Assurance Engagement Standard 3000 (AES 3000) – Published by the IAASB, this standard is used for non-financial assurance engagements such as sustainability, ESG, and CSR reports. This standard distinguishes between two types of assurance: reasonable and limited assurance.
2. Assurance Engagement Standard 3410 (SPA 3410) – A specific IAASB standard for assurance of greenhouse gas (GHG) emissions information covering the measurement, disclosure, and controls of Scope 1, 2, and 3 emissions.
3. International Standard for Sustainability Assurance Engagements 5000 (ISSA 5000) – Developed by IFAC/IAASB, this is the latest standard for comprehensive assurance of sustainability reporting.

Guided by these standards, Internal Audit plays a strategic role in strengthening transparency, accountability, and ESG credibility at INALUM, as well as preparing the company for future external assurance engagements. In addition to governance benefits, conducting internal ICOSR audits is projected to yield cost savings of approximately Rp. 947 million compared to using external consulting services.

4.11 Factors Affecting the Effectiveness of Controls and the Reliability of ICoSR Reporting

The analysis reveals several key factors that determine the success of ICoSR:

1. Strong Commitment and "Tone at the Top": The existence of an ESG Committee led directly by the CEO and the Director of Strategic Support demonstrates top

management’s commitment. This forms the foundation of an effective control environment according to COSO.

2. Integration of Information Systems and Technology: The effectiveness of the ICoSR heavily depends on the integration of information systems that support ESG data collection. Separating operational data systems from reporting systems can lead to errors and inefficiencies.
3. Internal Auditor Competence and Capabilities: The internal auditors’ ability to understand the technical complexities of the aluminium production process, ESG regulations, and reporting standards is a critical factor.
4. Process and Documentation Standardization: Consistency in applying definitions and measurement methodologies is key to data reliability.

CHAPTER V
CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

Conclusions

Based on the analysis and discussion conducted, it can be concluded that internal audit plays a strategic and multidimensional role in strengthening the effectiveness of controls and the reliability of reporting under Internal Control over Sustainability Reporting (ICoSR), as well as compliance with Environmental, Social, and Governance (ESG) standards at PT Indonesia Asahan Aluminium (INALUM). The conclusions of this study have addressed all research questions and the objectives of the research, as follows:

1. ESG Implementation at PT Indonesia Asahan Aluminium

   PT Indonesia Asahan Aluminium (Persero) has implemented ESG and sustainability principles within its business operations, although these efforts still require ongoing strengthening. MIND ID has developed a Sustainability Report containing information and data aligned with its sustainability strategy framework the "Sustainability Pathway" which encompasses six key pillars and 27 ESG areas. This framework serves as a benchmark and guide for all MIND ID members, including INALUM, in defining procedures and executing ESG materiality assessments and sustainability reporting. Consequently, while ESG implementation at INALUM is underway, it has not yet reached an optimal level and requires strengthening across various organizational areas to support the company's overall business sustainability.

2. Effectiveness of Implementing COSO-Based Internal Control Over Sustainability

The implementation of Internal Control over Sustainability Reporting (ICoSR) at PT Indonesia Asahan Aluminium (Persero) is still in its early stages and lacks a formal structure. ICoSR guidelines are currently being drafted based on the COSO 2013 framework. Although basic controls for sustainability reporting exist, data collection and validation processes remain weak due to a reliance on manual procedures, a lack of adequate supporting documentation, and the absence of a standardized matrix for report preparation. To enhance the effectiveness of ICoSR implementation, it is necessary to strengthen all COSO components particularly the Control Environment, Risk Assessment, Control Activities, Information and Communication, and Monitoring Activities so that the resulting sustainability reports achieve levels of reliability, accuracy, and transparency comparable to those of financial reports.

3. Risks and Challenges of ESG Implementation

   The company faces various key risks and challenges regarding ESG implementation and sustainability reporting, particularly concerning data reliability, the effectiveness of internal controls, and the potential for greenwashing. The most significant identified risk is climate change, which impacts the water levels of Lake Toba the company's primary energy source. Other challenges include: (1) the competency of auditors, who predominantly possess accounting backgrounds and are accustomed to financial data; (2) weak inter divisional coordination (silos), which hinders data sharing; (3) the speed of data provision not yet being a priority for the ad hoc team; and (4) the difficulty of avoiding greenwashing, as each entity seeks to present its sustainability report in the best possible light. Therefore, comprehensive risk mitigation is required through the strengthening of internal control systems, the enhancement of personnel competencies, and the development of integrated information systems.

4. The Role of Internal Audit in ICoSR and ESG

Under the 2024 Global Internal Audit Standards (GIAS), the role of internal audit comprises three components: Assurance (providing reasonable assurance), Advisory (offering consulting services), and Insight (delivering risk-based insights to enhance sustainability reporting). However, the implementation of these three roles remains very limited to date; as of the completion of this study, INALUM's Internal Audit function has not yet provided reasonable assurance regarding the company's sustainability reports. Coordination among the Internal Audit, Risk Management, and ESG divisions regarding the preparation of sustainability reports remains passive. To optimize these roles, Internal Audit needs to enhance auditor competence through ESG and sustainability certifications, develop specialized audit programs, and engage in the sustainability reporting process from the outset.

5. Strengthening the Role of Internal Audit in Enhancing Accountability and Credibility

Strengthening the role of internal audit has been shown to enhance the accountability, transparency, and credibility of corporate sustainability reporting through three key mechanisms. First, specific and actionable audit recommendations enable management to directly address process weaknesses and close control gaps, thereby reinforcing operational accountability. Second, internal audit reports provide objective and independent input to the Board of Commissioners and the Audit Committee; this represents a direct application of the "Three Lines Model," wherein the audit function (the third line) provides assurance to the governance body (the first line) regarding the status of controls and ESG risks. Third, the existence of objective evidence that the ESG reporting process has undergone an independent audit assessment significantly boosts the credibility of the Sustainability Report in the eyes of stakeholders. Furthermore, the implementation of the AKHLAK cultural values Trustworthy, Competent, Harmonious, Loyal, Adaptive, and Collaborative serves as a foundational work culture that supports the effectiveness of the internal audit function in preventing greenwashing and building stakeholder trust in the company's sustainability performance.

6. Integration of ESG, ICoSR, and Internal Audit for Long Term Sustainability

   INALUM’s success in producing reliable sustainability reports cannot be achieved by a single division alone; it requires cross functional synergy aligned with the Three Lines Model. Through reporting controls, human resource development, data digitalization, and system integration, INALUM will be capable of producing high quality sustainability reports that meet IFRS S1 and S2 standards. Robust reporting will enhance stakeholder confidence and corporate value, particularly in attracting investor interest. This is the key to a successful 2026 IPO transparent, credible, and accountable reporting forms the foundation of invaluable public trust.

5.2 Recommendations

Based on the findings and conclusions of this study, the author presents several recommendations that can be used to strengthen the role of internal audit in enhancing the effectiveness of Internal Control Over Sustainability Reporting (ICoSR) at PT Indonesia Asahan Aluminium.

5.2.1 Development of Internal Auditor Competence

Enhancing the competence of internal audit personnel is highly desirable for the implementation of Internal Control Over Sustainability Reporting (ICoSR). This competency upgrade aims to improve auditors' capabilities and understanding regarding ESG and sustainability, as well as their ability to audit complex data related to environmental and sustainability matters. During the interview, the Head of the Internal Audit Division recommended that all auditors be required to hold certifications in sustainability and ESG, along with other certifications deemed relevant to sustainability reporting.

5.2.2 Integrated use of technology and data analysis

To support reliable, accurate, and up-to-date sustainability reporting, it is necessary to accelerate the use of data analytics—or big data—and strengthen the IT General Controls (ITGC) function to integrate ESG and sustainability-related information. The use of data analytics and the strengthening of ITGC systems are expected to enhance the efficiency and effectiveness of audits, testing, and data anomaly identification. The Head of the Finance Division emphasized the importance of digitalization to minimize human error, as well as the need to develop a roadmap, update standard operating procedures (SOPs), and enhance the competencies of the personnel involved in preparing sustainability reports.

5.2.3 Updating of documents and standard operating procedures (SOPs)

Guidelines and standard operating procedures should be updated to establish standardized protocols, ensuring the consistency and accuracy of sustainability report data throughout the process—from the business process owner to the final report. Internal auditors recommend developing a structured and documented audit program for ESG and sustainability. This audit program can be supplemented with an ESG and sustainability-specific risk control matrix (RCM).

5.2.4 Cross Functional Collaboration

As the third line of defense, internal audit is expected to enhance strategic collaboration with the company's various risk management divisions. Internal audit maintains regular communication with the ESG committee, the risk management division, and all operational units acting as risk owners. The objective of this inter-divisional collaboration is to ensure that internal audit recommendations are implemented effectively and in an integrated manner. During the interview, the Head of the ESG Division suggested that internal audit should play a role in the sustainability report preparation process from the outset, rather than conducting an audit only after the report has been published.

5.2.5 Development of the Roadmap

In light of PT Indonesia Asahan Aluminium’s plan to launch an IPO in 2026, preparations are required to ensure compliance with increasingly stringent regulations. PT INALUM is expected to begin developing a roadmap and a long-term ESG audit work program that is integrated with the company’s business risks and strategy. This roadmap must encompass plans for periodic audits, preparations for external audits, and the measurement of impacts against sustainability goals established by senior management. Based on an interview with the Head of the Finance Division, achieving optimal results requires the development of an ICoSR implementation roadmap; this roadmap must include a gap analysis as well as an execution and audit schedule involving both internal and external teams. The ICoSR implementation roadmap must be clearly and comprehensively formulated to ensure a shared understanding among all relevant stakeholders.

5.2.6 Preparations for the implementation of global IFRS S1 and S2 standards

PT INALUM is supposed to have assessed the gap between its current sustainability reporting processes and the requirements of the global IFRS S1 and S2 standards. The organization should also have created a plan for gradual rollout. Preparations have been ongoing since 2025, with the goal of including these requirements in INALUM's sustainability reports by 2027.

5.2.7 Recruiting employees with backgrounds in the fields of environment and sustainability

Given the broad scope of CSR and ESG, and in order to improve transparency and accuracy in sustainability reporting, it is critical to recruit personnel with environmental and sustainability backgrounds or those with sustainability certifications to fill open positions within INALUM's internal audit function.

5.3. Closing statement

By following the study's suggestions, the internal audit function is intended to expand beyond providing assurance and advisory services. Instead, it is intended to serve as a catalyst and strategic partner in developing a strong, sustainable, transparent, and accountable corporate governance foundation at PT Indonesia Asahan Aluminium (Persero). Strengthening the internal audit function based on the COSO and GIAS frameworks, as well as the SOE "AKHLAK" values, is critical to instilling genuine responsibility and eliminating greenwashing techniques at INALUM, hence increasing stakeholder trust in the company's sustainability reporting. Accountable sustainability reporting is critical as PT Indonesia Asahan Aluminium (Persero) prepares for an Initial Public Offering (IPO) in 2026, which requires reports that are transparent, credible, and trustworthy.

REFERENCES

Accounting, Management and Policy Journal, Volume 14, Issue 3, pp. 567–590. Emerald Publishing Limited; West Yorkshire, UK: Examines sustainability performance amidst policy uncertainty.

Aluminium Market Outlook Report. (2026)

Analisis Internal Inalum. (2026)

Azimli, A., & Cek, K. (2023). “Can Sustainability Performance Mitigate the Clark, G. L., & Dixon, A. D. (2024). “Legitimacy and the Extraordinary Growth of ESG Measures and Metrics in the Global Investment Management Industry.”Environment and Planning A: Economy and Space, Volume 56, Issue 2, pp. 645–661. SAGE Publications; London, UK: Analyzing the growth of deep ESG metrics global investment.

Committee of Sponsoring Organizations of the Treadway Commission (COSO). (2013). Internal control—Integrated framework. COSO.

Committee of Sponsoring Organizations of the Treadway Commission (COSO). (2017). Enterprise risk management: Integrating with strategy and performance.COSO.

Committee of Sponsoring Organizations of the Treadway Commission (COSO), & World Business Council for Sustainable Development (WBCSD). (2018). Applying enterprise risk management to environmental, social and governance-related risks.

Committee of Sponsoring Organizations of the Treadway Commission (COSO). (2023). Internal Control over Sustainability Reporting (ICOSR).

COSO ICOSR. (2023). Achieving Effective Internal Control over Sustainability Reporting.

CRU. (2026). Data, Insight, Strategy & Communities

CRU. (2026). Independent Expert Intelegence

Deloitte Insights. Deloitte. (2023). Sustainable practices in high-impact industries.

Elkington, John. (1994). "Toward the Sustainable Corporation: Win-Win-Win Business Strategies for Sustainable Development". California Management Review, 36(2), Pages. 90-100

Elkington, John. (1997). Cannibals with Forks: The Triple Bottom Line of 21st Century Business. Oxford: Capstone Publishing.

Febriana, & Suryana, A. I. G. N. (2011/2012). Factors influencing social and environmental responsibility disclosure policies in manufacturing companies listed on the Indonesia Stock Exchange.

Financial Services Authority (OJK). (2017). Financial Services Authority Regulation Number 51/POJK.03/2017 concerning the Implementation of Sustainable Finance for Financial Services Institutions, Issuers, and Public Companies. Jakarta: OJK.

Financial Services Authority (OJK). (2021). OJK Circular Letter Number 16/SEOJK.04/2021 concerning the Form and Content of Annual Reports of Issuers and Public Companies. Jakarta: OJK.

Global Internal Audit Standards (GIAS). (2024)

Global Reporting Initiative (GRI); Provides global sustainability reporting standards for ESG. URL: www.globalreporting.org

Global Reporting Initiative. (2013). Sustainability Reporting Guidelines: Reporting Principles and Standard Disclosures. Amsterdam: Global Reporting Initiative.

https://www.coso.org/Documents/COSO-WBCSD-ESGERM-Guidance-Full.pdf

Inalum. (2024). Inalum Annual Report

Inalum. (2024). Inalum Sustainaibility Report

Internaltional Aluminium Institute (IAI). (2024)

International Energy Agency (IAE). (2023)

International Sustainability Standards Board (ISSB); Developing global standards for climate and sustainability reporting. URL: www.ifrs.org Negative Effect of Policy Uncertainty on the Firm Valuation?" Sustainability

MIND ID. (2024). Implementing Policy on Sustainable Business Guidelines Number KP-010/DIR/2024. Jakarta.

PT Indonesia Asahan Aluminium (INALUM). (2024). Decree of the President Director Number: SK-001/DIRUT/2024 regarding the Environmental, Social, and Governance (ESG) Implementation Committee and the Social and Environmental Responsibility Committee of PT Indonesia Asahan Aluminium.

PT Indonesia Asahan Aluminium (INALUM). (2025). Decree of the Director of Strategic Support & Human Capital Number: SK-002/DIRHC/2025 regarding the Team for the Preparation of the 2024 Annual Report, Sustainability Report, and Social and Environmental Responsibility Report of PT Indonesia Asahan Aluminium.

R.Edward Freeman (1994). Strategic Management: a Stakeholder Approach

Rankin, M., Ferlauto, K., McGowan, S., & Stanton, P. (2018). Contemporary issues in accounting (2nd ed.). John Wiley & Sons.

Sustainability Accounting Standards Board (SASB); offers industry-specific ESG metrics for investors. URL: www.sasb.org

Task Force on Climate-related Financial Disclosures (TCFD); provides guidance on climate risk disclosure. URL: www.fsb-tcfd.org

The Institute of Internal Auditor. (2024)

Wood Mackenzie Intelligence Connected. (2026)

Wood Mackenzie. (2026)

WWW.amegroup.com

www.woodmac. (2026)