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Comparative sustainability disclosure in state-owned enterprises: insights from Oceania countries

Adeyemi Adebayo and Barry Ackers
Department of Auditing, College of Accounting Sciences, University of South Africa, Pretoria, South Africa

Abstract

Purpose – Given their ownership model and mandates, state-owned companies (SOEs) are expected to be guardians of sustainability principles encompassing environmental, social, governance and economic considerations, as sustained by the United Nations Sustainable Development Goals. This implies that they have a responsibility to act responsibly socially and operate with transparency and accountability. Within this premise, this paper aims to explore the voluntary sustainability disclosure of SOEs in New Zealand and Australia from 2020 to 2022.

Design/methodology/approach – The study uses a content analysis approach to examine the voluntary sustainability disclosure of the selected SOEs in the respective nations. The analysis focused on the annual/integrated sustainability reports, as well as the Global Reporting Initiative (GRI) reports of the SOEs. A disclosure index developed from the 2021 revised GRI Standards indicators was used to assess the level of compliance of the sampled SOEs with the sustainability disclosure requirements outlined in the GRI Standards. The authors used Atlas.ti (Version 24), a qualitative data analysis software, for organizing data points (annual/integrated/GRI/sustainability reports) for data analysis.

Findings – The findings suggest that the sustainability disclosure of the selected SOEs in both nations is generally inadequate, given the uneven pattern observed across the three-year period. Overall, the results of the study appear to suggest that Australian SOEs exhibit superior sustainability disclosure compared to their New Zealand counterparts, except in environmental sustainability. Among the four sustainability practices considered using the GRI index in New Zealand, environmental sustainability had the greatest disclosure, followed by governance sustainability and then social sustainability, before economic sustainability. Australia's disclosure on governance sustainability ranked best, followed by environmental and social sustainability, with economic sustainability trailing behind. Generally, the results further indicate that the SOEs also inadequately disclose the generic indicators that may be considered key to all organizations and their operations. The authors gave insights into the likely events of the results before further discussing the results in terms of what the focus of SOEs regarding sustainability disclosure should entail, before analyzing the research, policy and practical consequences of this work and then offering suggestions for further study.

Practical implications – Considering the characteristics and mandates of SOEs, part of being socially responsible is using public resources in the form of taxpayers' money in an efficient, effective and accountable manner. The discussion in this paper indicates that paying attention to sustainability issues is part of a broader accountability mechanism expected from SOEs. In this context, the study following its findings noted that for sustainability disclosure to improve in SOEs, owning departments should endeavor to be transparent in constituting the executives of SOEs as well as the board members, as this has direct implications on the activities of the executives, including attention to sustainability practices.

Competing interest: The authors declare that there is no competing interest regarding this manuscript.

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Social implications – Most SOEs' mission statements urge them to be socially responsible and improve their owning states' economies. This rationale alone suggests SOEs should consider sustainability practices, whether they are mandatory or not. Accounting for and disclosing sustainability issues ensures that SOEs pay adequate attention to these issues, thereby improving the impact of SOEs on sustainability disclosure.

Originality/value – To the best of the authors' knowledge, this paper appears to be the first SOE comparative analysis on this topic in Oceania, and it contributes to the developing literature on sustainability disclosure in SOEs, considering that the notable earlier contribution on this topic is in the private sector with only one similar study on sustainability reporting/disclosure in SOEs, acknowledging that there are studies that focused on environmental, social and governance and corporate social responsibility. In this regard, the authors contribute to the developing literature on social, environmental, governance and economic sustainability practices, especially regarding sustainability accounting and disclosure in SOEs, by extending the previous study on sustainability in the context of SOEs, which is about five years.

Keywords ESG, Economic sustainability, Environmental sustainability, GRI, Governance sustainability, Social sustainability, State-owned enterprises

Paper type Research paper

1. Introduction

While Martinez-Alier (2016) contends that economic growth and environmental sustainability are incompatible, state-owned enterprises (SOEs) are used by governments as agents of development to achieve socioeconomic growth. Consequently, there is a growing demand for these enterprises to be environmentally responsible and sustainable. This is key, especially given that they are owned by the state (Manes-Rossi *et al.*, 2020), ostensibly for the benefit of its citizens. In the context of this study, "SOEs" refer to enterprises established with the aim of achieving the state's socioeconomic objectives. This study, based on the work of Florio (2014), argues that SOEs that fail to actively seek to address social aims should not be included in the definition of SOEs.

The growing recognition and apprehension surrounding sustainability issues have attracted substantial attention in both developed and developing countries (Barbu *et al.*, 2022; Ryou *et al.*, 2022). Sustainability concerns include climate change, waste production, employee welfare and socioeconomic disparity. Consequently, organizations are changing their reporting processes to address the growing demand for increased accountability relating to sustainability concerns from regulators, investors, customers and other stakeholders (Kilic and Kuzey, 2018a). Many organizations have responded by presenting their sustainability reports voluntarily or per a regulatory mandate. However, there is a disconnect between the demand for sustainability data and its actual availability since many organizations choose not to disclose this information (Ryou *et al.*, 2022). Additional concerns arise from the opportunistic disclosure behavior of businesses, as well as the quality and comparability of sustainability reports, as emphasized by Barbu *et al.* (2022) and Tsang *et al.* (2022). Consequently, many nations are considering implementing regulatory requirements imposing sustainability reporting, including New Zealand and Australia (LinkedIn, 2024; XRB, 2024).

Despite the increasing attention to sustainability concerns, some organizations, especially private sector enterprises (PSEs), continue to disregard sustainability disclosure in different regions of the world. Although the voluntary nature of sustainability disclosures and the profit orientation of PSEs may result in them disregarding this issue, this should not be the case with SOEs. Unlike PSEs, SOEs have a combination of social and commercial objectives, frequently relying on taxpayer resources for their operations. Thus, they should be held to a higher standard of responsibility. However, although SOEs do not adequately report on sustainability issues, compared to PSEs, SOEs in many regions of the world often fail to sufficiently consider sustainability concerns, such that the level of reporting in PSEs is

even better than in SOEs. *In this study, we are motivated to document the extent to which SOEs in New Zealand and Australia voluntarily disclosed their sustainability practices in their annual/integrated sustainability reports for 2020–2022*. The OECD (2005) has suggested that both countries use similar organizing and ownership models for SOEs, with high transparency/accountability standards. Hence, this research is driven by the significance of voluntary sustainability disclosure in the public domain, specifically in relation to aspects of accountability (Luke, 2010), with a specific emphasis on SOEs (Argento *et al.*, 2019). The organization of SOEs in both countries is similar, as discussed in Section 1.1. Thus, differences in organizing will not have an impact on the result. In addition, we do not expect the potential national structural differences in governance frameworks and regulatory environments to impact our results, considering that our focus is on voluntary and not mandatory sustainability disclosure.

This topic is currently topical in both countries due to several factors. Their comparability is sustained because they own analogous SOEs that are governed in a comparable manner (OECD, 2005). In this regard, although SOEs in both countries are organized under the centralized model, the difference is that while New Zealand SOEs are organized under the Ministry of Finance and the Ministry of State-Owned Enterprises, the Australian SOEs are organized under the Ministry of Finance and the respective SOEs' line ministries. Within this framework, SOEs in both nations possess dual objectives of a social and commercial nature. Consequently, it is imperative that they provide accurate and equitable disclosure about sustainability matters, as sustainability encompasses not only economic and governance aspects but also environmental and social dimensions. Neither country requires SOEs to compile integrated reports (IR), which effectively aim to disclose and report sustainability factors in relation to the six capitals. However, several New Zealand SOEs, including the New Zealand Post, have chosen to voluntarily publish IR. It is noteworthy that individuals from the private sector manage SOEs in both countries, which demonstrates that the findings of this study have implications for both public and private policy and practice, as well as research. Additionally, both nations hold significant positions in the scholarly discourse surrounding sustainability matters. Conducting a comparative analysis of sustainability disclosure on SOEs in New Zealand and Australia is crucial since it provides a wealth of market-leading sustainability information to a global audience, which sustains the reasons why we have included all the Global Reporting Initiative (GRI) indicators, albeit highlighting the indicators relevant to the SOEs. Although sustainability studies have been conducted in both nations, the focus of these studies has primarily been on PSEs rather than SOEs. In addition, our decision to choose these two nations for a comparative analysis study is based on the paucity of SOE sustainability studies in these countries, which are renowned for their exceptional innovation levels in the nonfinancial reporting field. Although there are certain differences between the two countries, such as their respective statuses as developed nations, it is worth noting that New Zealand is smaller in terms of both land area and GDP when compared to Australia. However, these disparities are unlikely to impact the comparison of SOEs.

This article contributes to the emerging body of knowledge on sustainability disclosure by SOEs in several ways. It enhances our understanding of the factors and outcomes relating to both voluntary and mandatory sustainability reporting and disclosure in both countries. It considers the potential for reporting legislation, regulations and practices to enhance sustainability reporting and disclosure. It extends the existing body of knowledge on social and environmental accounting, SOEs and sustainability disclosure by providing insights into how the sampled organizations' sustainability practices are unfolding over the years, resulting in sustainability disclosure. It sheds light on the internal sustainability disclosure

practices required to meet stakeholders' information requirements. Moreover, it contributes to the existing body of knowledge on the accountability and governance of SOEs by examining how they disclose their sustainability practices using the GRI Standards Index. Sustainability issues are particularly problematic in SOEs, often resulting in the need for state bailouts and a failure to contribute to sustainable development. This research contributes to the existing information on SOEs and sustainability by examining the extent to which SOEs account for, disclose, and report their sustainability practices. In addition, conducting a study on sustainability issues in SOEs significantly addresses the paucity of research on sustainability disclosure in the public sector since most studies on sustainability disclosure tend to focus on PSEs. In this context, we found that the main study on sustainability disclosure by SOEs in a single country was that of Argento *et al*. (2019), which has provided a basis for sustainability disclosure in SOEs. Although this study is about five years old, it remains very relevant. Thus, our study extends the literature on sustainability disclosure in SOEs by conducting a comparative study in two countries. Additionally, although most research has tended to concentrate on industrialized nations, despite both Australia and New Zealand being categorized as developed economies, collectively, Oceania has a burgeoning economic environment that is seldom scrutinized. This study addresses this research paucity by investigating sustainability disclosure by SOEs in this region. Thus, in addition to extending the literature with a study on Oceania, we also extend Argento et al.'s (2019) study by going beyond that study to present a comparative study, focusing mainly on disclosures and not variables, extending the index used with the recent GRI (the 2021 revised GRI Standards) indicators and extending both institutional, stakeholder and legitimacy theories.

The findings suggest that sustainability disclosure by the selected SOEs in both nations is generally inadequate, given the inconsistencies observed during the three-year period analyzed. The results of our study appear to suggest that when compared to New Zealand, sustainability disclosure by Australian SOEs is superior, except in environmental sustainability, where the overall percentage of sustainability disclosures in New Zealand is higher than in Australia. When evaluating the four sustainability practices included in the GRI index, environmental sustainability was the highest disclosure in New Zealand, followed by governance sustainability and then social sustainability, before economic sustainability. By comparison, governance sustainability disclosure was highest in Australia, followed by environmental sustainability and social sustainability, with the lowest being economic sustainability. Generally, our results further indicate that the SOEs also inadequately disclose the generic indicators that may be considered key to all organizations and to their own operations. We highlight the research, policy and practical consequences of this study and then offer directions for further research.

The subsequent sections of this article are organized as follows: the literature pertaining to sustainability and SOEs is examined in Section 2. The theoretical perspective influencing the viewpoint expressed in this paper is explained in Section 3. The study's methodology is outlined in Section 4. Section 5 expounds the findings and analysis, while Section 6 delves into the study's significance for research, policy and practice. Section 7 concludes and provides avenues for further research.

1.1 Institutional context – New Zealand and Australia

New Zealand is a small Oceania country with an international reputation for its open and transparent economy where firms and investors may easily conduct business. According to World Bank (2023a) data, its GDP was US$247.2bn in November 2023. After the COVID-19 pandemic, New Zealand's economy recovered with economic activity and cross-border movements soaring when mobility limitations were removed in April 2022, followed by

positive economic indicators. The GDP increased by 3.4%, while unemployment dropped to a multidecade low. However, inflation reached 7.3% in the year to December 2022, significantly beyond the Reserve Bank's goal range of 1.0%–3.0%, necessitating a gradual tightening of interest rates to induce a manufactured recession (United States of America, 2023a). To promote responsible business conduct (RBC), New Zealand adheres to the OECD Guidelines for Multinational Enterprises and responsible supply chains of minerals from conflict-affected and high-risk areas. Businesses with only domestic operations but a global supply chain can follow the advice of the OECD. RBC, business and human rights issues, particularly environmental, social and governance (ESG) issues, are well-documented (United States of America, 2023a). The Companies Act and the Fair-Trade Act clearly define company-director/shareholder-market ties and guide SOEs in competing in the domestic market. The Commerce Act's competition law was reinforced in the late 1990s to penalize dominant position abuse. Anticompetitive activity is likewise regulated by the Commerce Commission. SOEs are classified into seven categories (New Zealand Treasury, 2022). The following categories are significant for the purposes of this study, as shown in Table 1 below: SOEs; council-controlled trading organizations; mixed ownership model corporations; and Public Finance Act 1989 Schedule 4A companies. These categories fall under our SOE definitions in Section 1. The SOEs are under the oversight of the Minister for State-Owned Enterprises and the Minister of Finance, who are the shareholding ministers.

Australia is typically receptive to foreign investment, which is largely seen as a crucial factor in Australia's economic expansion and efficiency (United States of America, 2023b). According to the World Bank's data, its current GDP as of November 2023 is US$1.693tn. Companies in Australia are now required to engage in sustainability reporting, based on certain criteria. Thus, corporations must disclose all information that shareholders may consider significant in evaluating the company's performance and value, which may encompass ESG factors. Companies report ESG aspects of their operations more frequently to meet shareholder demands and gain a competitive edge (United States of America, 2023b). In addition, financial institutions must reveal their vulnerability to climate-related risks as part of their regular risk disclosures (United States of America, 2023b).

In Australia, the phrase "government business enterprise" (GBE) refers to SOEs. The Department of Finance has identified nine GBEs (Table 2). Private firms are typically

Table 1. SOEs in New Zealand

S/N	State-owned enterprises
1	Airways Corporation of New Zealand Limited
2	Animal Control Products Limited (Orillion)
3	AsureQuality Limited
4	Electricity Corporation of New Zealand Limited (*ECNZ is now a residual entity with the sole remaining task of winding up land title issues*)
5	KiwiRail Holdings Limited
6	Kordia Group Limited
7	Landcorp Farming Limited
8	Meteorological Service of New Zealand Limited
9	New Zealand Post Limited
10	New Zealand Railways Corporation (*Reports not available*)
11	Quotable Value Limited
12	Transpower New Zealand Limited

Source(s): Authors' own compilation

Table 2. SOEs in Australia

S/N	State-owned enterprises
1	Australia Post
2	Defence Housing Australia
3	ASC Pty Limited
4	Australian Naval Infrastructure Pty Ltd
5	Australian Rail Track Corporation Limited
6	National Intermodal Corporation Limited
7	NBN Co Limited
8	Snowy Hydro Limited
9	WSA Co Ltd

Source(s): Authors' own compilation

permitted to compete with public enterprises on equal terms and circumstances regarding markets, loans and other economic activities, including licenses and supply. Australia does not typically provide tangible benefits to its GBEs. GBEs still exist and do not exert their authority in a way that shows prejudice or imposes unjust disadvantages on foreign investors or foreign-owned firms. Australia's GBEs primarily focus on the domestic market and do not possess any substantial foreign investments. The foundation of the framework for overseeing Australia's GBEs is the Public Governance, Performance and Accountability Act 2013 (PGPA Act). The GBEs are under the oversight of the Shareholder Ministers for respective SOEs and the Minister of Finance, who are the shareholding ministers. The Minister of Finance is the sole shareholder for GBEs within the Finance Portfolio. For ease of reference, the GBEs are also referred to as SOEs going forward (Grossi *et al.*, 2015).

The SOEs in both countries operate in similar sectors, as illustrated in Tables 1 and 2. These sectors are post, rail, agriculture, infrastructure and power. Both countries have similar ESG ratings on selected companies (Sustainalytics, 2024). The OECD has noted that the SOEs in both New Zealand and Australia use similar organizing models (OECD, 2005). Thus, they are comparable along these lines.

Regarding regulatory requirements versus voluntary reporting of sustainability issues, SOEs in both Australia and New Zealand are not mandated to prepare sustainability reports. The accountability part of the 2023 version of the New Zealand State-Owned Enterprises Act 1986 does not contain information regarding SOEs reporting on their sustainability. The External Reporting Board is currently developing a voluntary, nonfinancial reporting framework for Aotearoa, New Zealand (XRB, 2024). As in New Zealand, the Australian PGPA Act does not provide information regarding sustainability disclosure requirements for SOEs. The Australian government will require climate-related financial reports from its major firms from 2025 (LinkedIn, 2024). Thus, this study focuses on voluntary sustainability disclosure of SOEs in Australia and New Zealand.

2. Literature review

Considering the multidisciplinary aspect of this research, this section explores topical sustainability in the public sector before narrowing it down to sustainability in SOEs and SOE literature. Because of their proximity to social issues in comparison to PSEs, public sector organizations, including SOEs, should be stewards of sustainability-related practices (Manes-Rossi *et al.*, 2020). SOEs are increasingly being used as commercial vehicles to conduct certain public sector mandates in many parts of the world and provide public goods

and services (Huat, 2016). As a result, stakeholder pressure on organizations, particularly for-profit organizations, to be socially responsible extends to SOEs and other public sector organizations (Adams, 2023; IFAC, 2023; Mauro *et al.*, 2020), necessitating these public sector organizations, including SOEs, to increasingly pay attention to sustainability factors.

2.1 Sustainability practices

Sustainability discussions are often substituted for or incorporated into ESG (Qian and Yang, 2023; Tilba, 2022). Sustainable practices aim to meet present requirements while safeguarding future needs as well (Manes-Rossi *et al.*, 2021). ESG is founded on the principle of sustainability (Ng *et al.*, 2023; Vitolla *et al.*, 2018). Numerous investigations have been undertaken to examine ESG/sustainability from diverse perspectives. The elements in question consist of reporting, disclosure and adopted standards (Kaur and Lodhia, 2018; Qian and Yang, 2023; Kumar, 2022; Tilba, 2022; Dumay *et al.*, 2010), practices (Kao *et al.*, 2023; Arayssi *et al.*, 2020; Kaur and Lodhia, 2018) and concepts related to ESG and sustainability (Qian and Yang, 2023; Kumar, 2022; Tilba, 2022; Dumay *et al.*, 2010). In the context of our classification of sustainability research into three distinct domains, investigations pertaining to sustainability concepts encompass concepts and strategies for documenting critical standards for ESG reporting and overall sustainability practices. Organizational practices that may influence and contribute to ESG/sustainability disclosure and adoption in organizations are the focus of ESG/sustainability practices research. ESG/sustainability reporting/disclosure/adopted standards research examines frameworks/standards used/proposed for reporting.

The findings of these studies that are relevant to our research indicate that ESG/sustainability disclosure and the GRI play a role in encouraging organizations to prioritize sustainability reporting and disclosure accordingly. These initiatives facilitate the disclosure of an organization's sustainability responsibility and aid stakeholders in comprehending it (Mauro *et al.*, 2020). Sustainability reports, whether presented independently or integrated into annual reports, provide a comprehensive account of the environmental and social initiatives, objectives and standing of an organization (Kılıç and Kuzey, 2018b). Sustainability reports center on the examination of external accountability systems and the organizational implications of social and environmental issue management. Subsequently, contemporary organizational reporting has evolved to encompass nonfinancial data, catering to stakeholders' interest in investing in businesses and monitoring their corporate social responsibility (CSR) (Malola and Maroun, 2019). To project an image of sustainability, organizations incorporate sustainability principles and performance into their primary business strategy instead of focusing solely on economic concerns (Roman *et al.*, 2019).

2.2 Sustainability practices in state-owned enterprises

States establish SOEs for the purpose of achieving socioeconomic policy objectives, such as developmental agendas, which are contrary to the provisions of the Public Service Act (Florio, 2014). Numerous states rely on SOEs to provide public goods and services; however, due to operating in unfavorable regulatory and competitive environments, these entities frequently fail to fulfill their mandated obligations, often requiring bailouts (Ackers and Adebayo, 2021). SOEs continue to be crucial instruments of policy (Florio, 2014), notwithstanding the surge in privatization primarily attributable to concerns regarding corporate governance. Properly governed SOEs may also contribute to achieving the sustainable development objectives of their owning states, especially in developing countries urgently in need of sustainable development (Penfold *et al.*, 2015) and with a well-developed SOE sector. Thus, SOEs play a crucial role in the global economy. SOEs ought to be the stewards of sustainability by virtue of their mandates and substantial public funding. SOEs

should, therefore, contemplate the ways in which their activities can contribute to the advancement of sustainable development while also addressing the growing demands of various stakeholders, including shareholders, citizens and other interested parties.

One could argue that sustainability disclosure is primarily the domain of the private sector. However, this perspective is challenged by the growing research interest and international efforts to ensure that enterprises in the public sector arena are socially and environmentally responsible (Kumar, 2022). As a result, the necessity for public sector organizations to participate in sustainability disclosure has also become apparent (Adams, 2023; IFAC, 2023; CIPFA, 2021; Manes-Rossi *et al.*, 2020). With this objective in mind, we examine sustainability disclosure as it pertains to SOEs, which are entities within the public sector. The reporting and business activities of private, public, for-profit and not-for-profit organizations across the globe have been impacted by stakeholder expectations. Bikkina and Devi (2012) and Rodríguez Bolívar *et al.* (2015) assert that business executives have come to acknowledge the imperative of financial and social responsibility in response to societal expectations. Social responsibility should be a top priority for SOEs (Jones and Sakong, 1976). In pursuit of their objectives, SOEs must demonstrate social responsibility and provide socioeconomic assistance to their home countries. Internationally and domestically, legitimacy is vital for businesses (Nicolo *et al.*, 2021). Presently, sustainability practices aid in legitimizing business and social conduct. Common sustainability-related terms appear in SOEs' mission and vision statements. According to Mansi *et al.* (2017), most objectives and vision statements of SOEs in India include sustainability-related terms. Mansi *et al.* (2017) concurred with Rodríguez Bolívar *et al.* (2015) that despite the existence of 30 distinct types of sustainability activities, the environment remains the most critical. This demonstrates that ESG/sustainability practices should be a top priority for SOEs. Bikkina and Devi (2012) discovered that SOE sustainability initiatives elicited a broad spectrum of interest and suggested that they be contextualized; this confirmed that the term "sustainability" varies across contexts. In Chinese SOEs, community and supply chain management are emphasized in Zhu *et al.*'s (2016) research on performance enhancement and sustainability practices. Rodríguez Bolívar *et al.* (2015) discovered that community-related sustainability and customer relationship management sustainability were sufficiently addressed in their sample of SOEs. As demonstrated by these studies, the organizational environment is vital to an organization's continued existence and operation; the GRI Standards stipulate that this information should be included in the report.

Several scholars have tried to establish a correlation between integrated IR and sustainability (Nicolò *et al.*, 2023; Stefanescu, 2022). IR has been proposed as a potential solution to challenges associated with financial reporting (Dumay *et al.*, 2010). The fundamental concept being conveyed is that IR generally addresses sustainability issues more than conventional annual reports (Ackers and Adebayo, 2021). South Africa is the first nation to make IR a quasi-mandatory requirement for certain categories of businesses (Ackers and Adebayo, 2021; de Villiers *et al.*, 2014). Some SOEs in New Zealand, including the New Zealand Post, have also adopted IR.

2.2.1 Sustainability accounting and disclosure in state-owned enterprises. Limited research has been undertaken regarding sustainability disclosure in SOEs, whereas numerous studies have been devoted to sustainability disclosure in the public sector (see Stefanescu, 2021; Kaur and Lodhia, 2018; Domingues *et al.*, 2017; Marx and van Dyk, 2011; Dumay *et al.*, 2010, for an overview). Most of the research conducted in this area has used disclosure indexes (Manes-Rossi *et al.*, 2020; Argento *et al.*, 2019) in conjunction with a framework of some kind, with particular emphasis on the GRI Standards. The GRI Standards are widely

regarded as the most acknowledged framework for sustainability disclosure (Argento *et al.*, 2019; Ballou *et al.*, 2018); therefore, they were implemented in this research.

In comparison to PSEs, research on sustainability, ESG accounting and disclosure pertaining to SOEs is generally scarce. Lucas (2022) argues that while most of the research and efforts have been directed toward sustainability in PSEs, the implementation of benchmarks and best practices for sustainability could be beneficial for smart cities and SOEs. According to our knowledge, sustainability issues in SOEs have been the subject of few studies (primarily in China) (Qian and Yang, 2023). Regarding SOEs, much effort has been devoted to CSR, whereas sustainability has received comparatively less attention. Single-country studies that examined the factors influencing SOE sustainability reports were those conducted by Argento *et al.* (2019) and ESG-SOEs in China (discussed below). According to the findings of Argento *et al.* (2019), the only significant determinants of SOE sustainability disclosure are state ownership and business size (institutional factors). Furthermore, the study revealed that partially state-owned SOEs disclose more sustainability information than fully state-owned ones. Small SOEs provide less information regarding sustainability. The main summary of the study is that, overall, there is inadequate sustainability reporting by the SOEs. In a similar study to Argento *et al.* (2019) and Garde Sánchez *et al.* (2017a) analyze the CSR information disclosed by SOEs and the influence exerted by the characteristics of the SOEs themselves (size, industry sector, degree of government ownership and number of years in operation) and by those of their managers (age, gender, CSR education profile and CSR responsibilities in the workplace). Results indicate that the size and sector of the SOE, together with the manager's CSR responsibilities, are the factors that most significantly affect the online disclosure of CSR information.

The lack of research pertaining to sustainability in SOEs is unsurprising, given the observation that both ESG and CSR contribute to the foundations of sustainability. This implies that organizations and role players may demonstrate their commitment to sustainable business practices via CSR and ESG. CSR is an idealistic, broad-brush perspective on sustainability, whereas ESG is a pragmatic, detail-oriented approach. Additionally, ESG may be considered the precursor to CSR (Christensen *et al.*, 2021). Thus, it is evident that research on sustainability practices in SOEs is just beginning to gain traction, with a majority being done on CSR and ESG.

With regard to studies focusing on CSR, following the extant literature interpreting the Chinese SOEs pioneering CSR reporting since the mid-2000s as no more than a consequence of government interventions, Li and Belal (2018) examine why stand-alone CSR reporting has been initiated in Chinese SOEs. They found evidence illustrating the subtle interrelationships between the global, national and internal organizational dynamics mediating the CSR reporting initiative of Chinese SOEs within the authoritarian state and provided a nuanced multilevel institutional analysis of the drivers underlying the initiation of CSR reporting within the case examined. Garde Sánchez *et al.* (2017b) examine the impact of stakeholders' pressure on the managers of SOEs in terms of the necessity of implementing socially responsible policies in the supply chain and disclosing CSR information. They also examine the advantages that public managers perceive from the increased disclosure of CSR information and the implementation of CSR in the supply chain. They found that stakeholder pressure has a direct influence on the CSR policies applied by public managers regarding suppliers and information disclosure and that public managers believe that applying socially responsible policies in their dealings with suppliers will benefit their business. Voinea *et al.* (2022) explore the effects of a firm's financial performance and chief executive officer's duality on the quality of CSR disclosure in the context of state-owned enterprises among Chinese A-share-registered companies. The findings depict a negative relationship between CEO duality and CSR

disclosure, demonstrating that better-performing firms disclose CSR information more frequently and of higher quality compared with firms with poor financial performance. The findings appear to suggest that the dual leadership structure in SOEs reduces assessments and renders CEOs less liable to their stakeholders. Xu *et al.* (2020) investigate the roles of the market and government in an emerging economy by examining 2,906 CSR reports from Chinese listed firms. They found that CSR disclosure adds incremental value to firms, especially for PSEs and that it saves SOEs from negative news reports and litigation risks.

Regarding studies that focused on ESG, ESG has been the subject of a few investigations in China. Khalid *et al.* (2021) investigated the impact of internationalization on the ESG performance of Chinese SOEs and non-SOEs. They reported that Chinese multinational corporations have superior governance and environmental scores. It implies that the ecological concerns of stakeholders are addressed by international market forces. Sun *et al.* (2022) examined how ESG and firm contextual factors could facilitate the growth of SOEs. They discovered that high-quality SOE development is achievable through the three equifinal patterns – the predominance of resources and capabilities; sustainability orientation; and responsibility and growth equilibrium. The cumulative prospective theory and the TOPSIS model were used by Su and Sun (2023) to assess the ESG performance of five state-owned mining enterprises in China. Effectiveness-wise, the study demonstrates that the novel model surpasses both the traditional TOPSIS model and the prospect theory TOPSIS. Qian and Yang (2023) investigated the impact of state-owned equity on the ESG performance of businesses. In addition, they disclosed that robustness tests corroborated their empirical findings that the participation of state-owned equity could substantially enhance the ESG performance of businesses. Zahid *et al.* (2023) examined the relationship between ESG performance and capital finance decisions for businesses. They reach the conclusion that the ESG information of companies is crucial in influencing their financing decisions. Companies with strong ESG performance require less debt financing.

3. Theoretical framework

Similar studies have used a variety of theories, including legitimacy and stakeholder theories. We believe that institutional, stakeholder and legitimacy theories are more applicable in this current study because:

- the study encompasses all sustainability factors (environmental, social, governance and economic);
- SOEs have both social and commercial mandates, implying that institutional logics, as described by Argento *et al.* (2019), is also applicable for making sense of SOEs;
- the majority of SOE problems are typically institutional in nature (Dragomir *et al.*, 2021; Argento *et al.*, 2019); and
- with regard to the stakeholder theory and the legitimacy theory, Adams (2023) and Mauro *et al.* (2020) noted that stakeholder pressure positively influences sustainability practices, including reporting; and organizations need legitimacy to remain in business, especially SOEs involved in international operations.

3.1 Institutional theory

Dragomir *et al.* (2021) noted that nonfinancial reporting quality is influenced by the state's strategic interest, corporate governance score, company size, environmental impact and monopolistic position, all of which are in accordance with the first point for institutional theory as it pertains to SOEs and are generally considered institutional factors. Although the

three theories may apply to this research, it may be argued that the institutional theory anchors the other two theories, particularly due to the contradictory hybrid institutional logics of SOEs, as Argento *et al.* (2019) suggest. Meyer and Rowan (1977) posit that the origins of the institutional theory can be identified in influential publications within organizations, where transformations were instigated by symbolic external influence and action (Scott, 2014). Institutions exert influence and control over the reporting and adoption of socioenvironmental factors (Erin *et al.*, 2022). Thus, one could contend that the extent of the focus of SOEs on sustainability-related nonfinancial reporting, specifically in annual/integrated sustainability and GRI reports, is impacted by several institutional factors identified by Dragomir *et al.* (2021). Thus, we expect some of these institutional factors to impact the sustainability disclosure of SOEs. While numerous definitions exist for institutions, the one presented by Scott (2014) adequately addresses the objectives of this research. Institutions comprise cultural-cognitive, normative and regulatory components that, in conjunction with resources and activities, impart stability and significance to social existence (Scott, 2014). This definition is practical because it emphasizes the significance of regulating social and organizational activities and resources. This is more consistent with SOEs, as demonstrated by Argento *et al.* (2019), who reported on the sustainability of SOEs using institutional logics. Therefore, one could contend that institutional theory is among the theories that more accurately represent the reporting and attention given to nonfinancial reporting incidents in SOEs.

3.2 Stakeholder theory

According to Freeman (1984), stakeholders are people or organizations that can influence or are affected by the accomplishment of an organization's goals. Here, organizational legitimacy and accountability are more important than organizational efficiency or effectiveness (Suchman, 1995). It is especially crucial for SOEs to pay attention to stakeholder concerns, especially about environmental and sustainability issues, by disclosing their sustainability practices. Disclosing this information improves organizational acceptance by stakeholders (Mansi *et al.*, 2017). Therefore, according to the stakeholder theory, a successful organization is one that adds value to all its stakeholders. These stakeholders are an important part of the organization's external environment and can have a beneficial or negative impact on the company. They can be formal or informal groups of people or organizations (Erin and Bamigboye, 2022). The stakeholder theory discussion seems to have started with Clark (1916) and Dodd (1932). These authors point out that managers' priorities should include serving the community, particularly in the nonprofit sector as well as the interests of the many important organizational stakeholders, in addition to maximizing shareholder value (Ashe, 2012). Freeman (1984) agrees that managers should consider the interests of all parties who are indirectly impacted by their actions in this regard. All stakeholders have the right to organizational information and informal participation, according to the management philosophy known as the stakeholder theory (Papenfuß, 2014).

According to the theory, one cannot see stakeholders in isolation since their interests must be aligned (Freeman, 1984). The stakeholder theory, therefore, argues that managers should work to maximize the interests of all parties involved in the company, including the public, employees and clients (Eldar, 2017). According to Kamal (2010), these stakeholders can be divided into two categories: those who represent the public, the media, the local community, the court, the government and other interests; and those who represent minority shareholders, lenders, customers and supplier groups (Tan-Mullins and Mohan, 2013). Along these lines, the stakeholder approach reiterates how crucial the organizational environment is to the survival of organizations. The organizational environment is both technical and cultural

(Scott, 2009), as well as political and economic (Pfeffer, 1972). Thus, the stakeholder approach combines components of various technological, political, economic and cultural settings. In the contemporary academic discourse on sustainability, it has been established that stakeholder demands are among the various factors driving sustainability disclosure, making the stakeholder theory a relevant theory in this research field.

Because SOEs have greater accountability than PSEs, the stakeholder theory has implications for this study. Alcaraz-Quiles *et al.* (2014) argued that the quest for sustainability reporting in PSEs also applies to SOEs. In particular, Greiling and Grüb (2014) have argued that SOEs are confronted with a broader range of stakeholders than PSEs. Thus, they must frequently manage many stakeholders with a legitimate interest in disclosing financial, environmental and social information. The pressure to disclose additional information with respect to visibility and accountability issues is significantly greater than that of PSEs due to a large number of stakeholders (the citizens and society, in general, are the primary stakeholders for public enterprises). On a general note, while it may be concluded that PSEs may decide not to be accountable to the public and not recognize them as part of their stakeholders, it may be argued that this does not apply to SOEs, which must be accountable to the general public, especially citizens and have a range of stakeholders, including private sector role players. In this regard, Greiling and Grüb (2014) noted that citizens primarily constitute the multidimensional stakeholders in SOEs: customers, employees and even owners of SOEs. *The report does not mention other secondary stakeholders, including local suppliers, investors and politicians.* Our results have implications for this range of stakeholders. For example, in the context of SOEs, owning states are the shareholders of SOEs. Thus, they are very interested in the governance and economic sustainability of SOEs, arguably over and above environmental and social sustainability. In the same way, citizens as customers are very interested in the social sustainability of SOEs in terms of enjoying the social dividends of quality public goods and services. When these citizens are owners, they are very much interested in all four sustainability pillars, including environmental sustainability. Thus, our study has implications for the full range of stakeholders as we covered all four sustainability pillars.

Further, the end product of the activities of SOEs, in most cases, is the delivery of public goods and services. All enjoy these public goods and services, irrespective of status, especially considering that taxpayers fund SOEs. Thus, SOEs must not only report to stakeholders how such funds have been expended but also (in contemporary times) how such funds have been expended sustainably, considering future generations. In countries where SOEs face serious corporate governance problems, there is extended stakeholder scrutiny beyond social and environmental issues, governance and economic sustainability.

3.3 Legitimacy theory

One of the most often applied theories in sustainability research is research in the legitimacy theory. According to Suchman (1995), legitimacy is defined as the presumptions and broad perceptions that characterize an entity's behavior inside a socially built system of norms, values and beliefs. According to a body of research, businesses frequently submit their social and environmental data to establish and preserve their legitimacy (Deegan, 2019; Patten and Zhao, 2014; Kilian and Hennigs, 2014). Accordingly, from the standpoint of organizational legitimacy, several organizations advocate for sustainability reporting (Erin *et al.*, 2022). However, legitimacy is dynamic (Suchman, 1995). Corporate organizations need the trust that society has placed in them (O'Dwyer *et al.*, 2011) and they work to maintain their legitimacy to stay in business. Accordingly, the sustainability reporting initiative is a component of a convoluted legitimization process that aims to demonstrate how corporate

reporting and governance systems address the demands of stakeholders. Corporate legitimacy is still viewed as a means of winning over institutional investors and stakeholders, even in the face of requirements to enforce adherence to sustainability reporting practices (Maroun *et al.*, 2014). Even if the disclosure on sustainability reports is only an exercise, organizations try to establish legitimacy and credibility by adhering to numerous requirements and making pertinent disclosures as part of sustainability reports. According to this viewpoint, the goal of corporate disclosure rules is to give stakeholders, whose expectations are varied, legitimacy for the company's operations. Businesses communicate to stakeholders that their actions are acceptable and desirable to maintain their legitimacy (Deegan, 2019; Suchman, 1995).

In the context of SOEs, legitimacy is important, especially for SOEs in international operations, as has been described in the contemporary academic discourse. In countries with developed SOE sectors and with high levels of corruption, and where political interference is rife in SOEs, the SOEs are often seen as depleting national resources with frequent bailouts. Thus, it may be concluded that the SOEs are not accepted and are usually criticized by the public. A way to improve acceptance and trust and to legitimize their existence is to accommodate social practices and the reporting thereof. Thus, we expect that the quest for acceptance drives the sustainability practices in SOEs, irrespective of the country.

4. Research methodology

4.1 Research design

In achieving the objective of this study, we use the content analysis method to evaluate the level of sustainability disclosure of the active SOEs in New Zealand and Australia, as used in a similar study by Argento *et al.* (2019). We earlier justified the selection of SOEs in these two countries and followed the index developed by Argento *et al.* (2019). In line with the GRI's system of GRI Standards, which groups the standards into universal standards (GRI 1, GRI 2 and GRI 3), sector standards and topic standards (Global Reporting Initiative, 2022) and in line with subject-matter knowledge, we used the governance and strategy part of GRI 2 – disclosures about the reporting organization – to develop our disclosure index on the governance part of sustainability. In a similar manner, we used the GRI 300 in line with the topical standard to develop the environmental index and the GRI 400, also in line with the topical standard, to develop the social disclosure index of the sustainability index. Finally, we use the GRI 200 in line with the topical standards to develop the economic index. Argento *et al.* (2019) have shown that these standards are applicable and may be used in exploring sustainability disclosure in SOEs.

While it may be argued that all the GRI sustainability indicators may not be as applicable to SOEs when compared with PSEs, Argento *et al.* (2019) argued that all are applicable to SOEs since they have both social and economic objectives. Further, Brown and Potoski (2003) highlighted that even though many economic, governance and environmental attributes may not be applicable in the core of public service provision (public sector), they are nevertheless applicable to public enterprises, whose activities differ in several ways beyond only public service provision (public sector). Thus, we focused on all four aspects of the GRI index. As exemplified by Argento *et al.* (2019), the GRI sustainability framework is tailored to sustainability disclosures to gauge the extent of organizational compliance with sustainability reporting and/or disclosure indicators. Considering that organizations often use different platforms to disclose sustainability information, we focused on the annual/integrated, one of the primary organizational accountability reports (Steccolini, 2004), the GRI and sustainability reports of the sampled SOEs as well as relevant information on sustainability, especially with regard to sustainability obtainable on the websites of the

companies. A few similar studies have used content analysis (Erin and Bamigboye, 2022; Erin *et al.*, 2022). This method of content analysis is based on the construction of a diffusion index, which allows researchers to assign a score to each indicator. Thus, we used content analysis to quantify relevant qualitative information obtained from the data points highlighted above. The content analysis method as used in this study is two-fold, based on core qualitative content analysis. For the first, we used the qualitative information extracted from the data points to construct a diffusion index, which allowed us to assign a score to each indicator under the four sustainability pillars. For the second, we focused on other important qualitative matters that are distinct from the sustainability pillar indicators, especially with regard to reporting strategies (Hahn and Lülfs, 2014). Thus, we used the qualitative data extracted from the data points to both quantify reporting on the indicators and to document reporting strategies on core events.

4.2 Reporting framework and sustainability disclosure indicators

The total expected average score for each country represents ten for New Zealand and nine for Australia for the three years (2020–2022) for each key indicator for the ten and nine SOEs, respectively. While the cumulative actual average score represents the actual disclosure by companies per the key indicators for the three years (2020–2022), as noted earlier, we used the sustainability disclosure contents developed by the GRI frameworks to build an index to gauge the sustainability disclosure quality of the SOEs. The GRI framework is the most recognized framework that guides the preparation and disclosure of sustainability issues (Subramaniam *et al.*, 2023; Bebbington and Unerman, 2018). The GRI framework includes indicators, statements or facts that outline how organizations' sustainability reports should reveal sustainability efforts. Where an SOE provides a disclosure on an indicator, a score of one (1) is assigned to the SOE, while a score of zero (0) is assigned for nondisclosure. As an illustration, in the scenario where five (5) out of a total of 10 SOEs (as is the case for SOEs in New Zealand) provide information regarding a specific indicator, the resulting score would be five (5). The cumulative over the three-year period (2020–2022) was computed in this study. Overall, we calculated the cumulative percentage of disclosure for the average over the course of three years as:

$$Cumulative\ Percentage\,(\%)\left(=\frac{Total\ Average\ Score}{Number\ of\ SOEs}\right)\times 100$$

This computation eliminates the difference in the total number of SOEs in New Zealand (10) and Australia (9). The overall score encompasses the percentage of a set of ten scores for the key indicators of ten SOEs in New Zealand, spanning the years 2020–2022 and nine scores for the key indicators of nine SOEs in Australia. The average score reflects the actual disclosure made by companies based on the key metrics over the three-year period from 2020 to 2022. We focused on three years (2020–2022) for three reasons. First, a year after a similar study by Argento *et al.* (2019) to document whether there have been any developments since then, leading to an update of parts of the index with the latest GRI (the 2021 revised GRI Standards). As is the case in Argento *et al.* (2019), we have used all the GRI indicators to ensure that different stakeholders that may be interested in different sustainability reporting indicators in the four sustainability disclosure pillars (environmental, social, governance and economic) can access the indicators as contained in Tables 3–10. Second, we selected the year 2022 as the end year to ensure that the latest reports of all the SOEs could be obtained. Moreover, a few sustainability disclosure studies have used a similar range (Erin and Bamigboye, 2022; Erin *et al.*, 2022) and some fewer years (Pizzi *et al.*, 2022; Haywood and

Boihang, 2021). Third, we believe that since there were no major regulatory and reporting changes that directly impact SOEs in New Zealand and Australia in the periods after the study, until the recent introduction of the reporting IFRS frameworks and the frameworks in New Zealand and Australia, the periods covered suffice for this study. The OECD has noted that the SOEs in both New Zealand and Australia use similar organizing and ownership models (OECD, 2005). Thus, they are comparable along these lines. Since our theories and objectives both have social and economic dimensions, it suggests that the mixed methods used in this study are appropriate.

4.3 Data capturing and analysis

We downloaded the annual/integrated GRI and sustainability reports (where the stand-alone sustainability and GRI reports of SOEs are available; we have also analyzed them in conjunction with the annual reports) of the sampled SOEs for the three years in the two countries (New Zealand and Australia). We loaded the reports of the SOEs for each year and for each country separately in Atlas.ti (Version 24), which is a qualitative data analysis software and we used organizing data points (annual/integrated/sustainability reports) for data analysis. The first step was to create codes, as seen in Appendix, based on the GRI indexes. We then used a two-stage search and code process. We started off by reading the relevant reports of the SOEs for the relevant preconceived codes before conducting a data search and code-gathering exercise in Atlas.ti (Version 24). This is being done to limit the possibilities of omitting important data and to ensure that we capture qualitative information that may be quantified and/or further used in discussing our findings. After coding the relevant parts of the data points, we counted the actual number of times each code appeared to generate the frequency information. This became necessary considering that a particular code, say governance structure, may appear more than once in the report of a company in a particular year, of which we need to code it only once for a particular SOE for a year. Thus, counting the codes rather than generating a code report assisted in taking care of this. After extracting the frequency information from the codes, we applied the computation process discussed in the previous Section 4.2. After completing the computation process described in Section 4.2, we then distribute the resulting frequencies into the appropriate sustainability pillars using the indicators seen in Tables 3–10. Thus, the analysis entails obtaining the frequencies following the coding process and distributing the frequencies to the pillars. We therefore analyzed the ensuing results in line with the relevant GRI sustainability disclosure indexes described earlier. In the presentation and discussion section, we first discussed results in each country, starting with New Zealand, based on the extracted frequencies, before including a summary to compare results in both countries.

In Australia, we purposively focused on all nine SOEs, as shown in Table 2. However, in New Zealand, while we intended to purposively focus on the 12 enterprises classified as SOEs, we could not obtain the annual reports of two of the SOEs. These SOEs are the Electricity Corporation of New Zealand Limited, now a residual entity with the sole remaining task of winding up land title issues and New Zealand Railways Corporation, whose annual reports are unavailable. Thus, we focused on the remaining 10 of the 12 SOEs in New Zealand. The SOEs represent the full population of SOEs in the countries, and there is no potential selection bias.

4.4 Data capturing and analysis control

According to Mackieson *et al.* (2019), researcher bias may potentially arise in qualitative research, including the content analysis used in this study. To mitigate selection bias, the researchers used purposive rather than convenience sampling (Smith and Noble, 2014). To

Table 3. Environmental sustainability disclosure of SOEs in New Zealand

S/N	Environmental	2020 (a)	2021 (b)	2022 (c)	Average (d) (a + b + c ÷ 3)	Total no. of SOEs (e)	Overall (%) (d ÷ e)
1	Energy consumption	2	2	3	2.3	10	23.3
2	Reduction in energy consumption (efficiency)	1	0	1	0.7	10	6.7
3	Water use efficiency	0	1	1	0.7	10	6.7
4	Biodiversity	0	0	0	0.0	10	0.0
5	Greenhouse gas emissions	4	5	6	5.0	10	50.0
6	Air emissions	0	0	0	0.0	10	0.0
7	Reduction in emissions (efficiency)	2	1	3	2.0	10	20.0
8	Hazardous waste	1	1	2	1.3	10	13.3
9	Recycled materials and spillages	1	1	1	1.0	10	10.0
10	Supplier activity on the environment	0	0	0	0.0	10	0.0
Overall							*13.0*

Source(s): Authors' own compilation

Table 4. Environmental sustainability disclosure of SOEs in Australia

S/N	Environmental	2020 (a)	2021 (b)	2022 (c)	Average (d) (a + b + c ÷ 3)	Total no. of SOEs (e)	Overall (%) (d ÷ e)
1	Energy consumption	5	4	2	3.7	9	40.7
2	Reduction in energy consumption (efficiency)	4	1	0	1.7	9	18.5
3	Water use efficiency	1	1	1	1.0	9	11.1
4	Biodiversity	0	0	0	0.0	9	0.0
5	Greenhouse gas emissions	5	0	0	1.7	9	18.5
6	Air emissions	4	0	0	1.3	9	14.8
7	Reduction in emissions (efficiency)	0	0	0	0.0	9	0.0
8	Hazardous waste	0	1	2	1.0	9	11.1
9	Recycled materials and spillages	0	1	2	1.0	9	11.1
10	Supplier activity on the environment	0	0	0	0.0	9	0.0
Overall							*12.6*

Source(s): Authors' own compilation

mitigate the data-capturing bias, the authors initially compared the reports of the SOEs in both countries, many of which are annual reports. The outcome of the exercise is that the reports are comparable in terms of content, with immaterial differences that will not affect results. Additionally, to mitigate the potential influence of analysis bias (Smith and Noble, 2014), a specific methodology aligning with the theoretical propositions was used to organize the data, thereby facilitating a methodical and rigorous analysis of the unstructured data used in this research (Mackieson *et al.*, 2019). The researchers used an applied thematic approach (Guest *et al.*, 2012) (ATA) to mitigate potential biases (Mackieson *et al.*, 2019).

Table 5. Social sustainability disclosure of SOEs in New Zealand

S/N	Social	2020 (a)	2021 (b)	2022 (c)	Average (d) (a + b + c ÷ 3)	Total number of SOEs (e)	Overall (%) (d ÷ e)
1	Employee turnover by gender	0	0	0	0.0	10	0.0
2	Trade unions and employment conditions	0	0	0	0.0	10	0.0
3	Committee on employee health, work and environment	0	0	0	0.0	10	0.0
4	Occupational accidents and diseases	0	0	0	0.0	10	0.0
5	Work-related injuries	0	0	0	0.0	10	0.0
6	Number of employee training hours	1	1	1	1.0	10	10.0
7	Employee skills upgrade programmes	0	0	0	0.0	10	0.0
8	Employee career development performance review	2	0	2	1.3	10	13.3
9	Employee salary and remuneration by gender/age	0	0	0	0.0	10	0.0
10	Discrimination-related issues	0	0	0	0.0	10	0.0
11	Collective bargaining and freedom of association	1	1	1	1.0	10	10.0
12	Child labor exclusion policies	1	1	1	1.0	10	10.0
13	Forced and compulsory labor policies	1	1	0	0.7	10	6.7
14	Community impacts by business operations	0	0	0	0.0	10	0.0
15	Community intervention projects/donations	1	1	1	1.0	10	10.0
16	Impacts of intervention projects/donations	0	0	1	0.3	10	3.3
17	Political contributions/donations	0	0	0	0.0	10	0.0
18	Human rights	0	0	1	0.3	10	3.3
19	Customer health and safety	1	1	1	1.0	10	10.0
20	Product information and labeling	0	0	0	0.0	10	0.0
21	Consumer privacy	0	0	0	0.0	10	0.0
22	Diversity of governance bodies and employees	1	1	1	1.0	10	10.0
Overall							3.9

Source(s): Authors' own compilation

Table 6. Social sustainability disclosure of SOEs in Australia

S/N	Social	2020 (a)	2021 (b)	2022 (c)	Average (d) (a + b + c ÷ 3)	Total number of SOEs (e)	Overall (%) (d ÷ e)
1	Employee turnover by gender	0	1	0	0.3	9	3.7
2	Trade unions and employment conditions	2	1	1	1.3	9	14.8
3	Committee on employee health, work and environment	4	1	1	2.0	9	22.2
4	Occupational accidents and diseases	0	0	0	0.0	9	0.0
5	Work-related injuries	7	9	8	8.0	9	88.9
6	Number of employee training hours	0	0	0	0.0	9	0.0
7	Employee skills upgrade programmes	0	0	0	0.0	9	0.0
8	Employee career development performance review	1	2	1	1.3	9	14.8
9	Employee salary and remuneration by gender/age	0	0	0	0.0	9	0.0
10	Discrimination-related issues	1	0	1	0.7	9	7.4
11	Collective bargaining and freedom of association	1	0	0	0.3	9	3.7
12	Child labor exclusion policies	0	0	0	0.0	9	0.0
13	Forced and compulsory labor policies	1	1	1	1.0	9	11.1
14	Community impacts by business operations	0	0	0	0.0	9	0.0
15	Community intervention projects/donations	0	0	0	0.0	9	0.0
16	Impacts of intervention projects/donations	0	0	0	0.0	9	0.0
17	Political contributions/donations	0	0	0	0.0	9	0.0
18	Human rights	2	2	3	2.3	9	25.9
19	Customer health and safety	1	1	0	0.7	9	7.4
20	Product information and labeling	0	0	0	0.0	9	0.0
21	Consumer privacy	0	0	0	0.0	9	0.0
22	Diversity of governance bodies and employees	0	0	0	0.0	9	0.0
Overall							*9.1*

Source(s): Authors' own compilation

Table 7. Governance sustainability disclosure of SOEs in New Zealand

S/N	Governance	2020 (a)	2021 (b)	2022 (c)	Average (d) (a + b + c ÷ 3)	Total number of SOEs (e)	Overall (%) (d ÷ e)
1	Governance structure	1	1	2	1.3	10	13.3
2	Nomination and selection	0	0	0	0.0	10	0.0
3	Chair as a senior executive	0	0	0	0.0	10	0.0
4	Sustainable development role of executives	3	3	3	3.0	10	30.0
5	Managing impacts on the economy, environment and people	1	1	2	1.3	10	13.3
6	Sustainability reporting of highest governance	2	2	2	2.0	10	20.0
7	Collective knowledge skills and experience	1	1	1	1.0	10	10.0
8	Performance evaluation of the highest governance body	1	1	1	1.0	10	10.0
9	Remuneration policies	0	0	0	0.0	10	0.0
10	Remuneration policies design	0	0	0	0.0	10	0.0
11	Relevance of sustainable development	2	2	3	2.3	10	23.3
12	Stakeholder engagement	2	3	3	2.7	10	26.7
13	Employee collective bargaining arrangements	1	1	1	1.0	10	10.0
Overall							*12.1*

Source(s): Authors' own compilation

Table 8. Governance sustainability disclosure of SOEs in Australia

S/N	Governance	2020 (a)	2021 (b)	2022 (c)	Average (d) (a + b + c ÷ 3)	Total number of SOEs (e)	Overall (%) (d ÷ e)
1	Governance structure	2	4	5	3.7	9	40.7
2	Nomination and selection	0	0	0	0.0	9	0.0
3	Chair as a senior executive	0	0	0	0.0	9	0.0
4	Sustainable development role of executives	5	5	6	5.3	9	59.3
5	Managing impacts on the economy, environment and people	2	1	1	1.3	9	14.8
6	Sustainability reporting of highest governance	3	2	3	2.7	9	29.6
7	Collective knowledge skills and experience	1	0	1	0.7	9	7.4
8	Performance evaluation of the highest governance body	1	1	0	0.7	9	7.4
9	Remuneration policies	6	3	6	5.0	9	55.6
10	Remuneration policies design	3	1	3	2.3	9	25.9
11	Relevance of sustainable development	2	2	3	2.3	9	25.9
12	Stakeholder engagement	3	6	4	4.3	9	48.1
13	Employee collective bargaining arrangements	0	0	0	0.0	9	0.0
Overall							*24.2*

Source(s): Authors' own compilation

Table 9. Economic sustainability disclosure of SOEs in New Zealand

S/N	Economic	2020 (a)	2021 (b)	2022 (c)	Average (d) (a + b + c ÷ 3)	Total number of SOEs (e)	Overall (%) (d ÷ e)
1	Generated and distributed economic value	1	2	2	1.7	10	16.7
2	Risk/opportunities regarding climate change or legislative	0	1	3	1.3	10	13.3
3	Climate change related costs	0	0	0	0.0	10	0.0
4	The retirement plans and their present value	0	0	0	0.0	10	0.0
5	Financial assistance provided by externals	0	0	0	0.0	10	0.0
6	Employee wages and compensations	0	0	0	0.0	10	0.0
7	Monetary value of financial assistance received by the organization	0	0	0	0.0	10	0.0
8	The extent of development of infrastructure investments and supported services	2	1	1	1.3	10	13.3
9	Impact changes in the organization has on welfare/society	0	0	0	0.0	10	0.0
10	The total number and percentage of operations assessed for risks related to corruption and significant risks related to corruption identified through the risk assessment	0	0	0	0.0	10	0.0
11	Policies and procedures have been communicated to governance body members that have received training on anticorruption	0	0	0	0.0	10	0.0
12	The total number and nature of confirmed incidents of corruption	0	0	0	0.0	10	0.0
Overall							*3.6*

Source(s): Authors' own compilation

Table 10. Economic sustainability disclosure of SOEs in Australia

S/N	Economic	2020 (a)	2021 (b)	2022 (c)	Average (d) (a + b + c ÷ 3)	Total number of SOEs (e)	Overall (%) (d ÷ e)
1	Generated and distributed economic value	3	3	2	2.7	9	29.6
2	Risk/opportunities regarding climate change or legislative	1	0	3	1.3	9	14.8
3	Climate change related costs	0	0	0	0.0	9	0.0
4	The retirement plans and their present value	0	0	0	0.0	9	0.0
5	Financial assistance provided by externals	2	1	2	1.7	9	18.5
6	Employee wages and compensations	0	0	0	0.0	9	0.0
7	Monetary value of financial assistance received by the organization	1	1	1	1.0	9	11.1
8	The extent of development of infrastructure investments and supported services	3	1	2	2.0	9	22.2
9	Impact changes in the organization has on welfare/society	0	0	0	0.0	9	0.0
10	The total number and percentage of operations assessed for risks related to corruption and significant risks related to corruption identified through the risk assessment	0	0	0	0.0	9	0.0
11	Policies and procedures have been communicated to governance body members that have received training on anticorruption	0	0	0	0.0	9	0.0
12	The total number and nature of confirmed incidents of corruption	0	0	0	0.0	9	0.0
Overall							*8.0*

Source(s): Authors' own compilation

The ATA framework was established with the explicit intention of offering a deliberate and methodical approach to qualitative research, as well as organizing and preparing for text-based qualitative analysis. To mitigate bias, the study was conducted in four separate stages, drawing upon the insights provided by Mackieson *et al.* (2019) and Guest *et al.* (2012). During the first stage, each of the researchers collected data separately, and in the second phase, they captured data separately in Atlas.ti (Version 24), a qualitative data analysis software. In the third phase, the researchers conducted a thorough and impartial evaluation and analysis of the obtained data, focusing particularly on minor inconsistencies. Following extensive deliberation, an agreement leading to the formulation of conclusive findings was ultimately obtained in the fourth phase.

5. Result presentation and discussion

This section presents the results of the empirical content analysis phase. The discussion is structured in line with the four sustainability pillars as used in the GRI index illustrated in Appendix, namely: environmental, social, governance and economic. In our presentation and discussion of the results, we interpreted the overall disclosure percentages using the following criteria: overall percentages from 0 to 40 are considered poor/low; from 41 to 60 are considered fair/acceptable; from 61 upwards are considered high/adequate. While recognizing that all the indicators under the GRI environmental, social, governance and economic pillars may not be relevant to the practices of the SOEs and may not be disclosed, Erin and Bamigboye (2022), Erin *et al.* (2022) and Argento *et al.* (2019) have noted the importance of including all the indicators so that stakeholders with different needs may see how organizations disclose various sustainability indicators. This is the approach we have adopted in this study. In addition, in Section 5.5, we have described how the SOEs fared on their disclosure of key indicators relevant to all organizations and those that are also relevant to SOEs.

5.1 Presentation and discussion of environmental sustainability results

Table 3, summarized from Appendix, presents the overall environmental sustainability disclosure of the sampled SOEs in New Zealand, using ten relevant indicators developed from the revised GRI Standards. The results contained in Table 3 depict the aggregate overall for three years (2020–2022) as well as the overall percentage for the sampled ten SOEs in New Zealand. The first indicator shows that only 23.3% of SOEs described their energy consumption in the reporting periods, indicating that only two disclosed their energy consumption, which may be argued as being low. In this context, the second indicator revealed that only 6.7% disclosed their reduction in energy consumption; although this is low, it may be fair since it represents 50.0% of the total number of SOEs that disclosed their energy consumption. The third key indicator shows that 6.7% of the SOEs disclosed their water use efficiency. This is below the level of disclosure on energy consumption and efficiency. Surprisingly, the fourth indicator reveals that no SOEs meaningfully disclose their biodiversity activities. In this regard, although some of the SOEs mentioned biodiversity in their reports, it was not in the context of the disclosure requirement of the GRI Standard on biodiversity. Not surprisingly, the fifth indicator shows that 50.0%, representing five of the SOEs, disclosed their greenhouse gas emissions. This fair level of disclosure is not surprising considering that greenhouse gas emissions may be argued as the most common environmental disclosure factor, especially given the recent volatility of the impact of climate change (Ekasingh *et al.*, 2019; Liu *et al.*, 2017). The sixth indicator shows that none of the SOEs disclose air emissions. It may be argued that this is because this indicator is not applicable to all SOEs. The seventh indicator shows that 20.0% of the SOEs disclosed their

reduction in emissions, which is considered a low result since 50.0% of the SOEs disclosed their greenhouse gas emissions. Even though low, 13.3% of the SOEs' disclosure on hazardous waste (the eighth indicator) may be acceptable since it also may not be applicable to all SOEs. The ninth indicator shows that only 10.0% of the SOEs disclosed their recycled materials and spillages. This is a very low-disclosure indicator. The tenth indicator shows that no SOEs disclosed their supplier activity in the environment. While this is generally a poor result, a relevant argument may be that most of the SOEs are not into manufacturing and production and thus may not necessarily have key active suppliers. Notwithstanding, the results appear to indicate that the sampled SOEs need to do more and step up their game regarding the disclosure of their environmental sustainability.

Table 4, summarized from Appendix, presents the overall environmental sustainability disclosure of the sampled SOEs in Australia based on the ten relevant indicators developed from the revised GRI Standards. The results contained in Table 4 depict the aggregate overall for three years (2020–2022) as well as the overall percentage for the sampled nine SOEs. The first indicator shows that 40.7% of SOEs described their energy consumption in the reporting periods, indicating that four SOEs disclosed their energy consumption, which may be argued to be fair. In this context, only 18.5% disclosed their reduction in energy consumption, which, even though low, may be considered reasonable since this represents 50.0% of the total number of SOEs that disclosed their energy consumption. The third key indicator shows that 11.1% of SOEs disclosed their water use efficiency; although this is low, it is an improvement on the disclosure of energy consumption and efficiency. Surprisingly, the fourth indicator reveals that none of the SOEs meaningfully disclose their biodiversity activities. In this regard, although some of the SOEs did mention biodiversity in their reports, it was not in the context of the disclosure requirement of the GRI Standard on biodiversity. Surprisingly, the fifth indicator shows that 18.5% of the SOEs disclosed their greenhouse gas emissions. This is surprising, considering that greenhouse gas emissions may be argued to be the most popular environmental factor in terms of environmental disclosure (Ekasingh *et al.*, 2019; Liu *et al.*, 2017). The sixth indicator shows that only 14.8% of the SOEs disclosed air emissions. While this disclosure level may be low, it is suggested that this indicator is not specific to all SOEs. The seventh indicator shows that none of the SOEs disclosed their reduction in emissions. Only 11.1% of SOEs disclosed on hazardous waste (the eighth indicator) and recycled materials and spillages (the ninth indicator), revealing that they reflect very low levels of disclosure. The tenth indicator shows that no SOEs disclose their supplier activity in the environment. While this is generally a poor result, this may be due to most of the SOEs not being involved in manufacturing and production, and thus may not necessarily have key active suppliers. Notwithstanding, the results generally indicate that the sampled SOEs need to do more and step up their disclosure of their environmental sustainability.

Careful checks, as indicated in Figure 1, reveal that the sampled New Zealand SOEs (13.0%) disclosed better than the Australian SOEs (12.6%), as indicated in Tables 3 and 4 on environmental sustainability disclosure in relation to the GRI environmental index. A unique finding in this regard is that the countries studied performed better on individual disclosure indicators compared to each other. For example, Australian SOEs disclosed better on energy consumption (40.7%) when compared to New Zealand's 23.3% and New Zealand SOEs disclosed better on greenhouse gas emissions (50.0%) compared to Australia's 18.5%.

5.2 Presentation and discussion of social sustainability results

Table 5, summarized from Appendix, presents the overall social sustainability disclosure of the sampled SOEs in New Zealand based on the GRI Standards using 22 relevant indicators

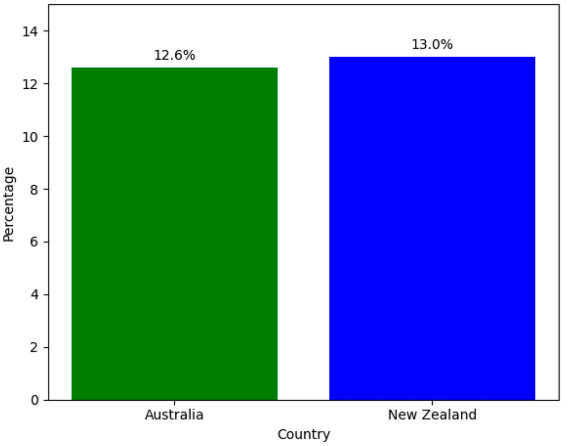

Figure 1. Environmental sustainability disclosure of SOEs in New Zealand and Australia
Source: Authors' own illustration

developed from the revised GRI Standards. The results contained in Table 5 depict the aggregate overall for three years (2020–2022), as well as the overall percentage for the sampled ten SOEs. The first key indicator shows that none of the sampled SOEs disclosed their employee turnover by gender. This is not an ideal result considering that this indicator is applicable to all the sampled SOEs. This low disclosure also mirrors a similar situation with indicator 22 (diversity of governance bodies and employees), in which only 10.0% of the sampled SOEs, representing one SOE, were disclosed. The same applies to the second key indicator, where none of the sampled SOEs disclose the activities of trade unions or employment conditions. The sixth indicator (number of employee training hours) was 10.0%, as was the 12th indicator (child labor exclusion policies) and the 19th indicator (customer health and safety). The eighth indicator (employee career development performance review) was 13.3%, the highest of all the indicators. The 11th indicator (collective bargaining and freedom of association) was 10.0%, and the 15th indicator (community intervention projects/donations) was 10.0%. These indicators had the highest overall percentages of the 22 indicators. Careful examination of these indicators with the highest overall percentages suggests that SOEs appear concerned about employee welfare and community engagement projects. The 12 indicators without any disclosure by the sampled SOEs include indicators one (employee turnover by gender), two (trade unions and employment conditions), three (committee on employee health, work and environment), four (occupational accidents and diseases), five (work-related injuries), seven (employee skills upgrade programs), nine (employee salary and remuneration by gender/age), ten (discrimination-related issues), 14 (community impacts by business operations), 17 (political contributions/donations), 20 (product information and labeling and 21 (consumer privacy). It may be argued that some of the indicators do not necessarily apply to the activities of the sampled SOEs, for example, indicators 20 (product information and labeling) and 21 (consumer privacy). However, despite the earlier observation that SOEs appear concerned about employee welfare, the lack of disclosure on key indicators regarding employee matters (one, two, three, four, five, seven, nine and ten) points to selective disclosure of certain employee matters, which also applies to certain community-related matters.

Table 6, summarized from Appendix, presents the overall social sustainability disclosure of the sampled SOEs in Australia using 22 relevant indicators based on the revised GRI Standards. The results in Table 6 depict the aggregate overall for three years (2020–2022) and the overall percentage for the sampled nine SOEs. The first key indicator shows that only 3.7% of sampled SOEs disclosed their employee turnover by gender. This is a low disclosure result considering that this indicator is applicable to all sampled SOEs. However, this is a better result when compared with a similar indicator (indicator 22: diversity of governance bodies and employees), where none of the sampled SOEs were disclosed. The same low disclosure as in indicator one also applies to the second key indicator, where only 14.8% of sampled SOEs disclosed the activities of trade unions and employment conditions. The third indicator (committee on employee health, work and environment) recorded 22.2%; the eighth indicator recorded 14.8%; the fifth indicator (work-related injuries) was 88.9%; and the eighteenth indicator (community intervention projects and donations) was 25.9%. These were the indicators that had the highest percentages overall of the 22 indicators. A careful examination of these indicators with the highest overall percentages appears to suggest that, like New Zealand SOEs, Australian SOEs also appear concerned about employee matters. Indicators four (occupational accidents and diseases), six (number of employee training hours), seven (employee skills upgrade programs), nine (employee salary remuneration by gender/age), 12 (child labor exclusion policies), 14 (community impacts by business operations), 15 (community intervention projects/donations), 16 (impacts of intervention projects/donations), 17 (political contributions/donations), 20 (product information and labeling), 21 (consumer privacy) and 22 (diversity of governance bodies and employees) are the 12 indicators with no disclosure by the sampled SOEs. While some of the indicators may not necessarily apply to the activities of the sampled SOEs, such as indicators 20 and 21, the observation that key indicators on employee matters (six, seven and nine) are not disclosed, as in the case of New Zealand, suggests that the sampled SOEs pay inconsistent attention to disclosure on employee matters. This is further confirmed by indicator eight (employee career development performance review), where only 14.8% of the SOEs were disclosed.

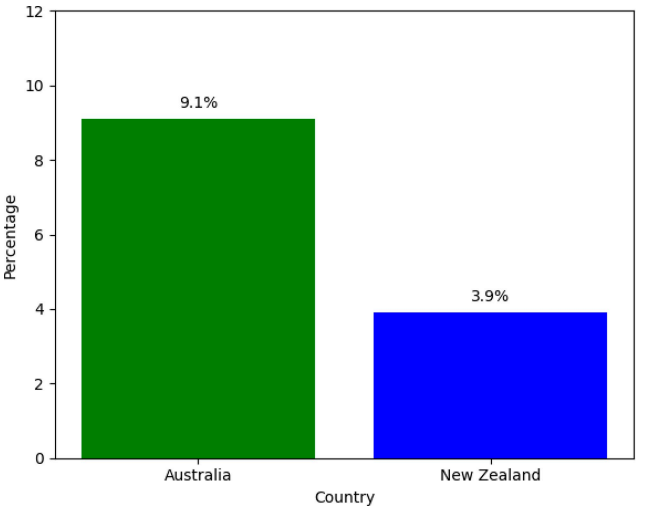

Figure 2. Social sustainability disclosure of SOEs in New Zealand and Australia
Source: Authors' own illustration

Compared to environmental sustainability discussed above, Figure 2 indicates that the sampled Australian SOEs performed better than New Zealand SOEs on social sustainability disclosure in relation to the GRI social index, as indicated in Tables 5 and 6. A key finding in this regard is that Australian SOEs disclosed better on six key indicators than New Zealand SOEs, with the highest disclosure by New Zealand SOEs being 13.3% for indicator eight (employee career development performance review), whereas the highest by Australian SOEs was 88.9% for indicator five (work-related injuries). Thus, it may be concluded that Australian SOEs disclosed better on the social indicators than New Zealand SOEs, with the exceptions being indicators six (number of employee training hours), 11 (collective bargaining and freedom of association), 12 (child labor exclusion policies), 15 (community intervention projects/donations), 16 (impacts of intervention projects/donations), 19 (customer health and safety) and 22 (diversity of governance bodies and employees).

5.3 Presentation and discussion of governance sustainability results

Table 7, summarized from Appendix, presents the overall governance sustainability disclosure of the sampled SOEs in New Zealand using 13 relevant indicators developed from the revised GRI Standards. The results in Table 7 depict the aggregate overall for three years (2020–2022) and the percentage for the sampled ten SOEs. The first key indicator indicates that 13.3% of SOEs disclosed their governance structure, which is a low result. Surprisingly, none of the sampled SOEs met the GRI disclosure requirement on the nomination and selection of top executives. While some of the SOEs mentioned this disclosure indicator in their reports, it is not in the context of the GRI disclosure requirement. The same nondisclosure is applicable to the third indicator, where none of the sampled SOEs disclosed whether the board chair is also a senior executive in the organization. Also, surprisingly, the ninth and tenth indicators show that none of the SOEs met the GRI disclosure requirement on remuneration policies and remuneration policy design, respectively; again, some of the SOEs mentioned remuneration policies, but not in the context of the GRI Standard. The fourth indicator (sustainable development role of executives) had the highest disclosure (30.0%) of all the indicators. The twelfth (stakeholder engagement) indicator had the second highest (26.7%) of all the indicators under the governance index in New Zealand SOEs. Also, indicators six (sustainability disclosure of the highest governance) at 20.0% and 11 (relevance of sustainable development) at 23.3% recorded low but reasonable disclosure compared to the other indicators highlighted below. Further, in addition to the first indicator that recorded 13.3% disclosure, indicators five (managing impacts on the economy, environment and people) 13.3%, seven (collective knowledge skills and experience) 10.0%, eight (performance evaluation of the highest governance body) 10.0% and 13 (employee collective bargaining arrangements) 10.0% also recorded low GRI governance disclosure. As described above, it appears that, regarding governance sustainability, the sampled New Zealand SOEs disclosed fairly regarding the indicators that have to do with sustainability, stakeholder engagement and structure compared to other governance indicators. However, it is generally a poor disclosure.

Table 8, summarized from Appendix, presents the overall governance sustainability disclosure of the sampled SOEs in Australia, using 13 relevant indicators developed from the revised GRI Standards. The results in Table 8 depict the aggregate overall for three years (2020–2022) and the overall percentage for the sampled nine SOEs. The first key indicator notes that 40.7% of the SOEs disclosed their governance structure, which is a fair result. Surprisingly, none of the sampled SOEs met the GRI requirement for disclosure on the nomination and selection of top executives. While some of the SOEs mentioned this indicator in their reports, it is not in the context of the GRI disclosure requirement. The same

nondisclosure also applies to the third indicator, where none of the sampled SOEs disclosed whether the chair is also a senior executive. The fourth indicator, the sustainable development role of executives (59.3%), the ninth indicator, remuneration policies (55.6%) and the twelfth indicator, stakeholder engagement (48.1%), are the three major disclosures by the SOEs regarding governance sustainability. Indicators seven (collective knowledge, skills and experience) and eight (performance evaluation of the highest governance body) are the joint lowest indicators with 7.4% disclosure, respectively. It is important to note that, regarding governance sustainability, the sampled SOEs disclosed fairly regarding the indicators that have to do with sustainability. The fourth indicator demonstrates that 59.3% of the sampled SOEs disclosed the executive role in sustainable development, in addition to the 29.6% disclosure on the sixth indicator (sustainability disclosure of highest governance). Furthermore, 25.9% of SOEs disclosed the relevance of sustainable development to their organization, as indicated by the eleventh indicator. A major concern here is that this is not reflected in the results of the social and environmental sustainability of the SOEs, as illustrated in Tables 4 and 6.

As is the case under the social sustainability discussed above, further scrutiny of Figure 3 also reveals that the sampled Australian SOEs perform better than New Zealand SOEs regarding governance sustainability disclosure under the GRI governance index, as indicated in Tables 7 and 8. A key finding in this regard is that with the exception of indicators seven (collective knowledge skills and experience) and eight (performance evaluation of the highest governance body), in which New Zealand SOEs recorded 10.0%, respectively, compared to Australia's 7.4% and 13 (employee collective bargaining arrangements), where New Zealand recorded 10.0% compared to Australia's 0.0%, the governance sustainability disclosure of Australian SOEs appears better on the other governance indicators when compared to New Zealand SOEs.

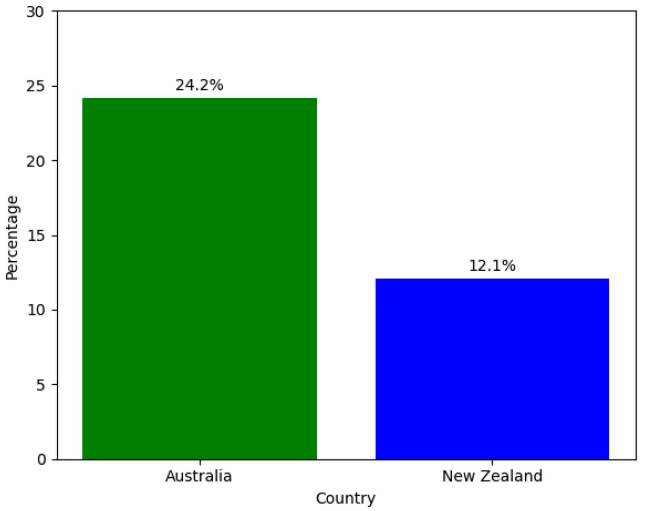

Figure 3. Governance sustainability disclosure of SOEs in New Zealand and Australia
Source: Authors' own illustration

5.4 Presentation and discussion of economic sustainability results

Table 9, summarized from Appendix, presents the overall economic sustainability disclosure of the sampled SOEs in New Zealand, using 12 relevant indicators developed from the revised GRI Standards. The results in Table 9 depict the aggregate overall for three years (2020–2022) and the percentage for the sampled ten SOEs. The first key indicator indicates that 16.7% of SOEs disclosed their generated and distributed economic value, which is a low result. The same applies to the second indicator (risk/opportunities regarding climate change or legislation), where 13.3% of SOEs were disclosed. Further, 13.3% also disclosed on the eighth indicator (the extent of the development of infrastructure). Surprisingly, these three are the only indicators for which SOEs in New Zealand disclosed in the period considered. Thus, the SOEs did not disclose on the other nine indicators: three (climate change-related costs), four (the retirement plans and their present value), five (financial assistance provided by externals), six (employee wages and compensations), seven (monetary value of financial assistance received by the organization), eight (the extent of development of infrastructure investments and supported services), nine (the impact changes in the organization have on welfare/society), ten (the total number and percentage of operations assessed for risks related to corruption and significant risks related to corruption identified through the risk assessment), 11 (policies and procedures have been communicated to governance body members that have received training on anticorruption) and 12 (the total number and nature of confirmed incidents of corruption). As indicated earlier, we found that some of the SOEs may have indirectly referenced some of these in their reports, but not in the context of the GRI disclosure requirement.

Table 10, summarized from Appendix, presents the overall economic sustainability disclosure of the sampled SOEs in Australia, using 12 relevant indicators developed from the revised GRI Standards. The results in Table 10 depict the aggregate overall for three years (2020–2022) and the overall percentage for the sampled nine SOEs. The first key indicator indicates that 29.6% of the SOEs, representing three SOEs, disclosed on their generated and distributed economic value, which is a low result. The second indicator (risk/opportunities regarding climate change or legislation) indicates that 14.8% of the SOEs were disclosed. The same is applicable to the fifth (financial assistance provided by externals) and eighth indicators (the extent of development of infrastructure investments and supported services), in which 18.5% and 22.2% of the SOEs were disclosed, respectively. Indicator seven (the extent of development of infrastructure investments and supported services) recorded 11.1%. Indicators three (climate change-related costs), four (the retirement plans and their present value), six (employee wages and compensations), nine (the impact changes in the organization have on welfare/society), ten (the total number and percentage of operations assessed for risks related to corruption and significant risks related to corruption identified through the risk assessment), 11 (policies and procedures have been communicated to governance body members that have received training on anticorruption) and 12 (the total number and nature of confirmed incidents of corruption) are the seven indicators with no disclosures.

As is the case under the social and governance sustainability discussed above, additional scrutiny, as illustrated in Figure 4, also suggests that the sampled Australian SOEs perform better than the New Zealand SOEs regarding economic sustainability disclosure under the GRI economic index. A key finding in this regard is that while the SOEs in both countries did not disclose on many of the economic sustainability indicators, Australian SOEs disclosed better on all the indicators where the SOEs in both countries were disclosed, compared to New Zealand SOEs.

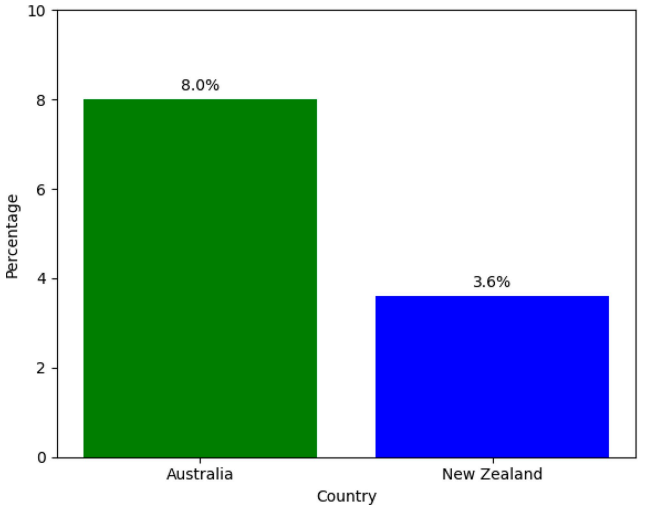

Figure 4. Economic sustainability disclosure of SOEs in New Zealand and Australia
Source: Authors' own illustration

5.5 Summary of findings

While it may be argued that the SOEs may not disclose all the indicators and may only choose to disclose the relevant indicators that matter most to their practices, our conclusion remains that the disclosure of SOEs in both countries is low. In this context, Tables 3–10 show that SOEs in both countries have not disclosed certain key environmental, social, governance and economic indicators. For example, on environmental sustainability disclosure, it is surprising that the overall disclosure by SOEs in New Zealand and Australia on reductions in energy consumption (Tables 3 and 4) is 6.7% and 18.5%, respectively. This is a relevant impact area where sustainability disclosure may be required. Similarly, on social sustainability disclosure (Tables 5 and 6), there are no or inadequate disclosures on relevant indicators such as employee turnover by gender, human rights, customer health and safety, diversity of governance bodies and employees and others in both countries, especially in New Zealand. The same is applicable to governance sustainability (Tables 7 and 8). While the disclosure of sustainability awareness is good in both countries, especially Australia, both countries have not (or inadequately) disclosed key indicators such as nomination and selection, and the performance evaluation of the governance bodies in terms of attention to sustainability. The same low disclosure is seen in economic sustainability disclosure (Tables 9 and 10), in which there is no or inadequate disclosure on key indicators such as risk or opportunity regarding climate change, employee wages and compensation and organizational welfare in both countries.

Although we would have liked to thoroughly compare our findings with those of previous research, our ability to do so was constrained by the scarcity of comparable studies on sustainability disclosure in SOEs, as previously mentioned. Overall, this study presents evidence of inadequate sustainability disclosure in both nations, which is similar to the overall summary of results in Argento *et al.* (2019), but contradicts the conclusions drawn by Khalid *et al.* (2021), who discovered that Chinese SOEs place greater emphasis on sustainability initiatives in their annual reports. Khalid *et al.* (2021) posited that Chinese

state-owned and nonstate-owned enterprises benefited from institutions' involvement in sustainability disclosure. In relation to the institutional factor identified by Khalid *et al.* (2021), one could contend that the comprehensiveness of the corporate governance model for SOEs in Australia, which mandates the SOEs to emulate PSEs, contributes to the observation that Australian SOEs appear to disclose sustainability more effectively than their New Zealand counterparts. Nevertheless, New Zealand's SOEs are also subject to strong corporate governance mechanisms (OECD, 2005), which do not explain the unexpectedly low level of sustainability disclosure. One important thing to note overall is that consistent with Mansi *et al.* (2017) and Rodríguez Bolívar *et al.* (2015), who maintained that environmental sustainability remains the most critical dimension, we find that environmental sustainability is the most disclosed in New Zealand and the second most disclosed in Australia. In this regard, it may be argued that the most important environmental indicator applicable to SOEs among the ten indicators is indicator two – reduction in energy consumption (although the contemporary academic discourse on sustainability in SOEs does not suggest this). Our results indicate that Australian SOEs disclosed better (18.5%) than New Zealand SOEs (6.7%), which are generally both low disclosure indicators, as illustrated in Tables 4 and 3, respectively.

Although we noted in Section 1.1 that SOEs in both countries are not mandated to report on sustainability issues, the observation that some SOEs in each country prepared sustainability and ESG reports indicates the awareness of the importance of sustainability disclosure. In this regard, one could collectively posit that the scarcity of substantial sustainability disclosure among the selected SOEs may be attributable to inadequate institutional capacity, the inability of the oversight agencies of SOEs in New Zealand and Australia to promote sustainability disclosures and limited stakeholder pressure. As a result, one could contend that our results, in accordance with the institutional theory previously explicated, emphasize the necessity for oversight entities to discharge their supervisory obligations through the promotion of sustainability practices and disclosure. It may be argued that with respect to stakeholder theory (Kamal, 2010), the stakeholders implicated in our study are institutional stakeholders (Kamal, 2010). In accordance with Gray *et al.*'s (2014) finding that institutional stakeholders consist of chief executives, regulators and standard setters, regulators and chief executives are the institutional stakeholders implicated in this regard. This often constitutes problems, especially in countries that face high levels of corruption and where SOEs are used more as political than socioeconomic tools. The optimism here is that the two sampled countries are not in the category of countries that face high levels of corruption.

These stakeholders facilitate the proper conduct through which companies can advance sustainability disclosure (Erin and Bamigboye, 2022). Additionally, institutional logics (Argento *et al.*, 2019) demonstrate that sustainability disclosure is complicated by conflicting objectives because SOE participants are not always certain whether to prioritize social or commercial objectives. This manifests clearly in our findings, given that Australian SOEs disclosed better on governance sustainability than New Zealand SOEs. Further elucidation of mandates and objectives will significantly contribute to the enhancement of sustainability disclosure. With regard to governance sustainability, it may be argued that the most important environmental indicators applicable to SOEs among the 13 indicators are indicator four – sustainable development role of executives; indicator six – sustainability disclosure of highest governance; and indicator 11 – relevance of sustainable development (although the contemporary academic discourse on sustainability in SOEs does not suggest this). Our results indicate that Australian SOEs disclosed better (59.3%, 29.6% and 25.9%) than New

Zealand SOEs (30.0%, 20.0% and 23.3%), which are generally low disclosures, as illustrated in Tables 8 and 7, respectively.

Consistent with the institutional theory posited in this study, our findings indicate that attaining credible sustainability disclosure may prove challenging in the absence of dedicated attention of the SOE role players we mentioned earlier (Kaur and Lodhia, 2018), particularly with respect to the low disclosures on three relevant governance indicators (indicator four: sustainable development role of executives; indicator six: sustainability reporting of highest governance; and indicator 11: relevance of sustainable development), especially by New Zealand SOEs. As a result, we believe resilient institutions featuring a proficient sustainability framework and attention will facilitate the disclosure of sustainability factors. It is imperative that managers and executives accept their accountability obligations and demonstrate a willingness to disclose matters pertaining to sustainability, even in the absence of stakeholder pressure (Garde Sánchez *et al.*, 2017b). With regard to the stakeholder theory, although all the categories of stakeholders identified by Gray *et al.* (2014) and Kamal (2010) and previously emphasized may be pertinent in this context, oversight ministries and the Ministries of Finance (both in New Zealand and Australia) stand out as particularly pertinent SOE stakeholders in sustainability accounting and disclosure. The interest of these stakeholders in sustainability-related practices manifests itself in the recruitment of appropriate managers/executives, which is vital to the development of sustainability disclosure by SOEs. Also, SOEs are encouraged to disclose their sustainability practices to enhance both their internal and external image and reduce stakeholder pressure to be responsible.

A relevant indicator appears to suggest that the SOEs have not met the information and attention needs of SOEs, especially SOEs in New Zealand. The stakeholder engagement indicator (indicator 12) under the governance sustainability pillar in Australia (48.1) is higher than that of New Zealand (26.7). Even though this may be low, the activities of the SOEs recognized the importance of these stakeholders. In particular, of all the stakeholders identified and highlighted in Section 3 and their sustainability goals, it may be argued that shareholders and other institutional and environmental stakeholders will be the most satisfied of all the stakeholders, considering the high results recorded in the governance and environmental pillars compared to the social and economic pillars. While it may be argued that citizens will be less satisfied if the low reporting on social sustainability is translated to mean reduced attention on the delivery of public goods and services, some of these citizens are equally employees, indirect shareholders and customers (Greiling and Grüb, 2014) of SOEs, which may mean that the high results under the governance and environmental pillars also have implications for them.

SOEs are often perceived negatively, particularly in developing and highly corrupt nations, where they frequently require government bailouts and fail to meet their core obligations to provide public goods and services. Better disclosure on these sustainability practices, according to the GRI disclosure index used in this study, may improve SOE activities, which, in turn, may have a positive impact on their practices, thereby enhancing their reputation, both internally and externally. Additionally, these SOEs would be able to meaningfully contribute to national development plans and maintain sustainability.

In terms of the legitimacy theory, having established that SOEs, as is the case with PSEs, need legitimacy as a social license to operate, our results tend to suggest that even though stakeholder expectations and institutional pressures in both counties may be argued to be on an equal level, especially with regard to sustainability disclosures, the results regarding the governance pillar and indicators of the Australian SOEs (Table 8, Figure 3) compared to that of New Zealand (Table 7, Figure 3) may suggest that institutional pressure may be higher in

Australia compared to New Zealand, which may have impacted sustainability disclosure in that country. It may be argued that, in terms of the legitimacy theory, stakeholders also have a role to play in ensuring improved attention to sustainability practices. This is even more important since Garde Sánchez *et al.* (2017a, 2017b) noted that stakeholder pressure on managers has a direct influence on sustainability, as highlighted in their study on CSR. As previously highlighted, sustainability, sustainability accounting and sustainability disclosure in SOEs have not been the subject of substantial research. Within this framework, we have attempted to establish a research agenda by condensing our investigation to that of Argento *et al.* (2019). The majority of SOEs in New Zealand and Australia are wholly state-owned, and these authors discovered that such entities disclose sustainability information infrequently, especially when compared to partly owned and even PSEs. Our findings are consistent with this. Perhaps the most important finding of their research is that the sustainability disclosure of SOEs is influenced by state ownership and scale. This discovery concerning state ownership aligns with our contention that, despite presuming that SOEs have guardianship over sustainability matters owing to their proximity to social issues, they are seldom compelled to do so. The greater emphasis on sustainability continues to lie with PSEs, which must adopt sustainability initiatives to acquire the legitimacy required to prevail in the current socioeconomic climate, which places significant sustainability expectations on PSEs, as indicated by the legitimacy theory. Additionally, the research conducted by Khalid *et al.* (2021), which suggests that internationalization incentivizes SOEs to disclose sustainability information to enhance their credibility, supports this legitimacy assertion, especially in the context of SOEs with international operations as in the case of Australia (United States of America, 2023b); even though the majority of SOEs in Australia and New Zealand provide public products and services, they do not conduct international business. Thus, insights or visibility from around the world that could potentially lead to enhanced sustainability disclosure are only partially relevant in this context.

An analogous line of thinking can be used to reconcile the outcome Zahid *et al.* (2023) reported with our own observations. It appears from the study's results that SOEs with a greater emphasis on commerce rather than society will be more inclined to disclose their sustainability initiatives. Consistent with the notion that PSEs and commercially oriented SOEs ought to provide more comprehensive sustainability reports, it follows that the sustainability disclosure of Australian and New Zealand SOEs, which are overseen by private sector actors who are expected to possess a certain level of familiarity with sustainability disclosure, ought to be considerably more detailed. Kao *et al.* (2023) and Garde Sánchez *et al.* (2017a) have observed that managerial capability and responsibilities have an impact on the disclosure and assurance of sustainability information. The absence of this phenomenon in New Zealand and Australian SOEs could indicate the influence of other factors.

Improving sustainability disclosure in New Zealand and Australian SOEs may not be a difficult task, considering our findings. Perhaps the starting point would be to increase the representation of public sector actors on the boards of SOEs, considering that additional scrutiny indicates that most of the board members of SOEs in both countries are represented by private sector actors. Concerning this, Arayssi *et al.* (2020) found that the level of sustainability disclosures is influenced by the board's composition. This portrayal is crucial for achieving a balance in the socioeconomic emphasis of the SOEs. We expect that bureaucrats will always tend to push for social and environmental factors, whereas private sector role players are concerned with governance and economic factors. Furthermore, increased emphasis should be placed on the development of IR as opposed to the more conventional annual reports. Clearly, SOEs that generate IR provide more information regarding sustainability than those that produce annual reports, especially where sustainability reports are not prepared as stand-alone

reports. Also, in accordance with the research outcomes of Argento *et al.* (2019) and Zahid *et al.* (2023), which suggest that enhanced transparency in SOEs leads to improved disclosure, SOEs in New Zealand and Australia should strive to employ executives who have minimal political ties to the private sector but are transparently employed. This will facilitate greater disclosure of transparency within the SOEs and restrict the use of futile and unnecessary partnerships. Considering the observation that private sector actors are affiliated with SOEs, they ought to be more responsive, efficient and effective in their current approach to addressing socioenvironmental factors (Xu *et al.*, 2020). An important development that may improve sustainability disclosure in both countries is the observation that both countries are working on sustainability reporting frameworks, which may be mandatory (LinkedIn, 2024; XRB, 2024).

While the cause of the differences in results may not be clear, three factors may be at work. These are policy environments, cultural differences or regulatory frameworks. Regarding these three factors, both countries may be said to be closely aligned in sustainability reporting and SOE management, with both countries especially having robust policy environments and sustainability regulatory frameworks, as highlighted earlier. Perhaps a key factor that may explain the differences in results is managers' appetite for sustainability reporting (Kao *et al.*, 2023; Garde Sánchez *et al.*, 2017a). In this context, the governance sustainability of the sampled SOEs (as illustrated in Figure 3 and Tables 7 and 8) indicates that Australia's disclosure (24.2%) is double that of New Zealand (12.1%). Key individual indicators, such as the sustainable development role of executives, also indicate that Australia (59.3%) disclosed better compared to New Zealand (30.0%). The same better disclosure is recorded for Australia (29.6%) compared to New Zealand (20.0%) on the sustainability reporting of the highest governance. Regarding the findings on the four pillars – indicating that Australian SOEs disclose more sustainability information than New Zealand SOEs, except for environmental indicators disclosures – the same interpretation appears to apply, considering that Australian SOEs disclosed better on three of the four pillars compared to New Zealand SOEs disclosing better on one indicator (environmental).

During the analysis of SOE reports, we identified specific qualitative reporting flaws related to reporting methodologies that warrant attention. The qualitative dimensions can be understood about the quality of reporting, particularly with negative and positive events (Hahn and Lülfs, 2014), where we observed varying reporting styles in both nations. Hahn and Lülfs (2014) suggest that organizations' sustainability reports may vary in tone and length based on their positive or negative content. Consequently, we conducted the content analysis by examining the tone and duration of the reporting events related to the sustainability practices of the SOEs, with particular emphasis on both positive and negative occurrences. Concerning positive occurrences, we refer to sustainability initiatives where the disclosure is anticipated to enhance an organization's reputation among stakeholders, such as community intervention programs or gifts. Negative events refer to sustainability incidents when disclosures may adversely affect an organization's reputation, such as the incidence of work-related injuries.

Current academic discourse posits that organizations will extensively highlight good events (Carp *et al.*, 2019; Ekasari Harmadji *et al.*, 2018; Hahn and Lülfs, 2014) while presenting bad information with restraint (Hahn and Lülfs, 2014). Additionally, organizations may opt to legitimize adverse occurrences by portraying them positively to satisfy stakeholders and enhance their legitimacy (Carp *et al.*, 2019; Ekasari Harmadji *et al.*, 2018; Hahn and Lülfs, 2014). Consequently, we anticipate that the reporting of the sampled state-owned enterprises will reflect this concept. Our findings regarding both nations seem to indicate otherwise. The sustainability indices reported by the SOEs, regardless of being negative or positive, do not reflect this notion. The reporting technique is uncomplicated and

lacks information in both nations. According to the typology of reporting techniques by Hahn and Lülfs (2014), this can be categorized as an "indicating facts" strategy, particularly for adverse events, where the SOEs have transparently documented both negative and positive occurrences. The statements, along with their locations in the reports, have remained unchanged over the years. It merely requires annual updates of the reports with current information.

It is noteworthy that, among the four pillars, information on environmental and social aspects, if insufficiently robust, is more comprehensive than that pertaining to the governance and economic pillars. Imperiale *et al.* (2023) have posited that social and environmental issues are more significant in terms of reputational risks than economic and governance sustainability within sustainability reporting. Troshani and Rowbottom (2024) and Ekasari Harmadji *et al.* (2018) further assert that regarding sustainability practices and reporting, most stakeholders prioritize social and environmental concerns over governance and economic matters. Consequently, it can be inferred that the reporting methods of the SOEs in this case involve comprehensive disclosure on social and environmental sustainability matters; however, not necessarily in terms of coverage, as indicated by our findings on the aforementioned indicators.

6. Implications for research, policy and practice

This research contributes to the ongoing scholarly discourse on SOEs and sustainability. Consequently, researchers, commentators and observers are impacted. Initially, it is stated that the utilization of public funds and resources increases the obligation of SOEs to answer to the public, resulting in greater accountability expectations in the public sector relative to PSEs (Bovens *et al.*, 2014). This is crucial for public governance and sustainable development, given the critical role of SOEs in the provision of public goods and services. Therefore, SOEs must provide the public with precise and reliable data regarding how they have used taxpayers' money to accomplish their diverse objectives, including matters pertaining to the socioeconomic conditions that support their funding.

Furthermore, the findings of this research carry significant implications for the management of public sector entities, particularly for individuals involved in the oversight of SOEs, including practitioners, stakeholders and setters of standards. In this context, it is well-documented that SOEs have often failed to prioritize social issues over commercial ones, despite the expectation that this should be the case. In this context, both the Australian and New Zealand governments should consider introducing mandatory sustainability reporting frameworks for SOEs. As is the case in some countries, such as South Africa, frameworks and regulations applicable to PSEs should also be applicable to SOEs to ensure comparable analysis.

Moreover, this article provides valuable insights into the intricate connections that must be established to create functioning frameworks for sustainability disclosure in SOEs (Kao *et al.*, 2023; Tilba, 2022; Arayssi *et al.*, 2020). As a result, it promotes a culture of sustainability accounting and disclosure and identifies areas that stakeholders, including practitioners and standard setters, may wish to concentrate on to further improve the disclosure of sustainability issues in SOEs. Furthermore, it is our conviction that the outcomes will prove beneficial to individuals who supervise, are employed by, or engage with public sector entities and SOEs, in addition to individuals from various industries and organizations globally.

In terms of improving sustainability reporting beyond mere compliance, priority should be given to two previously emphasized main factors when attempting to improve sustainability disclosure in SOEs in both countries. In this context, industry associations, regulatory bodies and standards/framework setters in both countries have a role to play in improving reporting standards. As with introducing mandatory sustainability reporting for

SOEs, as highlighted above, another recommendation is that oversight ministries and owning bodies of SOEs in New Zealand and Australia should promote the preparation of IR by all SOEs. While not the primary focus of this study, it is noted that SOEs that generate IR generally provide more comprehensive sustainability reports than those that generate annual reports (Melloni *et al.*, 2017). Given the unlikelihood that they would authorize such a mission, SOE executives are additionally liable for this allegation. This point inextricably links to the following: owning departments should strive for transparency in the selection process of both board members and administrators of SOEs. As previously stated, both New Zealand and Australia are managed by private-sector actors in the SOE sector. This arrangement is expected to yield favorable outcomes for SOE sustainability disclosure as PSEs consistently strive to enhance such documentation. Kao *et al.* (2023) and Arayssi *et al.* (2020) have provided empirical evidence supporting the significance of board/managerial composition and capability in the context of sustainability disclosure. Therefore, this also represents a concern that must be resolved to enhance the quality of sustainability disclosure of SOEs in New Zealand and Australia. In summary, these countries should seriously consider implementing sustainability practices applicable to PSEs, as they have a range of them, for SOEs. This will go a long way in ensuring that sustainability practices, reporting and disclosure improve in SOEs.

Given that the relevant IFRS standards on sustainability reporting, the sustainability reporting frameworks in New Zealand and Australia, recently came into effect, we expect that this will shape research, policy and practice on sustainability. With regard to policy and practice, we expect that the sustainability reporting practices of organizations will generally improve. In terms of policy, we assume that policymakers will consider extending the reporting requirements to SOEs in the near future. As for research, we expect more research convergence on the sustainability reporting and disclosure of organizations in these countries, using the contents of these frameworks to develop indicators to gauge the disclosures of organizations. Overall, the frameworks will improve policy and practice as well as increase research on sustainability practices in these countries.

7. Conclusion

Organizational reporting is essential for internal and external evaluation and results, as is evident in the context of socioeconomic corporate environmental management, especially considering stakeholder expectations that businesses invest responsibly and report accordingly. This study investigates sustainability disclosure in SOEs of Australia and New Zealand. The content of the selected SOEs' annual/integrated sustainability and GRI reports over a three-year period (2020–2022) was analyzed to assess the extent to which their sustainability practices complied with the revised GRI Standards. As shown in Tables 3 through 10, our findings indicate that the sustainability disclosure of the sampled SOEs in the two countries falls short of expectations. Australian SOEs appear to have disclosed more effectively in this context than their New Zealand counterparts. However, on an individual basis, New Zealand SOEs provided superior environmental sustainability disclosure, whereas Australian SOEs provided superior governance, social and economic sustainability disclosure. The present study makes a scholarly contribution to the ongoing dialogue regarding SOEs in both nations and generally (Nicolò *et al.*, 2020; Ackers and Adebayo, 2021; Argento *et al.*, 2019). Given that they are state-owned and use taxpayer funds, the lack of documented sustainability disclosure highlighted in our findings emphasizes the need for SOEs to adopt and account for their sustainability practices and ensure that they incorporate sustainability information into their reporting in accordance with the GRI Standards. In this regard, we submit that it is incumbent on standard setters, owning government ministries, the

Ministry of Finance in both nations and supervision directors to ensure that SOEs increase their focus on sustainability issues. This may improve with the observation that both countries are busy developing sustainability reporting frameworks, which may be mandatory (LinkedIn, 2024; XRB, 2024).

As is customary in investigations of this kind, the limitations of this study present opportunities for further research. Our inability to comprehensively compare our findings in the results presentation and discussion section with those of prior research was due to the lack of comparable studies, suggesting ample room for further research on various fronts regarding SOE sustainability disclosure. Our investigation was restricted to content analysis due to the unavailability of SOE executives for interviews in both countries. This choice was justified on the grounds that this methodology had been used in prior research of a comparable nature (Argento *et al.*, 2019). Subsequent research using interviews and surveys could investigate the factors contributing to the lack of adequate sustainability disclosure exhibited by SOEs, particularly emphasizing both countries' social and economic sustainability dimensions. Similarly, with a sample of only 19 SOEs examined, the generalizability of our findings is limited, and we suggest that future studies include all SOEs and possibly other public sector statutory boards, agencies and/or parastatals. Future investigation could explore and compare these concerns in two developed and two developing countries, considering the countries included in the sample for this research: Australia and New Zealand. Additionally, future research could compare sustainability disclosure practices between parastatal statutory bodies and commercially oriented SOEs. Further investigation or replication of this study is possible with a concentration on state agencies and parastatals. Additional research may also compare sustainability disclosures in SOEs and PSEs. Future research may also conduct a quantitative study on this topic to document the statistical significance of the findings. In this context, while we have primarily relied on descriptive analysis in this study, future research may use statistical tools, such as regression analysis or hypothesis testing, which may provide more robust and generalizable results. A comparative study between SOEs and PSEs may have added additional insights. However, the contemporary academic discourse on sustainability disclosure appears to suggest that differences in mandates affect comparability. Future studies may explore the dimensions in which sustainability practices in SOEs and PSEs may be compared. We have focused on the periods between 2020 and 2022 in this study and there were no major regulatory and reporting changes in both countries in the years after, before the recent introduction of the IFRS and the sustainability frameworks in both New Zealand and Australia. We believe that future studies will further focus on sustainability practices in these countries.

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Further reading

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Appendix

Table A1. Sustainability index based on GRI standards 2021

Sustainability Index based on GRI Standards 2021	Linked to GRI
Environmental sustainability	
1. Report on energy consumption and/or efficiency (renewable/nonrenewable)	302-1, 302-4
2. Report on the reductions in energy consumption achieved through conservation and efficiency initiatives	302-4
3. Report on the efficiency of water and/or water use	303-1, 303-2
4. Report on the direct and indirect impacts of activities and/or ownership on biodiversity in terms of land and resources	304-1, 304-2
5. Report on greenhouse emissions	305-1, 305-2
6. Report on other air emissions	305-3
7. Report on emissions reduced through reduction initiatives	305-5
8. Report on the impacts of hazardous waste	306-3, 306-2
9. Report on recycled materials and spillages	306-2, 306-3, 301-2
10. Report on the activities of suppliers that have potential or significant negative impacts on the environment	308-2
Social sustainability	
1. Report on the total number of employees/employee turnover by gender during the reporting period	401-1
2. Report on the activities of independent trade unions as well as company's policies and procedures regarding employment, conditions and their benefits	402-1, 401-2
3. Report on the activities of a committee dealing with employee's health, work environmental and safety	403-1
4. Report on the policies on occupational accidents and diseases in terms of health and safety for employees	403-4
5. Report on absence and work-related injuries	403-2
6. Report the average number of hours of training that employees have undertaken during the reporting period	404-1
7. Report on the type and scope of programmes implemented and assistance provided to upgrade employee skills	404-2
8. Report on the percentage of the total number of employees that received a regular performance and career development review during the reporting period	404-3
9. Report on salary and remuneration of employees with regard to employees' gender/age	405-1, 405-2
10. Report on the total number of discrimination-related issues during the reporting period and report on the policies/programmes/procedures plans to mitigate nondiscrimination in the organization	406-1
11. Report on the organization's policies for acknowledging freedom of association and collective bargaining	407-1
12. Report on the policies in place for excluding the use of child labor directly from the organization's international operations and indirectly from the organization's suppliers	408-1
13. Report on the policies in place for addressing forced and compulsory labor	409-1
14. Report on the policies in place for managing impacts on community in areas affected by the organization's operations	413-1
15. Report on the community intervention projects and/or donations related to society	413-1
16. Report on the impacts of intervention projects on the community, both positive and negative	413-1, 413-2
17. Report on the total monetary value of financial and in-kind political contributions made directly and indirectly by the organization by country and recipient/beneficiary; and estimates on intervention projects	415-1

(*continued*)

Table A1. Continued

Sustainability Index based on GRI Standards 2021	Linked to GRI
18. Report on the total number and percentage of significant investment agreements and contracts on human rights, which include human rights clauses/and or screening	412-3
19. Report on the policy in place for protecting costumer health and safety during the use of organization's product/service	417-1
20. Report on the policy in place for compliance mechanisms for product information and labeling	417-2
21. Report on the policy in place for consumer privacy and its compliance mechanism	4118-1
22. Report on the diversity of governance bodies and employees	405-1
Governance sustainability	
1. Report on the governance structure, including committees of the highest governance body	2-9
2. Report on the nomination and selection of the highest governance body	2-10
3. Report whether the chair of the highest governance body is also a senior executive in the organization	2-11
4. Report on the role of the highest governance body and of senior executives in developing, approving and updating the organization's purpose, value or mission statements, strategies, policies and goals related to sustainable development	2-12
5. Report on how the highest governance body delegates responsibility for managing the organization's impacts on the economy, environment and people, including: whether it has appointed any senior executives with responsibility for the management of impacts	2-13
6. Report on the role of the highest governance body in sustainability reporting in terms of whether the highest governance body is responsible for reviewing and approving the reported information, including the organization's material topics	2-14
7. Report on the measures taken to advance the collective knowledge, skills and experience of the highest governance body on sustainable development	2-17
8. Report on the processes for evaluating the performance of the highest governance body in overseeing the management of the organization's impacts on the economy, environment and people	2-18
9. Report on the remuneration policies for members of the highest governance body and senior executives	2-19
10. Report on the process for designing remuneration policies and for determining remuneration, including: whether independent highest governance body members or an independent remuneration committee oversees the process for determining remuneration	2-20
11. Report on the relevance of sustainable development to the organization and its strategy for contributing to sustainable development	2-22
12. Report on the approach to engaging with stakeholders	2-29
13. Report on the percentage of total employees covered by collective bargaining agreements	2-30
Economic sustainability	
1. Report direct economic value generated and distributed	201-1
2. Report risk with/opportunities regarding climate change or legislative	201-2
3. Report how the organization work with climate change and the cost related to this change	201-2
4. Report the retirement plans and present the value of them	201-3
5. Report financial assistance provided by externals	201-4
6. Report employee wages and compensations	202-1
7. Report total monetary value of financial assistance received by the organization from any government during the reporting period, including: tax relief and tax credits; subsidies; investment grants, research and development grants and other relevant types of grant	202-4

(*continued*)

Table A1. Continued

Sustainability Index based on GRI Standards 2021	Linked to GRI
8. Reported the extent of development of significant infrastructure investments and services supported (current or expected impacts on communities and local economies, including positive and negative impacts where relevant)	203-1
9. Report which impact changes in the organization has on welfare/society	203-2
10. Report the total number and percentage of operations assessed for risks related to corruption and significant risks related to corruption identified through the risk assessment	205-1
11. Report how policies and procedures have been communicated to/governance body members that have received training on anticorruption	205-2
12. Report the total number and nature of confirmed incidents of corruption (incidents in which employees were dismissed or disciplined for corruption, incidents when contracts with business partners were terminated or not renewed due to violations related to corruption)	205-3

Source(s): Authors' own compilation

Corresponding author
Adeyemi Adebayo can be contacted at: adebaao@unisa.ac.za