UNIVERSITAS KRISTEN MARANATHA
Fakultas Hukum dan Bisnis Digital
JURNAL AKUNTANSI
ISSN 2085-8698 E-ISSN 2598-4977
Phone +62 22 201 2186/200 3450 Ext. 1522 | Email jurnal.akuntansi.maranatha@gmail.com | Website https://journal.maranatha.edu/index.php/jam | Alamat Jl. Prof. drg. Suria Sumantri No. 65, Bandung 40164, Indonesia

A Systematic Literature Review: New Concept of Green Governance

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Received 07 September 2026; Revised 18 October 2026; Accepted 22 October 2026

Abstract

Purpose – This study systematically reviews researchers' concerns regarding the role of Asia-Pacific higher education institutions (HEIs) in sustainable development, identifying key supporting and challenging factors amid "global boiling."
Design/Methodology/Approach – A systematic literature review was conducted, analyzing 94 Scopus-indexed articles focused on Asia-Pacific HEIs.
Results – Synthesizing institutional challenges (e.g., policy gaps, resource constraints) and enablers (e.g., faculty engagement, green culture) across the 94 studies reveals that effective HEI sustainability depends on green governance. Specifically, thematic synthesis grounds this governance on two foundational pillars: strategic green leadership and academic readiness.
Originality – By empirically synthesizing regional socio-environmental factors into an integrated green governance framework, this study bridges the gap between leadership commitment and academic execution in Asia-Pacific HEIs.
Research limitations/Implications – Limited to Scopus-indexed literature, the study guides HEI administrators in fostering operational readiness and assists policymakers in structuring supportive regulatory frameworks.

Keywords: **Academic Readiness, Asia-Pacific, Green Governance, Green Leadership, Higher Education Institutions**

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Introduction

The phenomenon of "global boiling," highlighted by UN Secretary-General António Guterres, underscores the need for massive, concrete action to preserve the environment (UN News, 2023). This crisis context compels organizations to fulfill their social responsibilities, ensuring that business expansion remains aligned with sustainability principles (Lauw & Rahadian, 2022). Adopting such environmental practices has the potential to generate long-term value for organizations (Lina & Rinaldy, 2025). Furthermore, organizations can enhance their performance during times of crisis by strengthening corporate governance (Natalia et al., 2024). To achieve effective governance and sustainable transformation, human capital developed through education is essential. History has shown that a nation's progress is strongly influenced by education, particularly higher education, which has driven humanity into the digital age. Higher education institutions (HEIs) serve as an entry point for students to contribute to national development (Jauhar et al., 2018). HEIs enable them to take on roles in middle to top management, solve problems, and contribute to policymaking.

Furthermore, HEIs can participate in designing immediate programs (Leal Filho, Weissenberger, et al., 2023; Leal Filho, Aina, et al., 2023) as a tactical step to not only reduce their own carbon footprint but also to educate students to become future leaders (Leal Filho, Weissenberger, et al., 2023; Leal Filho, Aina, et al., 2023; A. Ali, 2025; An et al., 2020) in an effort to combat climate change and improve society (Leal Filho, Weissenberger, et al., 2023; Leal Filho, Aina, et al., 2023). HEIs serve as vital economic actors in advancing sustainable development (Leal Filho et al., 2019). As institutions responsible for producing the nation's next generation, higher education should actively lead sustainability initiatives (Kusuma et al., 2026). Globally, HEIs have integrated sustainability into their practices, including research and publications, commonly referred to as "sustainability publishing" (Leal Filho et al., 2021). This important role of HEIs has generated great curiosity to study how HEIs address the "global boiling point."

According to the UNFPA, the Asia-Pacific region is characterized by (1) encompassing 60 percent of the world's population (approximately 4.3 billion people), (2) containing the world's two most populous countries, China and India, and (3) being home to some of the smallest populations, particularly among Small Island Developing States in the Pacific. In addition, as reported by the World Population Review, six of the world's ten largest carbon emitters are in the Asia-Pacific region, namely China, India, Japan, Iran, Indonesia, and South Korea. In light of this, the present review examines 94 articles from the Scopus database to answer two questions: (1) what factors challenge Asia-Pacific HEIs, and (2) what factors support sustainable development (hereafter SD) in Asia-Pacific HEIs.

Extant literature review articles on sustainable development (SD) in higher education institutions (HEIs) have predominantly focused on global trends, curriculum integration, or isolated campus greening operations (e.g., Findler et al., 2019; Nordén & Avery, 2021; Brescia et al., 2026). However, these prior reviews often present fragmented perspectives or overlook the distinct socio-environmental dynamics of specific regions.

To address this gap, this systematic literature review examines 94 Scopus-indexed articles focusing on the Asia-Pacific region. From this synthesis, two critical conditions facing Asia-Pacific HEIs emerge. First, HEIs across both developed and emerging nations encounter persistent operational challenges, particularly in embedding SD issues into curricula and developing sustainable business models that secure funding while maintaining eco-friendly principles (e.g., Deo et al., 2024; Desha & Hargroves, 2010; Graham et al., 2018; McGrath et al., 2021; Wilson & von der Heidt, 2013; Kennedy & Terpstra, 2013; Trencher et al., 2018; Faham et al., 2017; Kılkış & Kılkış, 2017; Henderson et al., 2019; Chiang & Chen, 2022; Tavitiyaman & Zhang, 2024; Tian & Martin, 2014; Tran et al., 2025). Consequently, sustainability has become essential for long-term institutional viability (Govindaraju et al., 2019).

Second, sustainability practices examined in developing countries include sustainability reporting (An et al., 2020), supply chain management (Basu et al., 2016; Govindaraju et al., 2018), entrepreneurial initiatives (Cheng & Adejumo, 2021), and the adoption of environmentally friendly vehicles (A. Ali, 2025; Fawehinmi et al., 2022). In developed countries, such practices include the use of eco-friendly vehicles (Hancock & Nuttman, 2014), computer reuse programs (Wang et al., 2019), and sustainable supply chain management (Young et al., 2016). Additionally, HEIs in developing countries have implemented various quality management initiatives aimed at continuous improvement (Ab Wahid, 2019; H. M. Ali et al., 2019; Arif, 2016; Ozdemir et al., 2020; Parvez & Agrawal, 2019; Rahnuma, 2020; Sahu & Raut, 2024) and fostering a culture of quality (Rahnuma, 2020). Comparative studies have also been conducted across academic programs (Carter, 2016; Ly et al., 2015; Rehman et al., 2019) and between nations (Rehman et al., 2019).

Unlike existing review studies that predominantly categorize these practices in isolation, this study differentiates itself by synthesizing these multi-dimensional findings into a novel conceptual framework

centered on green governance. Specifically, these findings contribute to HEIs' practice in the Asia-Pacific region, which needs to implement a green philosophy, namely green governance, by developing academic readiness and leading with green leadership. When all stakeholders in HEIs genuinely value something, they naturally strive to deliver their best, dedicating effort from planning to implementation while considering the needs of the next generations. Thus, this study directly bridges the empirical literature with a theoretical framework allied to the study of SD for the future.

To establish strong alignment among the research objectives, methodology, findings, and theoretical contributions, this study addresses the following research questions:

RQ1: What are the key challenging and supporting factors influencing sustainable development implementation in Asia-Pacific HEIs across developed and emerging countries?

RQ2: How do sustainability practices and quality management initiatives differ between developed and developing nations within the Asia-Pacific context?

RQ3: How can the empirical and thematic findings from the reviewed literature be synthesized into a proposed green governance framework (incorporating academic readiness and green leadership) for HEIs?

Historical Context

Attention to SD began in 1985, when the term "green" was adopted to attract consumers. International recognition of the role of education began with the definition of SD in 1987. The 1990s came to be known as the environmental decade. In its development, education was officially adopted as the fourth goal of the United Nations' 17 Sustainable Development Goals (SDGs), demonstrating the important role of higher education as a key actor in disseminating, applying, and cultivating the concept of sustainable development.

Established in 1915 to guide trade-related matters, the U.S. Federal Trade Commission (FTC) issued environmental marketing claim guidelines in 1992 following a surge in corporate "green" positioning between 1985 and 1990 (Federal Trade Commission, 2010; Mohr et al., 1998; Kangun et al., 1991), while Europe's OECD (formerly OEEC, est. 1948) expanded global governance standards in September 2023 by incorporating a Sustainability and Resilience framework aligned with the Paris Agreement and SDGs. In parallel, education's vital role in sustainable development, formally recognized since 1987, was reinforced through the creation of the Higher Education Sustainability Initiative (HESI) at the 2012 Rio+20 summit to mobilize higher education institutions, culminating in education's official adoption as Goal 4 of the UN 17 SDGs in 2015. Academic attention to economic sustainability was highlighted by John Elkington in 1994. Elkington emphasized the importance of corporate board responsibility, particularly in corporate governance, to ensure a balance between the interests of shareholders and stakeholders. This focus on corporate governance has been reflected globally, especially among countries affiliated with the United Nations Development Programme (UNDP). In July 2018, the UNDP committee introduced the *11 Principles of Effective Governance for Sustainable Development*.

These principles are grouped into three categories: effectiveness, accountability, and inclusiveness. The inclusiveness principle underscores that public-policies should address the aspirations of all levels of society, be non-discriminatory, actively involve all groups, ensure the fair distribution of authority, and maintain stability between the needs of the current and upcoming generations. The above explanation illustrates global efforts to regulate the sustainability of organizational operations. The development of operational and reporting standards reflects an increasing consciousness of the demand to stabilize profit generation, employee welfare, and environmental protection within a rules-based framework. These standards continue to evolve to strengthen environmental sustainability.

Therefore, companies and higher education institutions must maintain intergenerational balance through the execution of SD practices. To address the fragmented nature of prior sustainability efforts and bridge the identified empirical gaps, this study introduces a dedicated conceptual clarification that distinguishes green governance from related existing constructs. Specifically, sustainability governance within higher education institutions fundamentally relies on the establishment of standardized policies, compliance structures, institutional reporting frameworks, and formal accountability mechanisms to systematically manage environmental footprints and align operations with global sustainability goals. As highlighted by Ankareddy et al. (2025), this governance dimension requires structured regulatory guidelines, adequate budgets, and robust assessment tools to track institutional progress. In contrast, leadership constructs center on the human and behavioral dimensions of an organization, emphasizing individual attributes and internal drivers. According to Kelvin (2024), effective sustainability leaders are defined by personal traits such as visionary thinking, ethical orientation, cultural sensitivity, and systems thinking, which enable them to inspire collective commitment and guide organizational culture. Therefore, while sustainability governance provides the formal, structural rules and policy scaffolding required for

institutional compliance, leadership constructs supply the visionary, ethical, and behavioral momentum needed to drive cultural transformation.

Building upon these distinctions, while sustainability governance broadly focuses on policy and compliance structures, and leadership constructs focus on individual leader traits or behaviors, green governance in our framework serves as an integrative, institution-wide operational and cultural philosophy. It bridges structural readiness (academic readiness) with leadership actions (green leadership) to achieve long-term intergenerational impact. Consequently, these theoretical distinctions and synthesized empirical findings are explicitly linked to our research questions, demonstrating how the thematic findings systematically feed into the proposed green governance framework for Asia-Pacific HEIs.

Methods

This study employed a systematic literature review (SLR) guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework to ensure systematicity, transparency, and methodological reproducibility. The complete selection process is illustrated in the PRISMA flow diagram (Figure 1). To capture the comprehensive evolution of research on sustainable development in higher education institutions, a literature search was conducted using the Scopus database without an initial publication year restriction. The retrieved articles ultimately span from 2007 to early Q3 2025, ensuring the inclusion of foundational historical studies alongside contemporary findings on Asia-Pacific HEIs.

The search was conducted exclusively through Scopus for several compelling reasons. First, Scopus is the largest and most renowned academic database containing high-quality, peer-reviewed journals (Arora et al., 2026; Chan et al., 2026). Second, Scopus provides comprehensive, credible, and extensive coverage (Arora et al., 2026; Mahran & Elamer, 2024; Pramono & Nurhakim, 2026; Maral, 2024) that guarantees a thorough screening of relevant literature across a wide academic spectrum (Hassan & Fernando, 2026). Third, it serves as a leading research database in business, finance, accounting, and management disciplines (Rath, 2026). Fourth, Scopus is recognized as a user-friendly database with an efficient interface for narrowing down specific search results (Wuni et al., 2022). Fifth, publication and retrieval through Scopus align directly with key performance indicators established by our institution.

To capture the complete conceptual spectrum of the field, the search query was applied across the article title, abstract, and keywords fields (TITLE-ABS-KEY) using the exact Boolean search string: TITLE-ABS-KEY ("sustainability in higher education") and (LIMIT-TO (SUBJAREA, "BUSI")) and (LIMIT-TO (SRCTYPE, “j”)) and (LIMIT-TO (LANGUAGE, "English")) and (LIMIT-TO (DOCTYPE, "ar")). No restrictions were placed on the publication period to allow a comprehensive historical overview of scholarly contributions. Eligibility for inclusion required that candidate publications be peer-reviewed original journal articles written in English and explicitly situated within Higher Education Institutions (HEIs). Furthermore, all included articles were restricted to the Business, Management, and Accounting subject area, following the rationale that scholars in these disciplines play a pivotal role in examining organizational, governance, and management practices essential for supporting Sustainable Development Goals (Bebbington & Unerman, 2018). Conversely, non-journal publications (such as conference proceedings, book chapters, editorials, and notes), non-English articles, and studies focusing on non-higher education settings (e.g., primary/secondary education or corporate enterprise environments) were systematically excluded.

The literature selection proceeded through a structured multi-stage screening process. An initial automated database query yielded a preliminary corpus of 147 articles meeting the subject area, document type, and language criteria. Subsequently, a rigorous manual title and abstract screening was conducted to apply the geographical eligibility criterion. During this phase, 53 articles were excluded because their empirical settings or case studies were conducted exclusively outside the Asia-Pacific region (e.g., in North American, European, or African contexts without a comparative Asia-Pacific scope). This geographical filtration yielded a refined sample of 94 articles, which were then thoroughly evaluated for data on operational practices, governance challenges, and regional sustainability initiatives across both developed and emerging Asia-Pacific economies.

To organize the extracted data, a qualitative thematic content analysis was conducted using a combined inductive and deductive coding protocol. Key information, including geographic contexts, operational obstacles, quality management efforts, and leadership frameworks, was extracted from each paper during open coding. These codes were grouped into second-order sub-themes and subsequently synthesized into four main thematic categories as presented in Table 3: operational challenges and funding models, sustainability practices across economic contexts, quality management initiatives, and the proposed Green Governance framework (incorporating academic readiness and green leadership). Additionally, VOSviewer was utilized as a supporting bibliometric tool for keyword co-occurrence and network visualization. Positioned as a supporting analytical tool rather than a statistical validation, VOSviewer

DOI: 10.28932/jam.v18i2.17503

helped map keyword networks and cluster density, thereby objectively confirming that the qualitatively derived thematic categories accurately reflected the core intellectual structure of the retrieved literature.

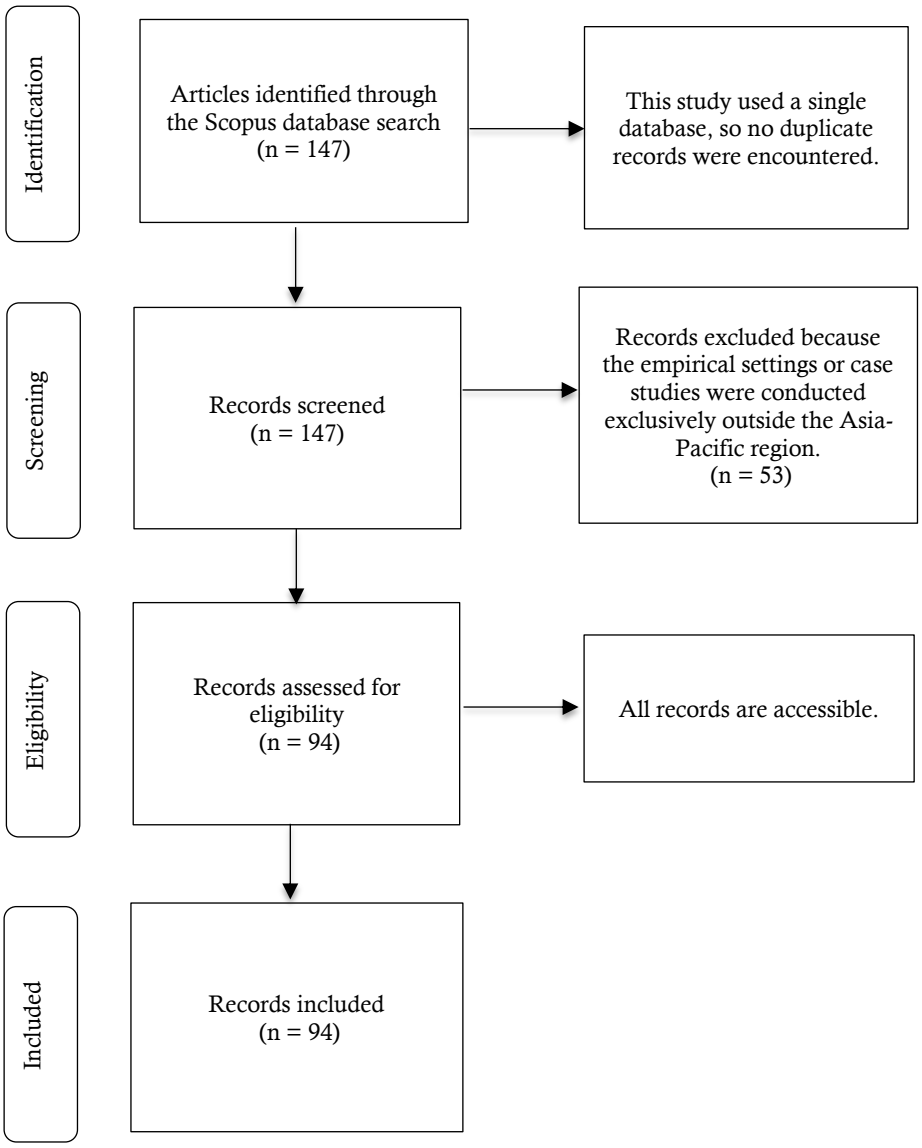


Figure 1.
PRISMA Flow Diagram

Research Results

Publications are categorized into two distinct periods using 2015 as the baseline, the year the United Nations launched the Sustainable Development Goals (SDGs), including Goal 4 on quality education, highlighting a dramatic shift from only 13 articles before 2015 to a sharp rise onward that reflects growing academic interest in sustainable development, with more than half (59.57%) of the reviewed literature appearing in high-impact Q1 journals.

Table 1
Distribution by Year and Publication Quality

Publication Quality	Year		Total	Total (%)
	< 2015	2015 - 2025		
Scimago				
Q1	7	49	56	59.57%
Q2	5	20	25	26.60%
Q3	0	4	4	4.26%
Q4	1	8	9	9.57%
Total	13	81	94	100.00%

Table 2 shows that the most frequently used research method was the survey method, applied in 37 of the 94 articles (39.36%). This was followed by the case study method, employed in 23 articles, while analytic methods ranked third. Analytic approaches included literature reviews (Babaçoğlu et al., 2025; Carter, 2016; Coombe, 2015; Deo et al., 2024; McGrath et al., 2021; Ramachandra & Mansor, 2014; Saadatian et al., 2011; Sahu & Raut, 2024; Sherren et al., 2010; Tian & Martin, 2014; Ting et al., 2012), discourse analysis (Hong & Hardy, 2022), and conceptual analysis (Do, 2020). Ten studies used interviews, while six adopted mixed methods.

The archival method was applied in four articles, where researchers utilized pre-existing data, such as development indices (Sajjad et al., 2022), student data (Alam, 2021; Tran et al., 2025), and financial data (Tran et al., 2025). Some studies also used data provided by international organizations (Cheng & Adejumo, 2021). One study by Chiang and Chen (2022) employed an experimental method to examine whether the implemented project improved sustainability learning outcomes. The facts in Table 2 show the researchers' attention to studying sustainable development factors in higher education by using various methods to get empirical evidence.

Table 2
Distribution by Research Method

Research Method	Year		Total	Total (%)
	< 2015	2015 - 2025		
Survey	2	35	37	39.36%
Case study	3	20	23	24.47%
Analytic	5	8	13	13.83%
Interview	3	7	10	10.64%
Mixed method		6	6	6.38%
Archival		4	4	4.26%
Experiment		1	1	1.06%
Total	13	81	94	100.00%

To provide a deeper understanding of how these research topics connect within higher education institutions, a visual mapping of the literature is presented. The subsequent VOSviewer figure displays the dominant clusters and their thematic networks.

DOI: 10.28932/jam.v18i2.17503

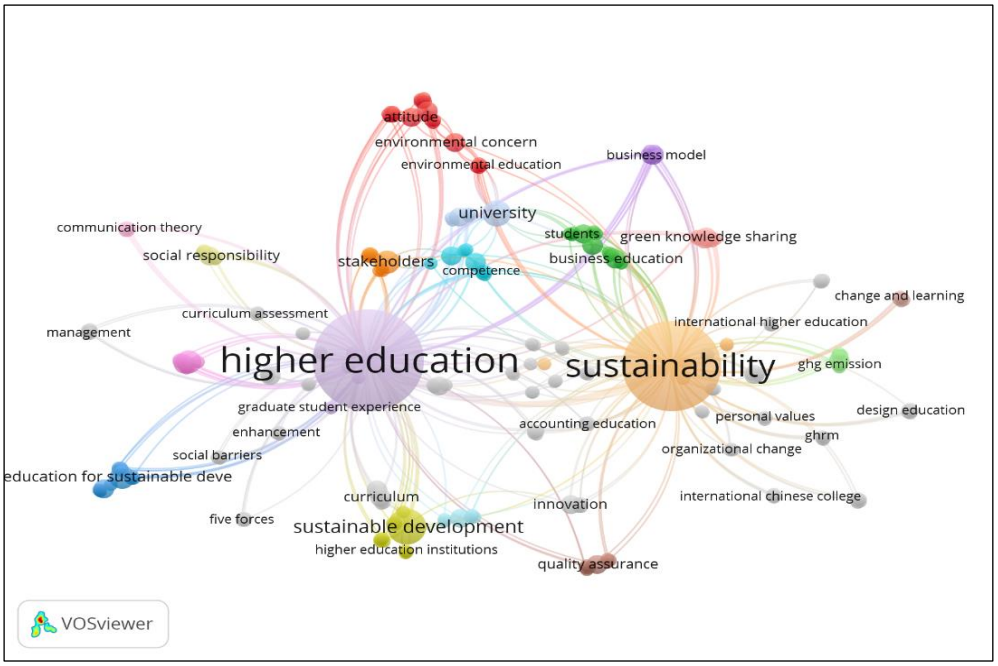


Figure 2
VOSviewer

The bibliometric network visualized above reveals distinct thematic groupings within the literature. These groupings are further detailed in Table 3, which categorizes the nodes into dominant and supporting clusters based on their node size and network positioning.

Table 3
Main and Supporting Clusters

Categories	Cluster Color	Term / Topic	Description
Main Clusters (Dominant)	Purple	Higher education, business model	Largest nodes (indicating the highest keyword frequency). The central position acts as the main hub/center of the literature.
	Orange	Sustainability, stakeholders	Very large nodes: The second center. Extensive connections, particularly to the right area and the purple cluster; it functions as the network's second main pole.
	Yellow	Sustainable development, higher education institutions, social responsibility	Large-sized nodes: The third center below the purple cluster. Connections bridge the left side (purple) and right side (orange), indicating a role as a major transitional concept.
	Red	Attitude, environmental concern, environmental education	Small nodes. Positioned at the top edge. Connections are dependent on and directed towards the main nodes.
	Green	Students, business education, GHG emission	Small to medium-sized nodes. Bridge the light blue and orange clusters as a specific sub-focus.
	Pink	Green knowledge sharing, communication theory	Small nodes. Niche topics (highly specific) positioned at the periphery of the network with limited connections.
Supporting Clusters	Blue	Education for sustainable development, social barriers, enhancement	Small nodes. Located at the bottom left edge of the network, indicating a specialized research branch extending from "higher education".
	Light Blue	University, competence	Small nodes. Located between the red and purple clusters, supporting the main institutional concepts.
	Brown	Quality assurance, change and learning	Smallest nodes. Scattered at the bottom and right edges, indicating topics that are least frequently discussed together in a massive manner.

Categories	Cluster Color	Term / Topic	Description
	Grey	Curriculum assessment, management, graduate student experience, curriculum, five forces, innovation, accounting education, organizational change, personal values, Green Human Resource Management/GHRM, international Chinese college, design education, international higher education	Scattered and small-sized nodes. These represent fragments of applied sub-topics from various fields (such as management, accounting, design) attached to the main clusters.

To further analyze the components of each cluster from Table 3, the identified terms were grouped into overarching research categories and sub-categories. This detailed classification is presented in Table 4.

Table 4
Main Category Classification

Main Categories	Sub-Categories	VOSviewer Node	Cluster Classification
Management Education	Principles, programmes, business model, and curriculum	Higher education	Main Cluster (Purple)
		Business model	Main Cluster (Purple)
		Higher education institutions	Main Cluster (Yellow)
		Business education	Supporting Cluster (Green)
		University	Supporting Cluster (Light Blue)
		Education for sustainable development	Supporting Cluster (Blue)
		Curriculum, curriculum assessment, accounting education, design education, international higher education, international Chinese college	Supporting Cluster (Gray)
	Quality management system	Quality assurance	Supporting Cluster (Brown)
		Enhancement	Supporting Cluster (Blue)
	Work environment and community	Students	Supporting Cluster (Green)
		Competence	Supporting Cluster (Light Blue)
		Graduate student experience	Supporting Cluster (Grey)
		Social barriers	Supporting Cluster (Blue)
Sustainable Practices	Green initiatives	Sustainability	Main Cluster (Orange)
		Sustainable development	Main Cluster (Yellow)
		Environmental education	Supporting Cluster (Red)
		GHG emission	Supporting Cluster (Green)
		Green knowledge sharing	Supporting Cluster (Pink)
	Personal drives	Attitude	Supporting Cluster (Red)
		Environmental concern	Supporting Cluster (Red)
		Personal values	Supporting Cluster (Grey)
	Business function and activity	GHRM	Supporting Cluster (Grey)
		Innovation	Supporting Cluster (Grey)
	Financial sustainability	Five forces	Supporting Cluster (Grey)
	Management initiatives	Stakeholders	Main Cluster (Orange)
		Social responsibility	Main Cluster (Yellow)
Leadership And Strategic Issues	Strategic issue	Five forces	Supporting Cluster (Grey)
		Innovation	Supporting Cluster (Grey)
		Organizational change	Supporting Cluster (Grey)
	Leadership	Management	Supporting Cluster (Grey)
		GHRM	Supporting Cluster (Grey)
		Change and learning	Supporting Cluster (Brown)
Other	-	Communication theory	Supporting Cluster (Pink)

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To quantify the focus of the literature within these identified categories, the data from Table 4 were further synthesized. The resulting Table 5 illustrates the frequency and percentage of articles dedicated to each research topic across different time periods. This literature review indicates that management education dominates the analyzed research (45 of 94 articles; 47.87%), focusing on sustainability curricula and quality management systems to foster environmental consciousness. Sustainable practices represent the second largest topic (36 articles; 38.30%), while strategic leadership (9 articles; 9.57%) and cross-curricular comparisons (4 articles; 4.26%) remain limited yet critical areas of study in higher education institutions (HEIs). Overall, these findings highlight that combining sustainability-driven curricula with green leadership is vital for HEIs to establish effective green governance and advance sustainable development.

Table 5
Distribution Based on Research Topics

Research Topics	Year		Total	Total (%)
	< 2015	2015 - 2025		
Management education:				
Principles, programmes, business model, and curriculum	7	26	33	
Quality management system		7	7	
Work environment and community	2	3	5	47.87%
Sustainable practices:				
Green initiatives	2	11	13	
Personal drives		9	9	
Business function and activity		7	7	
Financial sustainability	1	3	4	
Management initiatives		3	3	38.30%
Leadership and strategic issues:				
Strategic issue	1	5	6	
Leadership		3	3	9.57%
Other		4	4	4.26%
Total	13	81	94	100%

The bibliometric mapping and thematic distribution presented in Table 5 reveal two foundational pillars that underpin the integration of sustainable development in Asia-Pacific HEIs: academic readiness and green leadership. The first pillar, *academic readiness*, forms the core of the literature (dominating 47.87% of the analyzed studies through management education and quality management systems). It emphasizes that institutional transformation begins with structural and educational foundations, such as embedding sustainability into business models, curricula, quality assurance, and campus operations. The second pillar, *green leadership*, captures strategic issues, personal drives, and leadership mechanisms (such as green human resource management and stakeholder engagement) that drive organizational change. Together, these findings demonstrate that achieving long-term sustainability requires bridging structural academic readiness with proactive green leadership, thereby serving as the empirical foundation for the proposed *green governance* framework.

Discussion & Conclusion

Challenging Factors in HEIs in the Asia-Pacific
Challenging Factors in Developed Countries

Content analysis of the reviewed literature reveals three primary thematic clusters regarding sustainability in higher education, as mapped in Table 5. First, management education (representing the largest cluster at 47.87%) encompasses literature on principles, programs, business models, curricula, quality management systems, as well as work environments and communities. Studies within this cluster highlight that insufficient student understanding of sustainability spans diverse disciplines, such as marketing (Deo et al., 2024), engineering (Desha & Hargroves, 2010), sports (Graham et al., 2018), tourism and hospitality (McGrath et al., 2021; Wilson & von der Heidt, 2013; Tavitiyaman & Zhang, 2024), fashion (Kennedy & Terpstra, 2013), and graduate programs (Trencher et al., 2018), alongside business curricula failing to reflect local cultural contexts (McPhail et al., 2025). To address these gaps, the literature emphasizes reinforcing teaching and learning frameworks (Holdsworth & Sandri, 2021; Sherren et al., 2010), integrating product design for waste reduction (Sherren et al., 2010), encouraging daily sustainable habits (Bell et al., 2016), fostering peer knowledge sharing (Benn et al., 2013), and innovating educational programs (Coombe, 2015). Furthermore, a supportive work environment is critical for building institutional resilience and fostering staff

engagement (Dyball et al., 2015; Fergusson et al., 2020). Second, sustainable practices (accounting for 38.30% of the literature) focus on green initiatives, personal drives, business functions and activities, financial sustainability, and management initiatives. Research in this cluster sheds light on operational hurdles, such as the limited adoption of green behavior among alumni in the workplace (Holdsworth et al., 2019), alongside the need to establish sound business models (Tian & Martin, 2014) and overcoming persistent financial challenges to secure long-term institutional sustainability (Tran et al., 2025). Third, leadership and strategic issues (comprising 9.57% of the literature) address strategic issues and leadership dynamics within higher education institutions. Literature in this domain explores how macro-level policies, such as internationalization initiatives, serve as top policy priorities contributing to sustainable development (Harun & Durden, 2025), and how institutional strategy-making models are developed and leveraged to strengthen global competitiveness (Hong & Hardy, 2022).

Challenging Factors in Developing Countries

Content analysis of the literature concerning developing countries reveals that the barriers to sustainability in higher education span three primary thematic clusters, as mapped in Table 5. First, management education encompasses critical hurdles in curriculum integration and instructional delivery. Universities in developing countries face significant challenges in embedding sustainability constructs into curricula to raise student awareness (Faham et al., 2017; Kılkış & Kılkış, 2017; Henderson et al., 2019; Chiang & Chen, 2022), a crucial step for enabling students to apply sustainability principles in their daily lives and professional careers (Jain et al., 2013). Addressing this requires organizational and individual strategic transformation, particularly among educators (Nguyen et al., 2022). Furthermore, educational inequalities, such as status-based disparities in Pakistan (Sajjad et al., 2022), and limited collaboration between academics and practitioners (Butt & Hemani, 2019), heavily constrain pedagogical advancement.

Second, sustainable practices highlight two aspects: (1) green and management initiatives and (2) operational business functions and activities, such as administrative deficiencies. Institutions frequently struggle with inadequate infrastructure to support digital and online teaching systems (Frouzanfar et al., 2024; Sultana & Faruk, 2024), a vulnerability exposed particularly during the COVID-19 pandemic (Khamis et al., 2021; Alam, 2021; Liu & Gao, 2022). Administrative operations are also hampered by inefficient internal processes, such as the continued reliance on traditional paper-based recruitment mechanisms (Rehmani et al., 2022). Third, leadership and strategic issues address macro-level strategic imperatives and systemic adaptation. Amid rapid technological shifts, higher education institutions face pressing strategic demands to pursue digital transformation as an overarching pathway to building sustainable societal structures (Babaçoğlu et al., 2025), requiring visionary leadership and strategic planning to navigate systemic resource limitations in developing economies.

Sustainable Development in HEIs in the Asia-Pacific

Based on the empirical findings and thematic distribution outlined above, the implementation of sustainable development in Asia-Pacific HEIs fundamentally hinges on two interconnected pillars of green governance: academic readiness and green leadership. Academic readiness represents the structural and pedagogical foundation, encompassing curriculum integration, quality management systems, and the enhancement of environmental awareness among staff and students to cultivate long-term sustainable behavior. Complementing these structural mechanisms, green leadership serves as the strategic driver that supplies visionary momentum, establishes green policies, and engages stakeholders to foster an environmentally conscious institutional culture. Together, these two dimensions bridge institutional compliance with behavioral transformation, providing a comprehensive framework for advancing sustainability across Asia-Pacific HEIs. Below, both pillars are further elaborated to detail their operational roles and institutional impact.

Academic Readiness

Addressing these systemic barriers among HEIs in the Asia-Pacific region requires a broader foundational shift across higher education institutions. Within the Asia-Pacific context, HEIs have incorporated sustainable development into their institutional operations as part of their community responsibilities (Leal Filho et al., 2019), including the development of curricula that prepare students and graduates to address sustainability challenges (Perkiss et al., 2020). In addition to curriculum reform, another key priority is fostering environmental sustainability awareness among academic staff and students (Fuchs et al., 2024; Şener et al., 2019) and cultivating self-transcendence values (Seidel et al., 2018). These efforts are expected to encourage individuals to voluntarily engage in environmentally responsible behavior (Fuchs et al., 2024; A. Ali, 2025) through the development of strong environmental beliefs (Sharma et al., 2023).

Factors that drive sustainability awareness include personal elements such as attitudes, subjective norms, and perceived behavioral control (Mishra et al., 2024; Sengupta et al., 2024) as well as up-to-date environmental knowledge (Fuchs et al., 2024; Shiri et al., 2022). These personal drives have a stronger impact on forming sustainable aspirations than institutional sustainability initiatives (Chahal & Baber, 2024) and can even encourage extra-role behaviors that positively contribute to advancing sustainability in higher education (Srivastava et al., 2019). Therefore, the human dimension is a vital element in incorporating sustainability within HEIs (Kapitulčinová et al., 2018). In addition to personal drives, individuals must also develop relationships with peers and various organizations to strengthen sustainability awareness (Shiri et al., 2022).

HEIs hold a pivotal position in developing human resources capable of addressing and overcoming global challenges (Armas & Jugo, 2024). To achieve this, they must align their vision, mission, and strategic goals with external factors. Government involvement represents one of the most influential external forces (Do, 2020). Moreover, the reputation of HEIs is shaped by both external entities, such as accreditation bodies, and internal stakeholders, beginning with visionary leadership and supported by institutional components such as curriculum and facilities (Anggarina et al., 2024). The commitment of leaders and top management has been widely recognized as a decisive factor in determining the success of sustainability programs (Ting et al., 2012; Govindaraju et al., 2018). Furthermore, organizational sustainability requires both top-down and bottom-up initiatives (Kim & Comunian, 2024; Ávila et al., 2017). Therefore, active participation and collaboration between subordinates and superiors are essential for achieving success. Management initiatives are also necessary to identify and strengthen critical success factors (Salleh et al., 2020). The integration of sustainability across all organizational dimensions enables HEIs to transform from traditional educational institutions into sustainable universities (Kapitulčinová et al., 2018). Education for Sustainable Development (ESD) serves as a transformative framework that cultivates sustainability awareness (Kalsoom & Khanam, 2017). Throughout this transformation, HEIs remain closely connected to collaborations with communities (Ramachandra & Mansor, 2014; Saadatian et al., 2011) and governments (Fawehinmi et al., 2022). Therefore, institutional policies must align with those of government to ensure coherence and long-term effectiveness (Asrar-ul-Haq et al., 2017).

Green Leadership

The vital role of leaders in promoting sustainable development within HEIs begins with establishing an environmentally oriented organizational vision and mission (Govindaraju et al., 2019), supported by the execution of green policies and practices that involve all employees (Tarkar & Kumar, 2024). Top management initiatives should consistently reinforce environmental sustainability to foster an environmentally conscious organizational culture (Fawehinmi et al., 2022). Leaders are also directly engaged in strategy implementation (Lim & Chuah, 2022) and the practice of good governance (Handayani et al., 2023b) to strengthen institutional competitiveness (Govindaraju et al., 2019) through systems thinking approaches (Shukla, 2018). This includes managing funding in public universities (Phusavat et al., 2012) and diversifying income sources in private universities (Handayani et al., 2023a).

Leadership in sustainability is conceptualized through several models: Green Inclusive Leadership (GIL) (Liu, 2025), Green Transformational Leadership (GTL) (Chen & Chang, 2013), Green Authentic Leadership (GAL) (Srivastava et al., 2020), Sustainable Leadership (SL) (Shafait & Huang, 2024), and Top Management Commitment to Greening the Workforce (TMCGW) (Abbas et al., 2022). GIL represents a form of relational leadership that motivates all organizational members to prioritize and implement green values and principles to encourage environmental sustainability in HEIs (Liu, 2025). GTL, on the other hand, refers to the behavior of charismatic leaders who articulate a clear environmental vision and inspire collaboration across the organization to achieve ambitious sustainability goals that exceed existing environmental performance standards (Chen & Chang, 2013). Furthermore, Srivastava et al. (2020) describe authentic leadership as a model that fosters holistic workplace sustainability by promoting openness and freedom of expression. Shafait and Huang (2024) argue that sustainable leadership (SL) involves developing a long-term vision and continuously embedding sustainable values, policies, and initiatives among stakeholders, which are reflected in curriculum design, teaching approaches, research practices, and institutional administration. Similarly, Abbas et al. (2022) emphasize the critical role of top management commitment in implementing green human resource management practices to achieve organizational sustainability.

Green Governance

The evolving discourse on environmental sustainability has prompted researchers to introduce "green" or "sustainability" distinctions in their studies, as seen in concepts such as green inclusive leadership (Liu, 2025) and sustainability publishing (Leal Filho et al., 2021). This differentiation helps clarify sustainable

development research from the general literature (Liu et al., 2025; Leal Filho et al., 2021). Accordingly, this study proposes the concept of *green leadership*, defined as an inclusive and transformative form of relational leadership grounded in a philosophy of environmental appreciation. It begins with a clear green vision, mission, values, and objectives, implemented through continuous improvement to ensure that all organizational operations uphold environmental sustainability. The consistent and collective participation of all organizational members in realizing the green vision, mission, and objectives is essential to cultivating a sustainable green culture that can be passed on to future generations.

By transforming students' perspectives through education, HEIs drive economic and social progress, with student engagement in sustainability shaped by subjective norms (Chahal & Baber, 2024; Eugenio et al., 2022). This engagement can be significantly enhanced through storytelling pedagogies like narrative transportation, which integrates emotion, imagination, and cognition, enabling HEIs to cultivate genuine ecological mindfulness across all internal and external stakeholders (Liu & Gao, 2022). Higher education requires ongoing and consistent improvement through adoption and transformation at strategic, functional, and operational levels (Shukla, 2018). Achieving this goal necessitates the implementation of green governance. Green governance refers to institutional governance in higher education guided by green leadership and rooted in the philosophy of *inclusive inward environmental transformation governance*. This philosophy emphasizes environmental governance that begins with transformation within individuals and calls for the wholehearted participation of all stakeholders. Green governance protects and strengthens the green vision, mission, and culture of HEIs, ensuring that sustainability values are continuously nurtured and embedded in institutional practices.

Conclusion

This systematic literature review underscores the significant surge in research surrounding sustainable development in higher education institutions (HEIs) following the adoption of education as the 4th UN SDG in 2015. Addressing our first and second research questions (RQ1 and RQ2), the synthesis of the 94 reviewed articles maps out the critical challenging and supporting factors, as well as regional variations between developed and emerging nations across the Asia-Pacific. The findings reveal that while HEIs universally strive to integrate sustainability, their efforts have historically been fragmented, leaning predominantly toward management education (47.87%) and isolated sustainable practices (38.30%), and strategic leadership remains limited (9.57%). Consequently, the literature highlights an urgent need for top-down regulatory clarity, standardized reporting frameworks, and structured institutional support to bridge the operational divide between developed and developing countries.

Addressing our third research question (RQ3), the thematic synthesis of the reviewed literature directly informs the development of our proposed conceptual framework: green governance. Moving beyond traditional, compartmentalized approaches, the evidence demonstrates that achieving long-term institutional sustainability requires a dual-engine mechanism that bridges structural foundations with human-centric drivers. Specifically, the literature identifies academic readiness, encompassing management education, curriculum integration, business models, and quality management systems, as the essential structural prerequisite. Simultaneously, it highlights green leadership, capturing strategic issues, personal drives, green human resource management (GHRM), and stakeholder engagement, as the vital behavioral catalyst for driving organizational change.

In conclusion, much like a world-class orchestra, realizing sustainable higher education relies on the seamless synergy between green leadership as the conductor and academic readiness as supporting instruments. This conceptual integration aligns directly with broader global movements, heeding the calls by international bodies for strong leadership and effective governance to combat climate challenges through justice and action. By explicitly linking our empirical synthesis of the 94 articles to RQ1, RQ2, and RQ3, this study establishes that both academic readiness and green leadership are critical, interdependent pillars of green governance, offering a robust theoretical and practical roadmap for future research and institutional policy in Asia-Pacific HEIs.

Limitations & Future Research

This study restricted its sample eligibility to peer-reviewed original research articles published in English. While English serves as the primary medium for international academic discourse, this language filter may have excluded relevant contextual studies published in local languages. To address these limitations and advance the field, future research could expand inclusion criteria to encompass non-English publications to capture a broader regional perspective on sustainability in higher education. Furthermore, future studies should focus on empirically validating the green governance concept, developing robust measurement

instruments, conducting cross-country comparisons, and examining the structural relationship between green governance and sustainability performance.

Declaration of Generative AI Use

During the preparation of this manuscript, Gemini was used solely as an AI tool for language editing and structural refinement to improve clarity and readability, with the authors retaining full responsibility for reviewing, revising, and verifying all final content in accordance with publication ethics.

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