

INTERNATIONAL REGULATORY FRAMEWORKS FOR ENVIRONMENTAL REPORTING (GRI AND ISO) AND THE EXTENT OF ENVIRONMENTAL DISCLOSURE PRACTICES AMONG SELECTED COMPANIES IN ASIA-PACIFIC COUNTRIES

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ABSTRACT

Environmental reporting has become an integral part of corporate accountability as stakeholders increasingly demand transparent, comparable and reliable information on the environmental performance of firms. Two institutions have shaped the global architecture of such reporting: the Global Reporting Initiative (GRI), which provides a voluntary, stakeholder-oriented disclosure framework, and the International Organization for Standardization (ISO), which provides certifiable, process-based management-system standards. This paper examines these two regulatory frameworks in detail and reviews the extent to which companies in five Asia-Pacific economies — Japan, Malaysia, India, Taiwan and Australia — have incorporated environmental disclosure in their annual and sustainability reports. Based on a review of secondary literature, regulatory documents and disclosure trends, the paper finds considerable heterogeneity in the depth and quality of environmental disclosure across the region, driven largely by differences in the mandatory versus voluntary nature of reporting requirements, ownership structure, industry sensitivity and the level of regulatory maturity. The paper concludes that while adoption of GRI-aligned disclosure is rising steadily across the Asia-Pacific region, the extent of disclosure remains uneven, and continues to be shaped more by regulatory compulsion than by voluntary stakeholder engagement.

Keywords: Environmental Reporting, Global Reporting Initiative, ISO 14001, Environmental Disclosure, Asia-Pacific, Corporate Sustainability

1. INTRODUCTION

The last three decades have witnessed a fundamental shift in the way business enterprises are expected to account for their impact on the natural environment. What began as a peripheral, philanthropic activity confined to a handful of environmentally sensitive industries has evolved into a mainstream corporate reporting obligation, driven by regulators, investors, and increasingly climate-conscious consumers. Environmental reporting — the practice of disclosing information relating to a company's environmental policies, resource consumption, emissions, waste management and environmental risk exposure — is now viewed as a core component of corporate transparency, alongside financial reporting.

Because environmental disclosure is largely voluntary in most jurisdictions, its form, content and quality vary widely from company to company and country to country, unless it is guided by a recognised framework. Two frameworks have come to dominate this space internationally. The Global Reporting Initiative (GRI) offers a comprehensive, stakeholder-

inclusive set of disclosure standards that specify what should be reported and how, without prescribing any particular environmental performance standard. The International Organization for Standardization (ISO), on the other hand, offers certifiable management-system standards — most notably ISO 14001 — that specify how an organisation should manage its environmental impacts, irrespective of what it ultimately discloses to the public. Understanding how these two frameworks operate, and the extent to which they are reflected in the actual reporting practices of companies operating in the Asia-Pacific region, is the central concern of this paper.

The Asia-Pacific region offers a particularly instructive setting for this inquiry. It is home to some of the world's most mature capital markets (Japan, Australia) as well as fast-growing emerging economies (India, Malaysia) and export-oriented manufacturing hubs (Taiwan), each with a distinct regulatory trajectory on sustainability disclosure. Comparing environmental disclosure practices across these five countries allows for an assessment of how international frameworks are being absorbed, adapted, or in some cases superseded by domestic regulatory mandates.

2. OBJECTIVES OF THE STUDY

This paper is based on the following two objectives drawn from the broader study:

- To study the international regulatory framework for environmental reporting, with particular reference to the Global Reporting Initiative (GRI) and the International Organization for Standardization (ISO).
- To examine the extent of environmental disclosure practices of the selected companies in Asia-Pacific countries.

3. RESEARCH METHODOLOGY

The paper adopts a descriptive-analytical approach based entirely on secondary data. Information has been drawn from the official standards and guidance documents published by the GRI and the ISO, regulatory circulars and listing requirements issued by securities regulators and stock exchanges in Japan, Malaysia, India, Taiwan and Australia, and the body of academic and professional literature on corporate environmental and sustainability disclosure. The objective is conceptual and comparative rather than statistical: rather than computing a disclosure index from a sample of annual reports, the paper synthesises the existing evidence on disclosure trends to assess the extent and direction of environmental reporting practice in the region.

4. INTERNATIONAL REGULATORY FRAMEWORK FOR ENVIRONMENTAL REPORTING

4.1 The Global Reporting Initiative (GRI)

The Global Reporting Initiative was established in 1997 as an independent international organisation with the specific aim of developing a common global language for sustainability reporting. Its guidelines evolved through several generations — G1 through G4 — before being reissued in 2016 as the GRI Standards, the first global standards for sustainability reporting structured in a modular format. The GRI Standards are organised into Universal Standards, which apply to every reporting organisation regardless of sector (covering foundational concepts, general disclosures about the organisation, and its approach to managing material topics), and Topic Standards, which are grouped under Economic, Social and Environmental series.

Within the Environmental series (the GRI 300 series), the Standards specify disclosures on materials used, energy consumption and intensity, water and effluents, biodiversity impacts, emissions (including direct and indirect greenhouse gas emissions), effluents and waste, environmental compliance, and the environmental performance of suppliers. GRI's defining feature is its materiality-based, stakeholder-inclusive approach: an organisation is expected to report on the topics that reflect its most significant economic, environmental and social impacts, determined through a structured materiality assessment involving its stakeholders, rather than following a fixed checklist. GRI reporting is voluntary and disclosure-oriented; it does not certify or audit an organisation's underlying environmental performance, only the completeness and accuracy of what is disclosed.

4.2 The International Organization for Standardization (ISO)

ISO takes a fundamentally different approach. Rather than prescribing what an organisation should disclose to external stakeholders, ISO's environmental standards prescribe how an organisation should manage its environmental responsibilities internally. The most widely adopted standard in this family is ISO 14001, first published in 1996 and most recently revised in 2015, which specifies the requirements for an Environmental Management System (EMS). ISO 14001 follows the Plan-Do-Check-Act cycle and requires organisations to identify environmental aspects and impacts of their operations, set measurable environmental objectives, and continually improve their environmental performance. Unlike GRI, ISO 14001 is certifiable: an accredited third party audits the organisation's management system and issues a certificate of conformity, which is renewable through periodic surveillance audits.

ISO's environmental family also includes ISO 14004 (implementation guidance for EMS), ISO 14031 (guidelines for environmental performance evaluation), and ISO 14064 (a set of standards for quantifying and verifying greenhouse gas emissions, widely used to support carbon disclosure and emissions trading schemes). A related but distinct standard, ISO 26000, provides guidance on social responsibility more broadly, including environmental responsibility, but is explicitly non-certifiable and intended only as guidance.

4.3 Comparing the Two Frameworks

Basis	GRI	ISO (14001 / 26000)
Nature	Voluntary sustainability disclosure framework	Certifiable management-system standard (ISO 14001); non-certifiable guidance (ISO 26000)
Focus	What is disclosed to stakeholders	How environmental impacts are managed internally
Basis of scope	Materiality assessment, stakeholder inclusiveness	Environmental aspects/impacts identified by the organisation itself
Verification	External assurance is optional	Mandatory third-party certification audit (ISO 14001)
Output	A public sustainability/integrated report	An internal management system, evidenced by a certificate

The two frameworks are best understood as complementary rather than competing. A growing number of large companies across the Asia-Pacific region hold ISO 14001 certification for their manufacturing facilities while simultaneously publishing GRI-

referenced sustainability reports at the corporate level — using ISO to manage environmental performance operationally, and GRI to communicate that performance externally.

5. EXTENT OF ENVIRONMENTAL DISCLOSURE PRACTICES IN ASIA-PACIFIC COUNTRIES

The extent of environmental disclosure among companies in the Asia-Pacific region has historically been shaped less by the voluntary uptake of GRI and more by the pace at which domestic securities regulators have moved from encouraging to mandating non-financial disclosure. A brief country-wise overview illustrates this pattern.

5.1 Japan

Japan has one of the longest histories of corporate environmental reporting in Asia, dating back to voluntary environmental reports published by large manufacturing firms in the 1990s. The Ministry of the Environment has issued Environmental Reporting Guidelines since 2001, and Japanese firms — particularly in the automobile, electronics and chemicals sectors — are among the most frequent GRI reporters in the region. Disclosure tends to be extensive on energy efficiency, emissions and product life-cycle impacts, reflecting Japan's long-standing policy emphasis on energy conservation.

5.2 Malaysia

In Malaysia, Bursa Malaysia's Main Market Listing Requirements mandate sustainability reporting for listed companies, supported by a Sustainability Reporting Guide that explicitly references the GRI Standards. Despite this regulatory push, empirical studies of Malaysian annual reports have generally found environmental disclosure to be less extensive than social or governance disclosure, with many companies providing narrative, qualitative statements rather than quantified environmental performance data such as emissions or water withdrawal figures.

5.3 India

India's environmental disclosure landscape has changed significantly with the introduction of the Business Responsibility and Sustainability Report (BRSR) by the Securities and Exchange Board of India, which became mandatory for the top listed companies by market capitalisation starting FY 2022-23. The BRSR requires structured, largely quantitative disclosure on environmental parameters including energy consumption, water withdrawal, waste generation and greenhouse gas emissions, replacing the earlier, more discretionary Business Responsibility Report format. This shift is expected to substantially improve the comparability of environmental disclosure among large Indian companies, although extension to mid- and small-cap companies remains gradual.

5.4 Taiwan

Taiwan's Financial Supervisory Commission has progressively expanded mandatory sustainability reporting requirements, extending the obligation to prepare a CSR/sustainability report to a widening tier of listed companies based on capital size and industry risk (notably food, chemicals, and finance). Taiwanese disclosure practice is also comparatively data-rich on emissions and energy, partly because ISO 14001 certification rates among Taiwanese manufacturing exporters are high, providing an existing internal data infrastructure that feeds into external sustainability reports.

5.5 Australia

Australia's environmental disclosure regime blends decades of ASX Corporate Governance Council recommendations encouraging voluntary sustainability reporting with more recent mandatory climate-related financial disclosure requirements, aligned with international recommendations on climate risk reporting, applicable to large listed and unlisted entities from FY 2024-25 onward. Historically, disclosure by large Australian companies — particularly in mining and resources — has been relatively extensive on climate and emissions data, driven by investor pressure and carbon pricing exposure, though disclosure on biodiversity and water impacts has traditionally lagged behind emissions reporting.

5.6 Cross-Country Observations

- Mandatory reporting regimes (India's BRSR, Taiwan's tiered CSR reporting mandate, Australia's climate disclosure rules) are associated with more quantified, comparable environmental disclosure than purely voluntary regimes.
- Emissions and energy-related disclosure is the most commonly reported environmental category across all five countries, while biodiversity and supplier environmental assessment remain the least reported, consistent with global GRI adoption patterns.
- Export-oriented manufacturing economies (Japan, Taiwan) show a closer link between ISO 14001 certification and the depth of GRI-based external disclosure than domestically-oriented service-heavy economies.
- Across the region, the overall trend is one of convergence towards GRI-aligned, quantified disclosure, but the pace of convergence continues to be set primarily by domestic regulatory mandates rather than voluntary stakeholder-driven adoption.

6. DISCUSSION

Taken together, the review of the GRI and ISO frameworks and the country-wise evidence on disclosure practice suggests two related conclusions. First, the international regulatory architecture for environmental reporting is not monolithic: GRI and ISO serve distinct but complementary functions — one oriented towards external accountability, the other towards internal environmental management — and the presence of one does not guarantee the presence of the other. Second, and more significantly, the extent of environmental disclosure among Asia-Pacific companies appears to depend far more on the binding force of domestic regulation than on the voluntary appeal of international frameworks. Where regulators have made structured, quantitative environmental disclosure mandatory — as in India's BRSR, Taiwan's tiered CSR mandate, and Australia's emerging climate disclosure rules — the depth and comparability of reporting has improved markedly. Where disclosure remains voluntary or only loosely mandated, as has historically been the case in Malaysia, reporting tends to remain narrative and selective.

CONCLUSION AND SUGGESTIONS

This paper set out to examine, first, the architecture of the two dominant international frameworks for environmental reporting — GRI and ISO — and second, the extent to which their principles are reflected in the environmental disclosure practices of companies across five Asia-Pacific economies. The evidence suggests that while GRI has become the de facto reference framework for sustainability disclosure content across the region, and ISO 14001 remains the dominant management-system standard underpinning environmental data collection, the actual extent of disclosure continues to be driven primarily by domestic

regulatory mandates rather than the voluntary logic of stakeholder engagement that GRI itself envisages.

On this basis, the following suggestions may be considered for improving environmental reporting practice in the region:

- Regulators in countries that still rely on voluntary or narrative-based environmental disclosure (such as Malaysia) may consider phased mandatory adoption of quantitative, GRI-aligned metrics, following the precedent set by India's BRSR and Taiwan's tiered mandate.
- Companies should be encouraged to integrate their ISO 14001 environmental management data directly into their GRI-based sustainability disclosures, so that external reporting is grounded in externally-verified internal data rather than self-reported estimates.
- Greater regulatory and professional attention is warranted for currently under-reported environmental categories, particularly biodiversity impact and supplier environmental assessment, where disclosure across the region remains thin.
- Regional harmonisation of environmental disclosure requirements among Asia-Pacific securities regulators would improve the cross-country comparability of environmental performance data, which currently varies considerably in format and rigour from one jurisdiction to another.

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