Unlocking Capital

Aligning Asia Pacific's Green Building Rating Tools to the ASEAN Taxonomy for Sustainable Finance

Alignment Analysis September 2025

WORLD GREEN BUILDING COUNCIL
Asia Pacific

OCBC

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About the participating Green Building Councils and rating tool providers

The organisations featured in this report are among the key drivers of green buildings across Asia Pacific. Through advocacy, technical expertise, and industry engagement, they have helped embed sustainability benchmarks into mainstream real estate markets — creating demand, lifting standards, and transforming the built environment. Learn more about these organisations via the links below:

Green Building Councils

- Green Building Council of Australia (GBCA)
- China Green Building Council
- Hong Kong Green Building Council
- Indonesia Green Building Council
- India Green Building Council
- Malaysia Green Building Council
- Philippine Green Building Council
- Singapore Green Building Council
- Green Building Council of Sri Lanka
- United States Green Building Council
- Vietnam Green Building Council

Other organisations in the region

- BRE (Building Research Establishment)
- International Finance Corporation (IFC)
  — World Bank, EDGE Green Building Certification
- Thai Green Building Institute

About the World Green Building Council (WorldGBC)

At the World Green Building Council (WorldGBC), we work to shape sustainable, equitable, and resilient buildings, cities, and communities.

This means enabling the right policy frameworks, financing mechanisms, and cultural shifts that support greener built environments across the globe.

Through our network of Green Building Councils and partners, we are uniquely positioned to accelerate collaboration and raise ambition across governments, businesses, and civil society. Together, we are building the momentum for a better, more sustainable future.

Learn more here.

About OCBC

OCBC is the second largest financial services group in Southeast Asia by assets, and the longest established Singapore bank, formed in 1932.

It is one of the world's most highly-rated banks, with Aa1 by Moody's and AA- by both Fitch and S&P. Recognised for its financial strength and stability, OCBC is consistently ranked among the World's Top 50 Safest Banks by *Global Finance* and has been named Best Managed Bank in Singapore by *The Asian Banker*.

Learn more here.

How to read this guide

This report, developed by the WorldGBC Asia Pacific Network (APN) in partnership with OCBC, bridges a key knowledge gap between technical benchmarks in the built environment and the performance expectations of sustainable finance.

It does so by examining how regional green building rating tools align with the environmental objectives of the ASEAN Taxonomy for Sustainable Finance.

The report builds on the methodology used in *Unlocking the Value* and *Financing Transformation*, developed by a coalition including Alliance HQE–GBC France, BRE, GBCA, Singapore GBC and USGBC.

This alignment analysis is accompanied by:

- The Insights Report, a concise summary of the analysis with distinct calls to action; and
- A Technical Appendix, which presents the full, detailed assessment of the alignment between each green building rating tool and the ASEAN Taxonomy.

The Alignment Analysis is structured as follows:

Insights Report

A concise summary of the analysis, offering clear calls to action to support enhanced collaboration and alignment between green building rating tools and the ASEAN Taxonomy.

Alignment Analysis (this document)

Purpose p.5

Outlines the objective of the paper: to map green building rating tools commonly used across Asia Pacific against the ASEAN Taxonomy for Sustainable Finance. It aims to clarify how these tools support taxonomy reporting and compliance, and facilitate sustainable finance flows into the built environment.

Background p.6

Key green finance instruments — Green Loan and Green Bond Principles

Explains the foundational principles of green loans and green bonds, including use of proceeds, project evaluation, management of proceeds and reporting. It also discusses how green building rating tools align with these principles and support impact reporting.

- Green Loan Principles (GLP)
- Green Bond Principles (GBP)

Taxonomies — a new vehicle to guide green investments

Introduces the concept and components of sustainable finance taxonomies, including environmental objectives, technical screening criteria (TSC), and Do No Significant Harm (DNSH) principles. It focuses on the ASEAN Taxonomy's structure and its relevance to the built environment, while noting the broader applicability of the findings.

- environmental objectives
- the ASEAN Taxonomy approach to defining green investments
- the ASEAN Taxonomy's approach to the built environment
- implementation challenges

The role of green building rating tools

Reflects on how rating tools have contributed to the development of taxonomies.

- relation of green building rating tools and green finance principles
- relation of green building rating tools and the ASEAN Taxonomy

continues →

Analysis and findings p.19

Methodology

Describes the methodology used to assess alignment between green building rating tools and the ASEAN Taxonomy. Includes the classification system, scope of tools assessed and the approach to evaluating alignment with TSC and DNSH.

- scope of assessment
- alignment methodology

High-level findings

Presents the results of the mapping exercise, showing how rating tools align with the ASEAN Taxonomy across the construction of buildings, acquisition or ownership of buildings and renovation of existing buildings.

- areas of strong alignment
- identified gaps

Findings by economic activity

Includes heat maps and alignment tables for the three economic activities in scope: construction, renovation and acquisition/ownership of buildings.

Findings by environmental objective

Includes heat maps and alignment tables for each environmental objective, highlighting common areas of alignment and potential gaps.

- Environmental Objective 1: climate change mitigation
- Environmental Objective 2: climate change adaptation
- Environmental Objective 3: protection of healthy ecosystems and biodiversity
- Environmental Objective 4: resource resilience and the transition to a circular economy

Recommendations for taxonomy compliance p.43

Criteria/credits that must be covered

Sets out the key criteria that must be assessed in rating tools to align with the ASEAN Taxonomy:

- EO1/EO4: climate change mitigation — including resource resilience and the transition to a circular economy
- EO2: climate change adaptation
- EO3: protection of healthy ecosystems and biodiversity — including water use, noise and health and wellbeing

Cross-cutting issues

Offers recommendations for evolving rating tools to better support sustainable finance.

- transparent asset performance information
- social sustainability integration
- performance monitoring and certification validity

Call to action p.49

Calls for stronger collaboration and alignment between green building rating tools and the ASEAN Taxonomy.

Technical Appendix — Detailed Mapping

A detailed analysis of each rating tool and its alignment with the ASEAN Taxonomy. It presents comprehensive, credit-by-credit mapping of each participating tool against the taxonomy's technical screening and DNSH criteria. This appendix, provided as a separate document, offers full transparency into how each tool has been assessed.

Disclaimer: This report does not evaluate the overall quality or effectiveness of any green building rating tool, nor does it assess their ability to drive performance improvements or sustainability outcomes. Rather, the analysis focuses solely on the degree of alignment between rating tool criteria and the ASEAN Taxonomy, within the broader context of the sustainable finance ecosystem in which these tools operate.

Purpose

Sustainable finance is rapidly emerging as a critical enabler of climate action. Green finance principles and taxonomies are playing a central role in defining and directing capital toward environmentally and socially sustainable activities.

In the built environment, green building rating tools have long served as credible frameworks for assessing sustainability performance. However, there is a clear knowledge gap — particularly in the Asia Pacific region — around how these tools intersect with green finance principles and taxonomies. This lack of clarity risks slowing the flow of capital into high-impact, climate-aligned real estate projects.

This paper, developed by the World Green Building Council Asia Pacific Network and OCBC, seeks to bridge that gap. It maps the alignment between Asia Pacific's green building rating tools and the ASEAN Taxonomy for Sustainable Finance, offering a practical guide for investors, developers, and policymakers navigating this complex but essential interface. The paper builds on previous foundational work — including *Unlocking the Value* by the Green Building Council of Australia and *Financing Transformation* by an alliance of international rating tool providers — and represents the third in a series of guidance documents focused on aligning green building practices with sustainable finance frameworks.

Taking a regionally grounded yet globally informed perspective, the guide provides a detailed analysis of how green building rating tools correspond to the ASEAN Taxonomy's Technical Screening Criteria (TSC) and Do No Significant Harm (DNSH) principles. It highlights areas of strong alignment, identifies gaps, and offers recommendations for the evolution of both rating tools and taxonomy frameworks. The aim is to foster greater interoperability, reduce market fragmentation, and support the scaling of sustainable finance in the built environment. While the focus is on the ASEAN Taxonomy, the approach and findings have global relevance.

To support practical application, the guide includes a comprehensive mapping of 32 green building rating tools from 16 certification schemes across the Asia Pacific. It also explores how these tools align with the ASEAN Taxonomy's environmental objectives: climate change mitigation, climate change adaptation, protection of ecosystems and biodiversity, and resource resilience.

The intended audience for this report includes:

- **built environment actors** — developers, construction firms, solution providers, rating tool operators, and those delivering green building projects seeking to scale their impact through access to sustainable finance
- **financiers and investors** — allocating capital to economic activities that advance sustainability in the construction and real estate sectors
- **second-party opinion providers and assurance stakeholders** — involved in verifying compliance with sustainable finance frameworks

This report aims to connect these groups by aligning market-recognised green building rating tools with sustainable finance principles and the ASEAN Taxonomy, in order to unlock capital flows. By clarifying how these tools relate to taxonomy criteria, the report aims to open new pathways for investment, accelerate the transition to a low-carbon built environment, and support the region's broader sustainability goals.

This paper is a call to action for closer collaboration between the finance and building sectors, the continuous improvement of rating tools, and the evolution of taxonomies that reflect the realities and opportunities of the built environment. By working together, sustainable finance can become a powerful driver of transformation across Asia Pacific's cities and communities.

Background

The built environment is one of the most powerful levers for climate action. It contributes significantly to global emissions and is increasingly exposed to climate risks, particularly in urban communities. While the finance sector recognises that climate risk is financial risk, there remains a lack of calibrated, practical guidance to define what constitutes a robust transition within the built environment for financial actors.

Green Building Councils (GBCs) have played a leading role in this space for many years. Their rating tools and certifications are widely adopted by the building industry and increasingly referenced in policy frameworks. These tools have become de facto gold standards for identifying and certifying sustainable buildings.

Meanwhile, policymakers are introducing sustainable finance taxonomies to establish consistent definitions and criteria for green economic activities. These taxonomies aim to reduce ambiguity, guide capital allocation, and provide a shared language for markets. If not carefully coordinated, however, there is a risk of duplication — or a disconnect — between established green building certifications and the financial sector's expectations.

Key green finance instruments — Green Loan and Green Bond Principles

The Green Loan Principles (GLP) and Green Bond Principles (GBP) are foundational frameworks for structuring green finance. They set out the processes and expectations for what qualifies as 'green' and are core to every green financing transaction.

Green Loan Principles (GLP)

Established by the Loan Market Association (LMA), Asia Pacific Loan Market Association (APLMA), and Loan Syndications and Trading Association (LSTA), the Green Loan Principles (GLP) provide a framework for the green loan market. First published in 2018 and regularly updated, they are widely recognised as the global standard for green lending. The GLP are built around four core components:

i. Use of proceeds

Loan proceeds must be allocated to green projects that deliver clear environmental benefits. In the built environment, eligible project categories typically include:

- **green buildings:** new construction, upgrades to existing buildings, or acquisition of buildings that meet recognised green building standards
- **energy efficiency:** improvements to building systems, equipment, or envelope performance
- **renewable energy:** on-site generation and energy storage systems
- **pollution prevention and control:** projects that reduce pollution to air, water, or soil
- **sustainable water and wastewater management:** including water conservation, rainwater harvesting, and wastewater treatment

The GLP emphasise that environmental benefits should be clearly identified, assessed, and — where possible — quantified.

ii. Process for project evaluation and selection

Borrowers must communicate how the proposed projects align with environmental sustainability objectives, and how eligibility is determined. This includes:

- **environmental objectives:** Clearly stated goals for sustainability outcomes
- **eligibility criteria:** Defined criteria for what qualifies as a green project
- **decision-making process:** Description of how projects are selected and assessed
- **external standards:** Reference to relevant external standards, certifications, or taxonomies

For real estate specifically, this often involves demonstrating alignment with green building rating tools (such as those explored in this report), or increasingly, demonstrating compliance with relevant taxonomy criteria.

iii. Management of proceeds

Proceeds must be tracked to ensure they are allocated to eligible green projects. Internal processes should ensure transparency and integrity, with appropriate monitoring and controls.

iv. Reporting

Borrowers should report on the use of proceeds and expected environmental impact, covering:

- **allocation reporting:** information on how funds have been allocated to eligible projects
- **impact reporting:** qualitative and quantitative measures of environmental impact
- **regular updates:** typically annual, with information on project progress and performance
- **third-party verification:** where relevant, independent assurance of reported data

Green Bond Principles (GBP)

Administered by the International Capital Market Association (ICMA) and first published in 2014, the Green Bond Principles (GBP) are voluntary process guidelines for issuing green bonds. They have become the global benchmark for the green bond market and closely mirror the GLP's four core components, adapted for the bond context.

ICMA impact reporting guidance for green buildings

Recognising the need for consistency in impact reporting across green building projects, ICMA has developed specific guidance for the built environment as part of its broader impact reporting framework. This includes standardised metrics and methodologies to support transparent and credible reporting of environmental outcomes from green building investments.:

Core impact metrics for green buildings

Energy performance metrics	• annual energy consumption (kWh or MWh) • energy use intensity (kWh/m²) • annual energy savings compared to baseline (kWh or %) • renewable energy generation (kWh or MWh) • renewable energy capacity installed (kWp or MWp)
Carbon emissions metrics	• annual GHG emissions (tCO_2e) • GHG emissions intensity ($kgCO_2e/m^2$) • annual GHG emissions avoided/reduced ($t\ CO_2e$)
Water performance metrics	• annual water consumption (m³) • water use intensity (litres/m²) • annual water savings compared to baseline (m³ or %) • recycled/reused water (m³ or %)
Waste management metrics	• construction waste diverted from landfill (tonnes or %) • operational waste recycling rate (%) • hazardous waste properly managed (tonnes)

Additional recommended metrics

Building certification metrics	• certification standard and rating level achieved
Occupant health and comfort	• indoor air quality metrics • natural light availability • thermal comfort indicators • acoustic performance measures
Resilience and adaptation	• climate risk assessment completion • adaptation measures implemented • emergency preparedness features

Baseline and benchmarking approaches

ICMA suggests multiple ways to establish baselines:

Baseline scenarios	• building codes: Comparison to minimum local building code requirements • market practice: Comparison to typical market practice in the region • previous performance: For renovation projects, comparison to pre-renovation performance • certified benchmarks: Comparison to green building rating tool thresholds
Benchmarking approaches	• regulatory benchmarks: National or local building energy performance requirements • industry benchmarks: Sector-specific performance databases • portfolio benchmarks: Comparison within issuer's own building portfolio • peer benchmarks: Comparison to similar buildings in the market

Challenges and limitations in green building impact reporting

The International Capital Market Association (ICMA) acknowledges a number of persistent challenges in green building impact reporting. These challenges are well recognised across the market and represent a critical area where green building rating tools and Green Building Councils (GBCs) can provide significant value.

Data availability

A consistent issue in impact reporting is the limited availability of actual performance data, particularly for new buildings that have not yet reached occupancy or operational maturity. Key issues include:

- insufficient or delayed access to post-occupancy energy and water performance data
- inconsistent data collection practices across jurisdictions, building typologies, and asset classes
- lack of reliable baseline data against which to compare improvements or establish impact

This data gap makes it difficult for issuers and lenders to provide robust, evidence-based reporting aligned with market expectations for green finance instruments.

Methodological Complexity

Impact measurement often requires the use of complex methodologies that account for a variety of contextual and technical variables. These include:

- whole-building energy use vs. Primary Energy Demand distinctions, with varying relevance and adoption across frameworks
- difficulty in isolating the impact of specific green features within a broader building upgrade or construction
- challenges in normalising data across geographies, asset types, and operational profiles, including climate zones and usage patterns
- lag periods between project implementation and stable operations, particularly in new builds where occupancy stabilisation may take years

These methodological nuances create barriers to comparability and increase the cost and complexity of producing meaningful impact reports.

Market variability

Differences across markets further complicate standardised reporting:

- diverse calculation methodologies for key metrics such as energy use intensity or carbon emissions
- varying baseline assumptions embedded in local or national regulatory frameworks
- fragmented reporting standards, especially where national policies diverge from international frameworks

This fragmentation presents a particular challenge for global investors seeking comparability across portfolios, or issuers reporting across multiple jurisdictions.

Best practices for green building impact reporting

In response to these challenges, ICMA's impact reporting guidance recommends an approach that balances rigour, relevance, and practicality. The guidance emphasises the importance of:

Integrated reporting across impact types

- quantitative metrics: such as energy use, water consumption, greenhouse gas emissions, and waste generation
- qualitative benefits: including green building certification levels, climate adaptation features, resilience planning, and co-benefits for occupant health and productivity

Comprehensive scope

Reporting should address both:

- mitigation impacts (e.g. energy efficiency, emissions reduction)
- adaptation measures (e.g. resilience to climate risks, nature-based solutions)

This dual lens ensures a fuller picture of a project's contribution to sustainability goals.

Outcome-oriented transparency

- Focus on reporting actual impacts where data is available, rather than purely theoretical benefits.
- Where direct measurement is not feasible, clearly document methodologies, assumptions, and data sources used for estimates.

This builds trust with investors and helps stakeholders assess the effectiveness and credibility of sustainability claims.

Framing role of taxonomies

While both the Green Loan Principles (GLP) and Green Bond Principles (GBP) provide a solid foundation for structuring green finance, they do not define specific performance thresholds for what qualifies as 'green.' This is where sustainable finance taxonomies provide critical value.

Taxonomies introduce:

- specific performance benchmarks
- technical screening criteria
- minimum safeguards and thresholds

This enhances the integrity of green finance markets and complements the role of rating tools and voluntary frameworks. Together, these systems offer a more complete structure for ensuring that green building investments are both credible and impactful.

Taxonomies — a vehicle to guide green investments

A sustainable finance taxonomy is a classification system designed to help investors, policymakers, and issuers evaluate whether economic activities contribute to environmental and social sustainability. It categorises activities based on their impacts and alignment with international agreements, such as the Paris Agreement and the Sustainable Development Goals (SDGs), or regional strategies like the EU Green Deal.

As green finance markets expand, the lack of consistent definitions and clear benchmarks has created market fragmentation, confusion for investors, and a risk of greenwashing. In response, taxonomies have emerged as vital tools to bring clarity and alignment. By identifying eligible activities and applying performance-based thresholds, taxonomies provide a common language across the finance, regulatory, and real economy sectors. Specifically, they aim to:

- **Standardise definitions** of what constitutes sustainable or transitional activities for both capital providers and capital seekers.
- **Guide capital flows** toward sustainability goals by offering reference points aligned with regulatory and policy frameworks.
- **Enhance transparency and accountability** by supporting consistent reporting and reducing the risk of unsubstantiated environmental claims.

Environmental objectives

Environmental Objectives (EOs) are the high-level environmental goals around which taxonomy frameworks are structured. While specific formulations vary across jurisdictions, most taxonomies draw on shared global frameworks such as the Paris Agreement and the SDGs.

- The EU Taxonomy identifies six EOs:
  1. Climate change mitigation
  2. Climate change adaptation
  3. Sustainable use and protection of water and marine resources
  4. Transition to a circular economy
  5. Pollution prevention and control
  6. Protection and restoration of biodiversity and ecosystems
- China's Green Bond Endorsed Project Catalogue, first introduced in 2015 and updated in 2020 and 2021, includes six broad categories:
  1. Energy savings
  2. Pollution prevention and control
  3. Resource conservation and recycling
  4. Clean transportation
  5. Clean energy
  6. Ecological protection and climate change adaptation
- The ASEAN Taxonomy, which is the primary focus of this paper, identifies four Environmental Objectives:
  1. Climate change mitigation
  2. Climate change adaptation
  3. Protection of healthy ecosystems and biodiversity
  4. Resource resilience and transition to a circular economy

These objectives provide the framework within which activities are evaluated, ensuring that sustainability assessments account for multiple environmental dimensions.

This systems-level approach is aligned with how green building rating tools operate. Rating tools assess a building's environmental performance across a range of issues like energy, water, materials, pollution, and biodiversity, while also considering local context and market maturity. Like taxonomies, they are multi-dimensional and holistic by design.

The ASEAN Taxonomy's approach to defining green investments

The ASEAN Taxonomy is a regional sustainable finance framework intended to channel investment into environmentally and socially beneficial activities across Southeast Asia . It serves as a harmonising tool that aligns national taxonomies and standards across ASEAN Member States, enabling a shared understanding of sustainability in the region (a structure also adopted in the EU Taxonomy[1]).

To be classified as either Green or, where applicable, Transition (Amber), an activity must:

- Substantially contribute to at least one of the four Environmental Objectives, as demonstrated through the Technical Screening Criteria (TSC).
- Do no significant harm to the other three objectives.

The ASEAN Taxonomy employs a dual-tiered structure:

- A Foundation Framework (FF), which provides qualitative guiding questions for evaluating sustainability. This allows all ASEAN Member States — regardless of their market maturity — to participate.
- A Plus Standard (PS), which introduces science-based Technical Screening Criteria. These include both quantitative thresholds and qualitative measures, and allow for classification into three tiers:
  - one 'Green' tier, denoting full alignment with the EOs
  - two 'Amber' tiers, which indicate progress toward sustainability but not full compliance (e.g. transitional activities or those under remediation)[2]

1 The EU Taxonomy defines Technical Screening Criteria for the Significant Contribution and Do No Significant Harm to environmental objectives.

2 While it is relevant for some activities, there is no Tier 3 criteria for Construction and Real Estate Activities.

Each of the four Environmental Objectives is supported by specific TSC, which ensure that activities are assessed consistently and according to credible benchmarks. The objectives are defined as follows:

- **EO1: climate change mitigation** — activities that avoid or reduce greenhouse gas (GHG) emissions, or enable others to do so
- **EO2: climate change adaptation** — activities that increase resilience to current or future physical climate risks through evidence-based planning and action
- **EO3: protection of healthy ecosystems and biodiversity** — activities that conserve, restore, or avoid harm to ecosystems and biodiversity
- **EO4: resource resilience and transition to a circular economy** — activities that improve efficiency in the use of materials, water, and other resources, or support circularity

To ensure credibility, an activity must also meet additional safeguards, including:

- **Do No Significant Harm (DNSH)** to other EOs
- **Remedial Measures to Transition (RMT)**, where needed, with a requirement to address significant harm within a defined timeframe
- **social aspects**, such as adherence to minimum social safeguards (not the focus of this paper)

The ASEAN Taxonomy also introduces a traffic-light classification system to visually indicate the degree of alignment:

- **Green:** activities making a substantial contribution to one or more EOs, meeting the highest performance standards
- **Amber:** activities that are transitioning towards sustainability, or are addressing existing harm through time-bound measures
- **Red:** activities that cause significant harm or are not aligned with any EO

Notably, the ASEAN Taxonomy is among the first regional frameworks to provide detailed guidance for transition activities, such as the managed phase-out of coal-fired power. This inclusion reflects a real-world, pragmatic approach to decarbonisation in the ASEAN context.

Interoperability and global alignment

The ASEAN Taxonomy has been designed with interoperability in mind. It is intended to:

- Support the development of national taxonomies across ASEAN Member States using a consistent structure.
- Align with leading international taxonomies — such as the EU Taxonomy — to support comparability of ASEAN-labelled investments on the global stage.
- Provide clarity for cross-border investors and financial institutions navigating a multi-jurisdictional sustainable finance landscape.

Its design bridges global ambition with local implementation, reinforcing the role of taxonomies as essential infrastructure for the flow of sustainable capital.

The ASEAN Taxonomy's approach to the built environment

The ASEAN Taxonomy includes construction and real estate activities as a priority sector under the Plus Standard, alongside five other focus sectors:

- manufacturing
- water services
- transport and storage
- power and air conditioning
- agriculture, forestry and fishing

It also recognises three enabling sectors: information and communication, professional services, and carbon capture, storage, and utilisation.

Relevant activities and technical screening criteria

Under the built environment, Technical Screening Criteria (TSC) are currently available for the following activities:

- construction of new buildings
- renovation of existing buildings
- acquisition and ownership of buildings
- demolition and site preparation
- electric vehicle charging stations
- energy performance, measurement, regulation, and control
- renewable technologies
- early warning systems

This guide focuses primarily on the first three activities, which are most directly related to whole-building performance and are typically covered in green building rating tools. The remaining activities either address specific components of buildings or apply to adjacent systems. They generally form only a subset of what comprehensive rating tools assess.

Scope and structure of criteria

Technical Screening Criteria for built environment activities are currently developed for three of the four Environmental Objectives (EOs) under the ASEAN Taxonomy:

- **EO1:** climate change mitigation
- **EO2:** climate change adaptation
- **EO4:** resource resilience and the transition to a circular economy

These criteria are classified into two tiers:

- **Green (Tier 1):** substantial contribution to an EO
- **Amber (Tier 2):** transitional activities that do not yet meet Green thresholds but reflect meaningful progress

Notably, there is no Amber Tier 3 (T3) classification currently available for construction and real estate activities.

The full set of criteria applicable to the built environment can be found in Appendix B of the ASEAN Taxonomy Plus Standard.

Alignment with existing frameworks

The Green criteria were developed to align with leading international frameworks and national taxonomies, including:

- the EU Taxonomy for Sustainable Finance
- the Singapore-Asia Taxonomy
- the Thailand Taxonomy

They also integrate principles and benchmarks from credible global green building certification schemes, which are already well-established across the region. These rating tools set both quantitative and qualitative sustainability requirements, underpinned by:

- independent third-party verification
- extensive stakeholder consultation
- deep alignment with local climate, regulatory, and market conditions

As such, the ASEAN Taxonomy references these tools as credible evidence of alignment. This is illustrated in Table 1, which maps out the cross-referencing of rating tool criteria and taxonomy objectives.

The Amber Tier 2 criteria were also informed by national and international green building frameworks, providing a basis for recognising buildings or activities that may not yet meet the highest thresholds but are actively contributing to sustainability transitions.

Energy metrics: regional relevance and global consistency

A notable feature of the ASEAN Taxonomy is its use of Energy Usage Intensity (EUI) as a key performance metric. EUI is widely adopted across Asia Pacific and is commonly used in green building rating tools and regulatory frameworks.

This represents a departure from the EU Taxonomy, which uses primary energy demand as the benchmark. ASEAN's adoption of EUI reflects:

- greater regional familiarity and existing use
- alignment with the Carbon Risk Real Estate Monitor (CRREM) framework, which defines country- and asset-type-specific decarbonisation pathways
- a more granular and actionable metric for buildings at various stages of use and development

This tailored, regionally grounded approach enhances the taxonomy's applicability while maintaining global interoperability, particularly with frameworks seeking to advance net zero pathways in the real estate sector.

Table 1: ASEAN Taxonomy Plus Standard — criteria for construction and real estate (version 3, Dec 2024)

	Tier	Construction of new buildings	Renovation of existing buildings	Acquisition and ownership of buildings
1. Climate change mitigation	**Green[3] T1:**	Building is certified under a national or internationally recognized Green Building Certification (GBC) program at an advanced level of certification that includes criteria relevant to climate change mitigation.	Renovation yields an energy efficiency improvement ≥30% in EUI (validated by energy audit/EPC), *or* The building achieves the advanced certification under a recognized GBC program.[4]	If building built ≤31 Dec 2023 — it holds an advanced level of certification. If built ≥1 Jan 2024 — it meets all Green criteria for new construction (410[001]). Additionally, for large non-residential buildings (>290 kW HVAC capacity) must have efficient operation via energy performance monitoring.
	Amber T2:	Building is certified under an AMS-recognized GBC (national or LEED/BREEAM) that includes Energy criteria, *and* An Energy Efficiency Improvement Plan is in place to reduce the building's Energy Use Intensity (EUI)[5].	Renovation yields an ≥15% EUI reduction (validated similarly), *or* The building is certified under an AMS-recognized GBC program (with some energy criteria)[6].	If building built ≤31 Dec 2023 — it has at least a recognized green building certification, *and* An Energy Efficiency Improvement Plan is in place to reduce current EUI.
2. Climate change adaptation	**Green[7] T1:**	The building must be designed and built or renovated to • address material physical climate risks through certified adaptation measures, *or* • a robust climate risk assessment, *or* • science-based analysis aligned with IPCC guidance Solutions must avoid harm, align with adaptation plans, prioritise nature-based approaches, be monitored for effectiveness, and comply with DNSH criteria where applicable.		
	Amber T2:			

3 Green Tier is benchmark-aligned to Paris 1.5°C goals, using top-tier building standards (LEED, BREEAM) for energy efficiency. EU Taxonomy comparison: ASEAN's Green criteria (best-in-class energy performance via GBC certification) pursue a similar outcome to the EU's requirement for highly energy-efficient new buildings, though via local/global building ratings instead of EU's NZEB-based metric.

4 The ≥30% energy improvement threshold for Green renovation matches the EU Taxonomy's benchmark for substantial building renovations.

5 Amber criteria (energy-inclusive certification + improvement plan) provide a transition tier absent in the EU Taxonomy, reflecting ASEAN's more inclusive approach.

6 The ASEAN Amber T2 criterion of 15% improvement serves as a transitional step — the EU Taxonomy does not include an intermediate tier for partial improvements.

7 Complying with climate adaptation credits in some green building certifications may be used to show compliance with these requirements.

	Tier	Construction of new buildings	Renovation of existing buildings	Acquisition and ownership of buildings
1. Resource resilience and the transition to a circular economy	**Green T1:**		To meet the circular economy objective, a renovation must retain at least 75% of the building's structure and envelope, reuse at least 30% of interior non-structural elements[8] *and* Achieve a minimum 10% reduction in global warming potential (kg CO_2 eq) and two others (out of five) life cycle impact categories through a building life cycle assessment[9]. The other five criteria are: • depletion of the stratospheric ozone layer, in kg CFC-11e; • acidification of land and water sources, in moles H+ or kg SO2e; • eutrophication, in kg nitrogen eq or kg phosphate eq; • formation of tropospheric ozone, in kg NOx, kgO3eq, or kg ethene; *and* • depletion of non-renewable energy resources, in MJ using CML/depletion of fossil fuels in TRACI.	
	Amber T2		As above, with 45% (instead of 75%) and 5% (instead of 10%)	

8 Unsound or hazardous portions of a building should be excluded from calculations
9 The criteria are taken from the LEED v4.1 credit 'Building Lifecycle Reduction Criteria'

	Tier	Construction of new buildings	Renovation of existing buildings	Acquisition and ownership of buildings
Do no significant harm	**Climate change mitigation**	An activity must identify its Scope 1 and 2 emissions (and Scope 3 where relevant), assess any risks of increasing emissions for others, and present plans to manage and minimise its own greenhouse gas emissions.		
	Climate change adaptation	Activities must minimize physical climate risks and integrate adaptation measures without negatively impacting others, guided by a climate risk and vulnerability assessment.		
	Protection of healthy ecosystems and biodiversity[10]	An activity is considered harmful to environmental objectives if it degrades water quality, significantly increases pollution, or negatively impacts ecosystems and biodiversity. An Environmental Impact Assessment may be needed to show compliance.		
	Impact of water resources	Where impact may occur on water or marine resources risks must be managed to not impact the water quality or marine biodiversity.		
	Impacts related to noise	Noise from the activity must comply with local, national, and international regulations, including standards set by the World Bank Group and the World Health Organization.		
	Impacts on air	The activity must demonstrate that its construction and operation will not cause significant environmental harm through air emissions, ensuring compliance with local, national, and international air quality regulations, including standards set by the World Bank Group and the World Health Organization.		
	Impacts on soil	The activity must prevent significant harm to soil quality, ensuring permissible levels of pollutants in compliance with local, national, and international standards.		
	Impacts on biodiversity	Before starting any activity that may significantly impact biodiversity, an environmental impact assessment must be completed per national or international standards, biodiversity risks must be identified and managed, relevant management plans must be developed with stakeholder input, and mitigation measures must be monitored for compliance and effectiveness.		
	Resource resilience and the transition to circular economy	An activity is considered harmful to resource efficiency if it significantly wastes materials, natural resources, or increases long-term environmental damage through excessive waste generation. To demonstrate compliance with circular economy principles, a lifecycle assessment must be conducted, especially for new construction projects, evaluating their full environmental impact from inception to disposal.		
Social Safeguards	**Promotion and protection of human rights**	Investments should uphold human rights and fundamental freedoms in alignment with the ASEAN Human Rights Declaration and the Phnom Penh Statement.		
	Prevention of forced labour and protection of children's rights	Investments must ensure labor rights are protected, prohibit forced labor and exploitation, and align with ASEAN agreements on migrant workers' rights.		
	Impact on people living close to investments	Investments should mitigate negative impacts on nearby communities, especially vulnerable groups, by implementing inclusive protections consistent with ASEAN social policies.		

10 Examples of protected or high biodiversity conservation areas include nature reserves, heritage sites, Ramsar wetlands, marine protected zones, Indigenous-managed lands, and ecologically significant forests and ecosystems.

Implementation challenges

While sustainable finance taxonomies are a powerful mechanism for driving climate-aligned investment, their implementation presents a number of challenges that may hinder their impact — particularly in the built environment.

Compliance complexity and administrative burden

The performance thresholds and reporting requirements within many taxonomies can be technically demanding and resource-intensive. These demands may not fully reflect the availability of data, the operational realities, or the market maturity of the real estate sector — particularly in developing economies. This can lead to substantial compliance costs and shift focus away from delivering tangible sustainability outcomes. The WorldGBC's Sustainable Finance factsheet series has outlined these types of challenges in relation to the EU Taxonomy.

Limitations of binary classification

Most taxonomies adopt a binary approach to classification — activities are either 'green' or not. While clear and enforceable, this model fails to capture the nuanced and incremental nature of sustainability improvements in the built environment. Unlike sectors with discrete green alternatives (e.g. coal vs. wind power), buildings often require progressive upgrades over time. Investments that significantly improve performance — but fall short of taxonomy thresholds — risk being excluded, potentially disincentivising transition finance where no 'perfectly green' option yet exists.

Fragmentation across jurisdictions

Geographic and sectoral inconsistencies among taxonomies introduce complexity for global capital markets. The same activity may be assessed differently depending on the taxonomy in use, increasing transaction costs and compliance burdens for international investors. These differences limit the comparability of sustainability credentials across regions and can constrain cross-border capital flows.

Exclusion of broader ESG dimensions

While environmental performance is typically prioritised, social and governance aspects are often less comprehensively integrated. This may lead to narrow definitions of sustainability and overlook critical factors such as equity, health, or labour standards — particularly relevant in the built environment.

Lag between criteria and innovation

The process of updating technical screening criteria in taxonomies is often slow. This creates a risk that emerging technologies or practices—such as next-generation materials or retrofit innovations—are not recognised in a timely manner. The result can be a stifling of innovation and a misalignment with real-time industry progress.[11]

Flexibility in the ASEAN Taxonomy

The ASEAN Taxonomy attempts to address some of these issues through a more flexible, context-sensitive approach. It explicitly recognises green building rating tools and certification schemes as valid evidence of alignment with certain Environmental Objectives. This approach leverages the existing infrastructure of the built environment sector — its established tools, expertise, and data — reducing friction in implementation.

However, limitations remain. The list of accepted schemes is relatively narrow and inconsistently defined. For instance, WELL certification is included despite being focused on health and wellbeing, rather than holistic environmental performance. Furthermore, the term 'advanced certification' lacks a clear definition, which may limit the inclusion of other credible and regionally appropriate rating tools. Without refinement, these ambiguities risk constraining the taxonomy's uptake and relevance across the diverse markets of Asia Pacific.

As sustainable finance evolves, rating tools themselves must also adapt. To remain effective in supporting taxonomy implementation and scaling impact, they need to stay aligned with technological advancements and shifting policy expectations — while remaining grounded in regional and sectoral realities (see Section on Recommendations).

11 The paper *Building Transition: Financing Market Transformation* presents additional aspects that should be considered by policy makers developing taxonomies. The paper was published by Alliance-HQE, BRE, GBCA, SGBC and USGBC in November 2024.

The role of green building rating tools

In the built environment, green building rating tools have long served as trusted frameworks for evaluating sustainability performance.

Over the past two decades, they have played a critical role in transforming real estate practices across Asia Pacific and globally. By embedding measurable sustainability standards into the design, construction, and operation of buildings, rating tools have helped to mainstream environmental performance in real estate markets.

Today, tens of thousands of buildings across the region have been certified under various national and international systems — representing billions of dollars in asset value. This widespread adoption has given rise to a mature ecosystem of policies, practitioners, and performance norms that have laid the groundwork for the rise of sustainable finance taxonomies.

By normalising metrics such as energy efficiency, climate resilience, lifecycle impact, and health and wellbeing, these tools have shaped investor expectations and established the foundation upon which taxonomies have been built. Their credibility, third-party verification, and adaptability across different markets have made them a natural fit for inclusion in taxonomy frameworks.

In this sense, rating tools have not only prepared the market for taxonomies — they have made them possible.

However, despite their influence, a knowledge gap persists around how rating tools intersect with sustainable finance principles and taxonomy criteria. This is particularly acute in Asia Pacific, where diverse local tools coexist with international frameworks. Without clearer guidance and integration, this gap risks limiting uptake and slowing the flow of capital into high-impact, climate-aligned buildings.

Relation of green building rating tools and green finance principles

There is increasing interest in aligning green building activities and rating tools with sustainable finance frameworks such as the Green Loan Principles (GLP), Green Bond Principles (GBP), and the ASEAN Taxonomy. Establishing clear and credible linkages between these instruments is critical to ensuring that sustainable finance is directed towards assets that are demonstrably green, as well as those undertaking a meaningful transition.

Green building rating tools generally align well with the core components of the GLP and GBP. These principles set out expectations for eligible use of proceeds, project selection, management of proceeds, and reporting — areas where rating tools can provide important support, though with varying levels of alignment:

Table 2: Alignment between green building rating tool schemes and green finance principles

Category	Alignment	Description
1 **Use of proceeds**	Strong alignment	Holistic green building rating tools are fully aligned with the 'green buildings' category explicitly listed in both GLP and GBP eligible project categories.
2 **Project evaluation and selection**	Moderate to strong alignment	Rating tools provide transparent evaluation methodologies that align with GLP/GBP requirements for clear project selection criteria. However, they vary in how explicitly they address environmental risk assessment, this was also found in the mapping, explored later.
3 **Management of proceeds**	Facilitates	Green building rating tools generally do not directly address the management of proceeds as this falls outside their primary purpose. However, they do provide frameworks that enable projects to be clearly defined as 'green,' facilitating the tracking and reporting requirements of the GLP and GBP.
4 **Impact reporting**	Strong alignment	The reporting mechanisms of green building rating tools generally align well with GLP/GBP reporting requirements, particularly in providing quantifiable metrics for environmental impact. However, there are significant variations in ongoing reporting requirements, with some systems having explicit certification validity periods requiring recertification, while others do not mandate continued performance tracking.

Aligning green building rating tools with the Green Bond and Green Loan Principles is often relatively straightforward. These frameworks provide high-level, principle-based guidance that aligns well with the structured, third-party-verified methodologies used by green building rating tools. In many cases, certification processes already generate the data and documentation needed to demonstrate compliance with these principles.

However, alignment with sustainable finance taxonomies is more complex. While rating tools and taxonomies share similar goals — particularly around climate mitigation, energy efficiency, and emissions reduction — their structures differ. Taxonomies typically include detailed technical screening criteria and quantitative thresholds, while rating tools reflect local regulatory, market, and climatic conditions. This divergence can introduce interpretive gaps.

For instance, the EU Taxonomy requires conformance with benchmarks such as 'nearly zero-energy buildings,' which may not have regulatory equivalents in all Asia Pacific jurisdictions. Similarly, calculating the top 15% of buildings by primary energy demand—a common EU Taxonomy threshold—may not be feasible in markets where baseline data is inconsistent or unavailable.

The ASEAN Taxonomy acknowledges these challenges and adopts a more pragmatic, regionally responsive approach. Notably, it formally recognises the role of green building rating tools in demonstrating alignment with its Environmental Objectives. This reflects an important step towards integrating existing industry practices into the sustainable finance landscape. However, the current scope of recognition remains limited. Some certifications with narrower thematic focus are included, while other comprehensive and widely adopted systems are omitted. Clarifying the criteria for what constitutes an 'advanced' certification will be key to scaling uptake and ensuring consistency across the region.

As the region accelerates its transition to a low-carbon built environment, expanding the recognition and integration of credible green building rating tools into finance taxonomies will be essential[12]. These tools can play a central role in translating complex technical requirements into actionable project-level outcomes—enhancing investor confidence, reducing transaction costs, and supporting capital mobilisation at scale.

12 At this point the approach recognises only the highest rated level. In some rating tools, the highest level represents a level far beyond industry practice (e.g. Green Star) in a manner that will limit investment. The taxonomy could also benefit from recognising rating systems as means of compliance for DNSH criteria where relevant.

Relation of green building rating tools and the ASEAN Taxonomy

The ASEAN Taxonomy recognises green building certification programs that fall under the category of 'credible, national or international green building certification schemes.' These include — but are not limited to — those explicitly listed in the Taxonomy (see Table 3). Recognition is structured to reflect regional realities:

- For buildings located in countries with an established national green building scheme, only the nationally recognised certification is accepted.
- In countries without a national scheme, internationally recognised certification programs may be used.

The Taxonomy also references an 'advanced level of certification' as a requirement for alignment under certain Technical Screening Criteria. This typically refers to higher tiers within a recognised green building rating tool — though not always the highest. In some cases, lower tiers may still qualify, provided the certification demonstrates significant improvement over standard industry practice in the local context.

This approach enables the Taxonomy to anchor its criteria in widely adopted and locally grounded frameworks, leveraging established certification systems to assess sustainability performance in a credible and context-sensitive way.

Table 3: ASEAN Taxonomy Table 6 credible and acceptable GBC programs (non-exhaustive).
Source: ASEAN Taxonomy V3, p.177

International schemes	National schemes
• Leadership in Energy and Environmental Design (LEED) • Building Research Establishment Environmental Assessment Method (BREEAM) • EDGE (Excellence in Design for Greater Efficiencies) • WELL Building Standard • NGBS • Green Globes • other globally recognised green building certification schemes	• Green Mark • GreenRE • Thai's Rating for Energy and Environmental Sustainability (TREES) • GREENSHIP • Green Building Index (GBI) • Building for Ecologically Responsive Design Excellence (BERDE) • LOTUS • other nationally recognised green building certification schemes

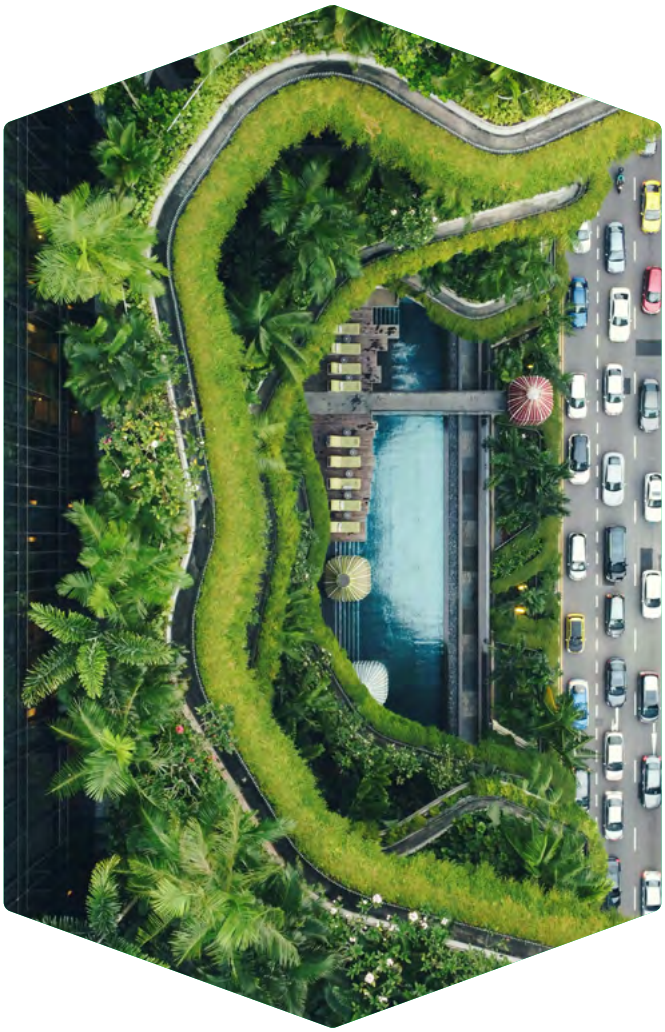
Analysis and findings

Methodology

This assessment is grounded in a detailed mapping exercise designed to evaluate the degree of alignment between green building rating tool schemes and the ASEAN Taxonomy for Sustainable Finance. The exercise involved direct engagement with Green Building Councils (GBCs) from across the WorldGBC Asia Pacific Network, as well as contributions from other entities operating in the region. These stakeholders provided comprehensive insights into the structure, criteria, and intent of their respective rating systems.

Each scheme was then assessed against two key components of the ASEAN Taxonomy's Plus Standard: the Technical Screening Criteria (TSC), which define what constitutes a substantial contribution to environmental objectives, and the Do No Significant Harm (DNSH) requirements, which safeguard against adverse impacts on other environmental priorities.

Importantly, this analysis does not evaluate the overall quality, effectiveness, or impact of the rating tools themselves. It does not measure whether the tools drive market transformation or improved building performance. Instead, the focus is narrowly on how the criteria embedded in each tool align — structurally and substantively — with the ASEAN Taxonomy's framework. This alignment is assessed with reference to the broader sustainable finance context in which these tools operate.



Scope of assessment

This report focuses on evaluating the alignment of selected green building rating schemes with the ASEAN Taxonomy's Plus Standard. Specifically, it assesses the degree to which these rating tools correspond to the taxonomy's applicable economic activities and environmental objectives.

Table 4 outlines the scope of coverage, indicating which taxonomy activities and environmental objectives are addressed in the alignment assessment.

Table 4: The scope of this report's assessment of the alignment of green building rating schemes with the ASEAN Taxonomy's activities and environmental objectives

Economic activity covered	Environmental objectives covered		Ambition level covered
	TSC	DNSH	
Construction of new buildings	Climate Change Mitigation	Climate Change Mitigation	Green (Tier 1)
Renovation of new buildings	Climate Change Adaptation	Climate Change Adaptation	Amber T2 (Tier 2)
Acquisition and ownership of buildings		Protection of Healthy Ecosystems and Biodiversity	
	Resource Resilience and Transition to a Circular Economy	Resource Resilience and Transition to a Circular Economy	

Coverage of green building rating tools

This alignment assessment employed a bottom-up methodology, systematically evaluating each criterion within the ASEAN Taxonomy. This approach allowed for the inclusion of a broader range of rating tools than those explicitly referenced in the ASEAN Taxonomy itself.

The analysis is forward-looking, incorporating rating tool versions that are currently under development. By engaging Green Building Councils (GBCs) and related entities, these upcoming versions were benchmarked against ASEAN Taxonomy requirements, ensuring continued relevance as certification systems evolve. Conversely, existing tool versions scheduled for retirement were excluded from the assessment.

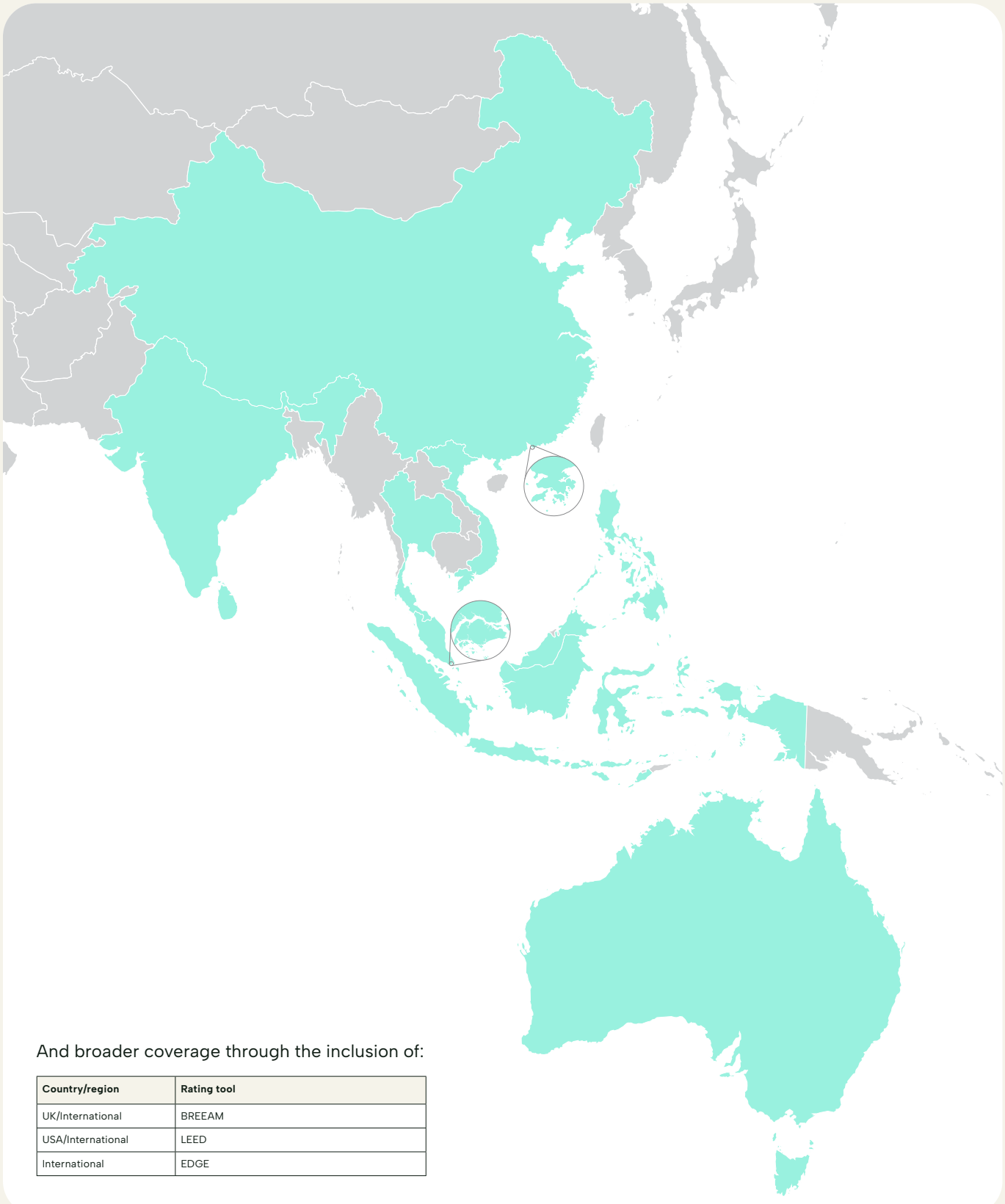
To define 'advanced certification' levels, the study applied a simplified comparative framework, identifying the top two holistic certification tiers within each scheme. While this facilitates practical benchmarking, it should not be construed as implying performance equivalence across different systems or tiers.

A detailed, credit-level mapping is provided in the Technical Appendix, documenting alignments across each rating tool and distinguishing between mandatory and scored criteria.

Tools included in the assessment

Country/region	Rating tool
Australia/Pacific	Green Star Buildings
Australia/Pacific	Green Star Performance
China	GB/T 50378-2019 (New Buildings)
China	GB/T 51141-2015 (Existing Buildings)
HK/Greater China	BEAM Plus New Buildings v2.0.2025
HK/Greater China	BEAM Plus Existing Buildings v3.0
India	IGBC Green New Buildings Rating System v3.0 Sep2016
India	IGBC Green Existing Buildings Operations and Maintenance (O&M) v2 Nov 2023
Indonesia	Greenship New Buildings 1.2
Indonesia	Greenship Existing Buildings 1.1
Indonesia	GBI Non-Residential New Construction
Indonesia	GBI Non-Residential Existing Building
Malaysia	GreenRE Non Residential v4
Malaysia	GreenRE Existing NonResidential Building v3.3
Malaysia	MyCREST Operation and Maintenance v2.0
Malaysia	MyCREST Design and Construction v2.0.1
Phillipines	BERDE Buildings v5.0.0
Singapore/Asia	Green Mark 2021
Singapore/Asia	Green Mark 2021 In Operations
Sri Lanka	Green SL Rating System for New Constructions v2.1
Sri Lanka	Green SL Rating System for Existing Buildings v1.0
Thailand	TREES - NC/CS Version 2
Thailand	TREES - EB Version 1.0
Vietnam	LOTUS New Construction v4 draft 2 (August 2025)
Vietnam	LOTUS Buildings In Operation v1 2019
UK/International	BREEAM New Construction International V7
UK/International	BREEAM In Use International V6
UK/International	BREEAM International Non Domestic Refurbishment 2015
USA/International	LEED BD+C v5
USA/International	LEED O+M v5
International	EDGE v3 01.12.2024
International	EDGE v4 (draft)

Geographical coverage



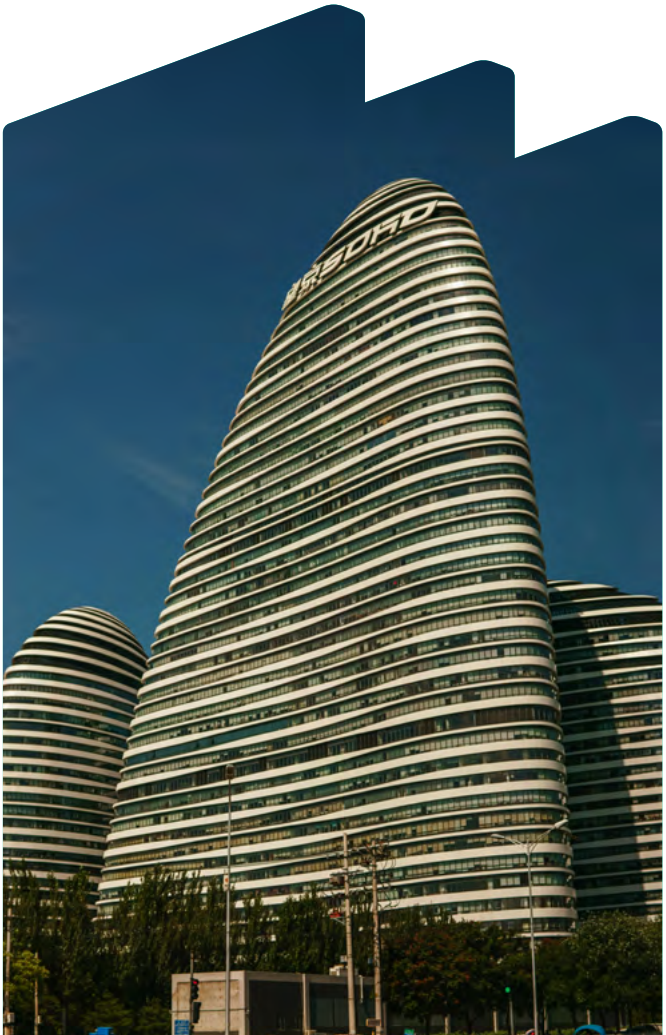
And broader coverage through the inclusion of:

Country/region	Rating tool
UK/International	BREEAM
USA/International	LEED
International	EDGE

Data processing

The evaluation followed a structured three-step process:

1. **Development of the assessment template**
   A structured template was designed to assess each rating tool against the ASEAN Taxonomy criteria.
2. **Data collection from GBCs and tool providers**
   Participating GBCs and/or rating tool providers completed the template. This process was supplemented with desk research by the lead authors.
3. **Review and harmonisation**
   The authors verified and aligned the information submitted to ensure consistent and credible comparison across tools.



Alignment methodology

Step 1 — Assessment of alignment at the criterion level

Each relevant credit or criterion in the green building rating tools was assessed against the ASEAN Taxonomy's Technical Screening Criteria (TSC), using a four-tier classification to reflect the degree of alignment:

●	**Fully aligned:** A mandatory (prerequisite) criterion that explicitly meets, or can be reasonably interpreted to satisfy, the corresponding ASEAN Taxonomy criterion and its performance or reporting requirements.
◑	**Aligned, but scored:** A non-mandatory (optional) credit that meets the TSC but is not required for certification at the top two tiers of the rating tool.
○	**Partially aligned:** A credit that does not fully meet the TSC but demonstrates similar intent or environmental objectives. For example, credits promoting sustainable material use may partially align with the Taxonomy's lifecycle analysis (LCA) requirement due to shared goals of reducing embodied carbon and environmental impacts.
	Not aligned/not covered: No corresponding credit or requirement is present within the rating tool.

Step 2 — Aggregation of alignment by environmental objective

To visualise the results, a heat map was developed to summarise the level of alignment between each green building rating tool and the ASEAN Taxonomy's four Environmental Objectives.

This visual approach highlights alignment patterns and gaps across tools and objectives using a colour-coded system.

The heat map is derived through a numerical scoring system that aggregates and weights the criterion-level findings. It enables comparative analysis across:

- overall alignment
- alignment by environmental objective
- Do No Significant Harm (DNSH) compliance
- individual rating tool performance

This method provides a clear, at-a-glance view of how each rating tool aligns with the ASEAN Taxonomy — and where further refinement or development may be needed.

The alignment heat map

High-level findings

As noted earlier, green building rating tools have played a pivotal role in transforming the built environment — both across the Asia Pacific and globally. These systems have provided structured, performance-based frameworks that have driven sustainability into the core of real estate practice and investment.

Given this legacy and market maturity, it is unsurprising that green building rating tools demonstrate strong to moderate alignment with the ASEAN Taxonomy.

Rating tools that have recently been updated — or are currently under revision — tend to show the highest levels of alignment, particularly in areas explicitly focused on carbon performance and climate risk. These updated tools better reflect emerging regulatory expectations, market signals, and sustainable finance imperatives.

The following pages present two visual heat maps summarising the alignment findings:

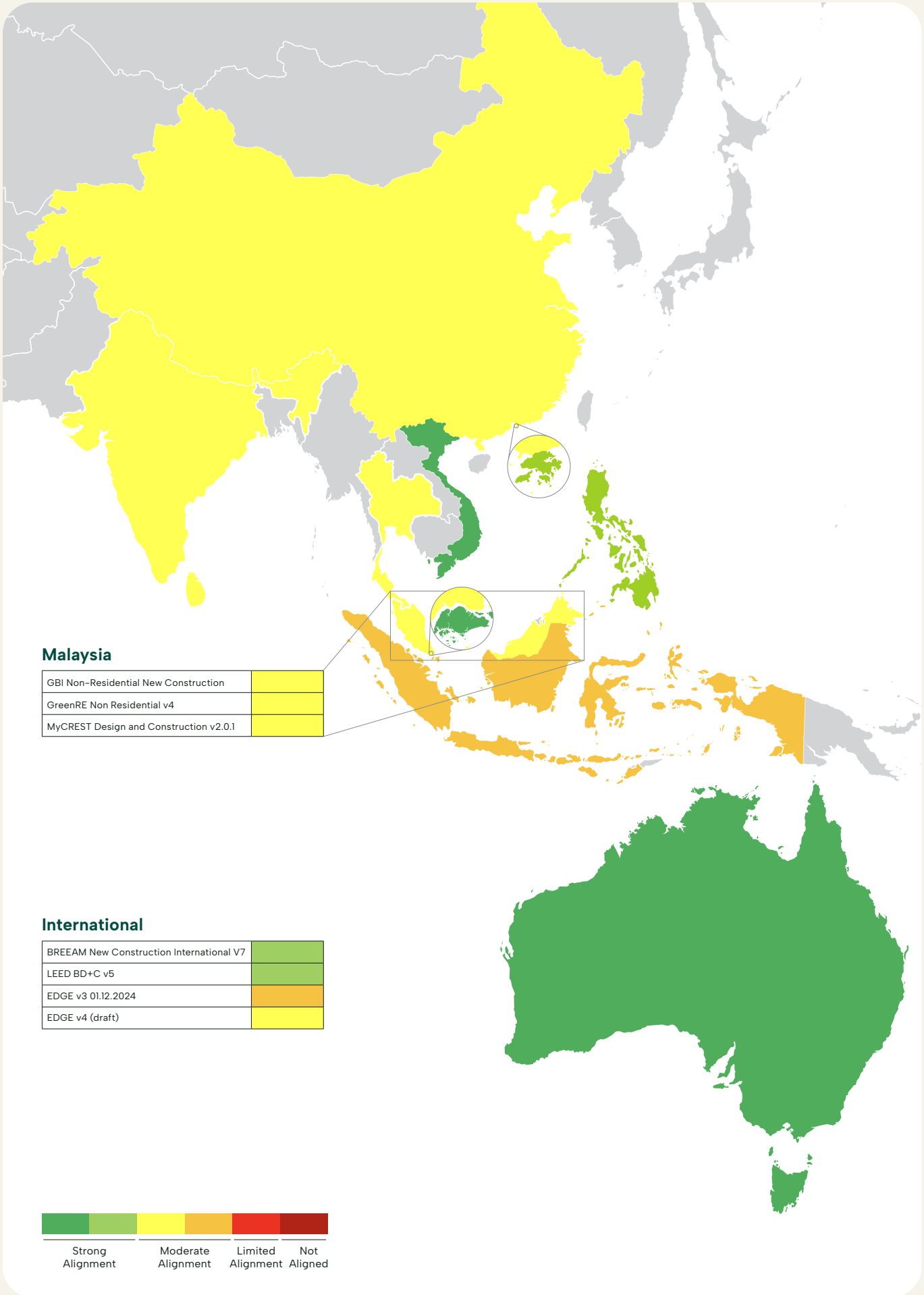
- one for construction and new buildings
- one for existing buildings/in-use

These maps offer a high-level view of how the assessed rating tools perform in relation to the Taxonomy's Environmental Objectives and DNSH criteria.

Construction

Country/region	Rating tool	Alignment
Australia/Pacific	Green Star Buildings	
China	GB/T 50378-2019 (New Buildings)	
HK/Greater China	BEAM Plus New Buildings v2.0.2025	
India	IGBC Green New Buildings Rating System v3.0 Sep2016	
Indonesia	Greenship New Buildings 1.2	
Malaysia	GBI Non-Residential New Construction	
Malaysia	GreenRE Non Residential v4	
Malaysia	MyCREST Design and Construction v2.0.1	
Phillipines	BERDE Buildings v5.0.0	
Singapore/Asia	Green Mark 2021	
Sri Lanka	Green SL Rating System for New Constructions v2.1	
Thailand	TREES - NC/CS Version 2	
Vietnam	LOTUS New Construction v4 draft 2 (August 2025)	
UK/International	BREEAM New Construction International V7	
USA/International	LEED BD+C v5	
International	EDGE v3 01.12.2024	
International	EDGE v4 (draft)	

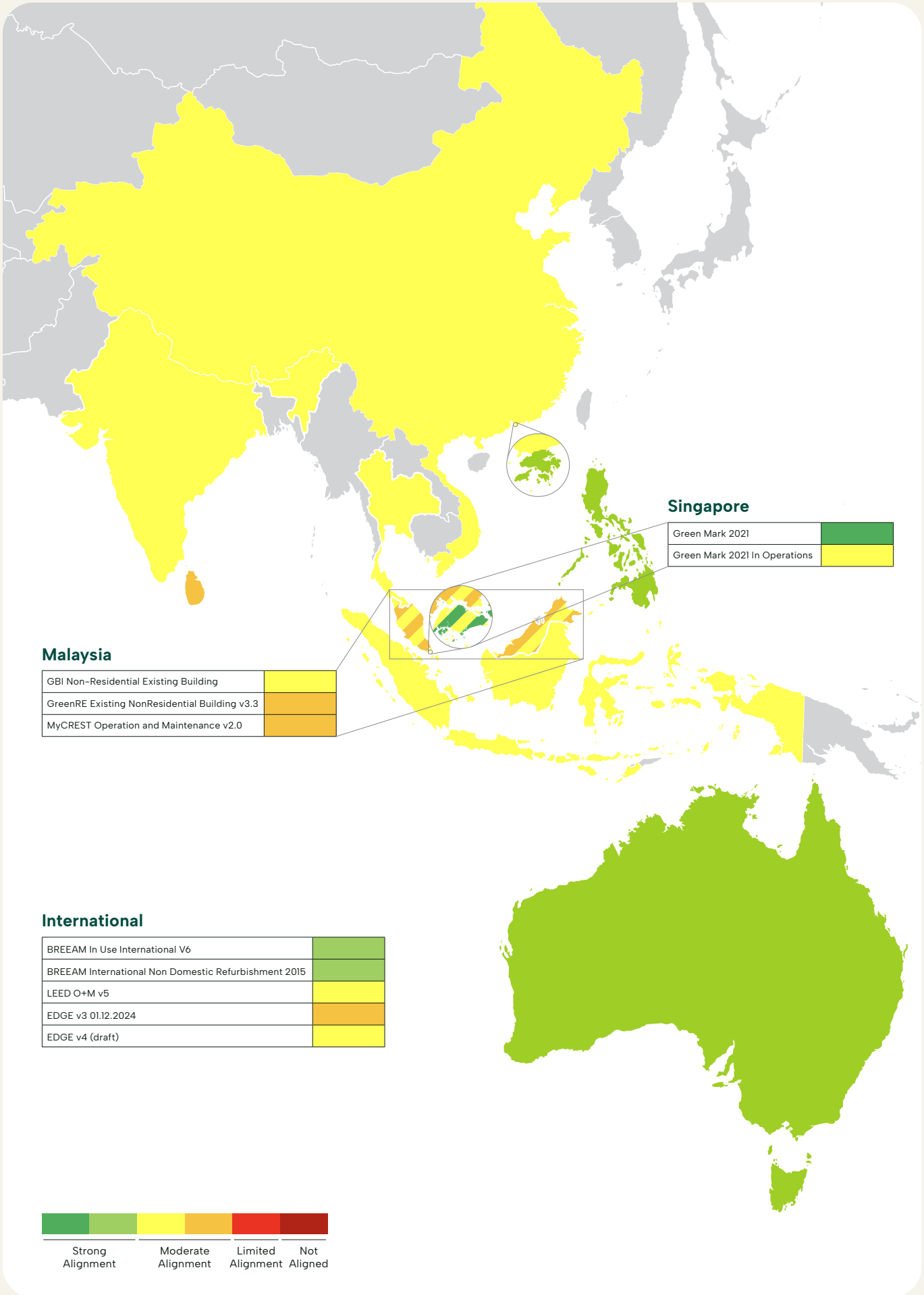
Construction criteria (geographical coverage)



Existing buildings/in-use

Country/region	Rating tool	Alignment
Australia/Pacific	Green Star Performance	
China	GB/T 51141-2015 (Existing Buildings)	
HK/Greater China	BEAM Plus Existing Buildings v3.0	
India	IGBC Green Existing Buildings Operations and Maintenance (O&M) v2 Nov 2023	
Indonesia	Greenship Existing Buildings 1.1	
Malaysia	GBI Non-Residential Existing Building	
Malaysia	GreenRE Existing NonResidential Building v3.3	
Malaysia	MyCREST Operation and Maintenance v2.0	
Phillipines	BERDE Buildings v5.0.0	
Singapore/Asia	Green Mark 2021	
Singapore/Asia	Green Mark 2021 In Operations	
Sri Lanka	Green SL Rating System for Existing Buildings v1.0	
Thailand	TREES – EB Version 1.0	
Vietnam	LOTUS Buildings In Operation v1 2019	
UK International	BREEAM In Use International V6	
UK/International	BREEAM International Non Domestic Refurbishment 2015	
USA/International	LEED O+M v5	
International	EDGE v3 01.12.2024	
International	EDGE v4 (draft)	

Existing buildings/in-use criteria (geographical coverage)



Areas of strong alignment

Construction tools refer to rating systems assessing environmental performance during design and construction phases.

Existing buildings tools focus on evaluating performance in-use, or at the renovation and refurbishment stage. The scope of assessment may differ between tools.

Strongly aligned rating tools

The analysis identified a cohort of green building rating tools that consistently demonstrate strong alignment with the ASEAN Taxonomy's Technical Screening Criteria (TSC) and Do No Significant Harm (DNSH) requirements. These tools not only meet the thresholds across multiple Environmental Objectives — particularly Climate Change Mitigation and Resource Resilience — but also incorporate advanced features such as:

- lifecycle carbon accounting
- climate risk integration
- robust post-certification performance tracking

Green Star, Australia's leading holistic rating tool, exemplifies this strong alignment. Its structure explicitly maps to environmental objectives, and its tiered performance requirements ensure that higher certification levels reflect genuine best practice. Green Star includes credits for zero carbon action plans, embodied carbon reduction, biodiversity enhancement, and climate resilience. Crucially, it mandates recertification for operational performance — reinforcing long-term assurance. Its influence extends beyond Australia, with licensed adaptations in New Zealand and South Africa.

Green Mark (Singapore) has emerged as a regional frontrunner in performance-based certification, with a strong emphasis on measurable outcomes. Its three-yearly assessment cycle — spanning design, in-operation, and renovation phases — ensures performance continuity across a building's life cycle. Certification is contingent on equivalent performance outcomes, and buildings must improve over time to retain their rating. Green Mark 2021 intentionally aligns with the EU Taxonomy's six Environmental Objectives, positioning it as a model for embedding financial and technical frameworks.
Its influence is evident in its uptake across Southeast Asia and parts of Africa, and its integration with Singapore's national sustainability goals makes it a model for policy-linked certification.

LEED v5 (Leadership in Energy and Environmental Design) remains a global benchmark. This latest iteration places climate action at the heart of its scoring system, with 50% of points tied directly to decarbonisation. Key prerequisites include operational carbon projections, climate resilience assessments, and lifecycle impact reduction. LEED's structured approach to embodied carbon, electrification, and performance monitoring positions it as highly compatible with emerging sustainable finance frameworks.

BEAM Plus (Hong Kong) and BERDE (Philippines) also performed strongly — particularly on renovation, disaster resilience, and lifecycle performance. BEAM Plus reflects a mature understanding of both climate mitigation and adaptation. BERDE's emphasis on whole-life performance assessment and disaster preparedness is especially relevant in climate-vulnerable regions.

BREEAM and LOTUS v4 Draft 2 demonstrated similarly strong performance. LOTUS has improved significantly with the introduction of additional prerequisites since the June 2025 Insights Report. BREEAM, mapped through its international schemes, provides comprehensive environmental coverage across three tools spanning the building lifecycle. Notably, BREEAM New Construction v7 has been developed with sustainable finance integration in mind, including annotations within the scheme that explicitly reference alignment with the EU Taxonomy.

Strongly aligned environmental objectives

Green building rating tools demonstrate particularly strong alignment with Environmental Objective 1 (EO1): Climate Change Mitigation. These tools are designed to drive reductions in energy consumption, often exceeding mandated building codes, and in many cases incorporate renewable energy use or carbon emissions limits. This corresponds closely with the ASEAN Taxonomy's Technical Screening Criteria (TSC) for climate mitigation.

Rating tools that include mandatory performance requirements — such as Green Mark, Green Star, LEED v5, and the LOTUS v4 draft — perform especially well. These systems ensure that higher levels of certification correlate with lower energy consumption and stronger climate outcomes.

In addition, there is also notable alignment with Environmental Objective 4 (EO4): Resource Resilience and the Transition to a Circular Economy. Most rating tools contain criteria addressing water efficiency, waste reduction, and resource recycling. However, gaps remain in the treatment of lifecycle carbon analysis, which is critical for assessing the full environmental impact of construction materials and systems.

The table below (Table 5) provides a comparative view of how the various green building rating tools align with each of the ASEAN Taxonomy's environmental objectives.

Table 5: Overall alignment to environmental objectives

Substantial contribution	**Alignment**
Climate change mitigation	
Climate change adaptation	
Resource resilience and the transition to a circular economy	
Do No Significant Harm	**Alignment**
Climate change mitigation	
Climate change adaptation	
Protection of healthy ecosystems and biodiversity	
Resource resilience and the transition to a circular economy	

Identified gaps

While the alignment analysis reveals many areas of strength, it is important to acknowledge limitations — particularly where rating tools may not fully align with the ASEAN Taxonomy's Technical Screening Criteria (TSC) and Do No Significant Harm (DNSH) safeguards. Importantly, these gaps should be interpreted with caution. Many green building rating tools are developed in the context of national regulations, which may already address certain requirements outside the scope of the certification process itself.

The following aggregated gaps reflect a synthesis of findings across the rating tools assessed. Individual schemes may already address some of these areas more comprehensively, particularly those undergoing recent or planned updates.

Key gaps identified:

1. **Climate risk assessment**

   While several tools have incorporated elements of climate adaptation, comprehensive, mandatory assessments of physical climate risks remain limited. This is particularly relevant to EO2: Climate Change Adaptation and its DNSH criteria.

2. **Adaptation metrics**

   In contrast to mitigation, metrics for adaptation — such as resilience measures or vulnerability assessments — are generally less developed. Where present, they tend to be qualitative rather than quantitative, limiting their utility for sustainable finance decision-making.

3. **Carbon accounting**

   Carbon-related requirements are often addressed indirectly (e.g. through energy performance), but explicit, asset-level carbon accounting — including Scope 1, 2, and 3 emissions — is inconsistently covered. Given the growing importance of emissions disclosure in sustainable finance, this represents a notable gap.

4. **Ongoing performance verification and transition planning**

   While some tools, like Green Star and Green Mark, require periodic reassessment or include future-focused performance plans, many do not. Opportunities exist to strengthen requirements for operational performance verification over time, and to incorporate decarbonisation or transition planning aligned to taxonomy thresholds.

The Technical Appendix provides detailed, tool-by-tool mapping to the ASEAN Taxonomy's TSC and DNSH criteria, offering full transparency on alignment across schemes. Additionally, many rating tools are actively evolving; those in the process of updating their criteria are already addressing several of these gaps — pointing to a positive trajectory of continuous improvement and deeper integration with sustainable finance frameworks.

Findings by economic activity

The alignment assessment revealed a varied landscape of results across the economic activities covered by the ASEAN Taxonomy. While green building rating tools consistently show alignment with core environmental objectives, the extent and nature of that alignment differ depending on the activity type and the specific screening criteria being considered.

Acquisition and Ownership emerged as the activity with the highest proportion of *fully aligned* (●) criteria. This reflects strong alignment particularly with climate change mitigation and adaptation objectives, as well as several Do No Significant Harm (DNSH) safeguards. Many rating tools include provisions for ongoing operational performance, maintenance, and energy tracking, which are central to this activity's taxonomy requirements.

Construction of new buildings and renovation also demonstrate meaningful alignment, especially on mitigation-related criteria such as energy performance and emissions reduction. However, these activities show a greater number of *scored* (◑) or *partially aligned* (○) criteria. Gaps are most evident in areas such as lifecycle carbon assessment and ecosystem impact mitigation, where taxonomy criteria are more specific or prescriptive than the current provisions within many rating systems.

Renovation, in particular, exhibits the lowest alignment for sub-activities related to demolition and material recovery. This is largely due to the ASEAN Taxonomy's emphasis on circular economy principles, such as specific thresholds for structural and non-structural reuse, and the requirement for lifecycle assessment (LCA). These elements are not yet consistently or comprehensively addressed across most rating tools and represent a clear area for future enhancement.

Table 6: Alignment of assessed green building rating schemes to the Construction of Buildings TSC and DNSH criteria in the ASEAN Taxonomy

			Technical screening criteria		Do no significant harm								
			Climate change mitigation	Climate change adaptation	Climate change mitigation	Climate change adaptation	Protection of healthy ecosystems and biodiversity						Circular economy
Country/region	**Rating tool**	**Overall Alignment**	Ee improvement plan	Projections, risks and adaptation	Carbon emissions (scopes 1,2,3)	Climate risk and vulnerability assessment	Environmental impact assessment	Impact on water	Impact on noise	Impact on air	Impact on soil	Impact on biodiversity	Lca (materials)
Australia/Pacific	Green Star Buildings		●	◑	●	●	◑	○	●	◑	◑	◑	◑
China	GB/T 50378–2019 (New Buildings)		◑		○			○	◑	○	○	◑	○
Hong Kong/Greater China	BEAM Plus New Buildings v2.0.2025		○		◑	◑	○	◑	◑	◑	○	◑	◑
India	IGBC Green New Buildings Rating System v3.0 Sep2016		○		○		●	○		◑	○	◑	○
Indonesia	Greenship New Buildings 1.2		○		○			◑	○	○		○	○
Malaysia	GBI Non-Residential New Construction		○		○			○	○	◑	◑	◑	○
Malaysia	GreenRE Non Residential v4		○		◑			○	◑	◑	○	○	○
Malaysia	MyCREST Design and Construction v2.0.1		○		◑			◑	◑	◑	◑	○	◑
Philippines	BERDE Buildings v5.0.0		◑	◑	◑	●	○	◑	◑	◑	●	◑	○
Singapore/Asia	Green Mark 2021		◑	◑	◑	◑	◑	◑	●	◑	◑	◑	◑
Sri Lanka	Green SL Rating System for New Constructions v2.1		○		◑		◑	◑	◑	◑	◑	◑	◑
Thailand	TREES – NC/CS Version 2		○		○			◑		◑	◑	◑	○
Vietnam	LOTUS New Construction v4 draft 2 (August 2025)		●	◑	◑	●	●	◑	◑	◑	◑	◑	◑
UK/International	BREEAM New Construction International V7		○	◑	◑	◑	◑	◑	◑	◑	○	◑	◑
USA/International	LEED BD+C v5		◑	◑	●	●		○	○	○	◑	◑	◑
International	EDGE v3 01.12.2024		○		○			○		○			○
International	EDGE v4 (draft)		○	○	●	●		○		○			●

Mapping key

●	◑	○	
Fully aligned (mandatory credit)	**Aligned, but scored** (optional credit)	**Partially aligned** (similar intent)	**Not aligned/not covered**

Table 7: Alignment of assessed green building rating schemes to the renovation of existing buildings TSC and DNSH criteria in the ASEAN Taxonomy

			Technical screening criteria					Do no significant harm								
			Climate change mitigation		Climate change adaptation	Circular economy		Climate change mitigation	Climate change adaptation	Protection of healthy ecosystems and biodiversity						Circular economy
Country/region	**Rating tool**	**Overall alignment**	Eui improvement (30%)	Eui improve-ment (15%)	Projections, risks and adaptation	Maintain 75% existing structure, 30% interior materials, lca with 10% reduction	Maintain 45% existing structure, 15% interior materials, lca with 5% reduction	Carbon emissions (scopes 1,2,3)	Climate risk and vulnerability assessment	Environmental impact assessment	Impact on water	Impact on noise	Impact on air	Impact on soil	Impact on biodiversity	Lca (materials)
Australia/Pacific	Green Star Buildings		◑	◑	◑	◑	◑	●	●	◑	◑	●	◑	◑	◑	◑
Australia/Pacific	Green Star Performance		◑	◑	◑			●	◑		◑	◑	●	○	◑	○
China	GB/T 50378-2019 (New Buildings)		○	◑		○	○	○			◑	◑	○	○	◑	○
China	GB/T 51141-2015 (Existing Buildings)		○	○		○	○	◑			◑	◑	◑	○	◑	○
HK/Greater China	BEAM Plus New Buildings v2.0.2025		○	◑	○	○	○	◑	◑	○	◑	◑	◑	○	◑	◑
HK/Greater China	BEAM Plus Existing Buildings v3.0.Beta0		◑	◑	◑			◑	◑		○	◑	◑	○	○	○
India	IGBC Green New Buildings Rating System v3.0 Sep2016		○	○		○	○	○		●	○		◑	○	◑	○
India	IGBC Green Existing Buildings O&M v2 Nov 2023		◑	◑				○			◑	○	○	○	○	○
Indonesia	Greenship Existing Buildings 1.1		◑	◑				○			◑	○	◑		○	○
Malaysia	GBI Non-Residential Existing Building		◑	◑		○	○	○			◑	○	◑	◑		○
Malaysia	GreenRE Existing NonResidential Building v3.3		○	○				○			◑	○	●		○	
Malaysia	MyCREST Operation and Maintenance v2.0		◑	◑				◑			◑	○	◑	○	○	
Malaysia	MyCREST Design and Construction v2.0.1		◑	◑				◑			◑	◑	◑	◑	○	○
Philippines	BERDE Buildings v5.0.0		◑	◑	◑			◑	●	○	◑	◑	◑	●	◑	○
Singapore/Asia	Green Mark 2021		●	●	◑	◑	◑	◑	◑	◑	◑	●	◑	◑	◑	◑
Sri Lanka	Green SL Rating System for New Constructions v2.1		○	○		○	○	◑		◑	◑	◑	◑	◑	◑	○
Sri Lanka	Green SL Rating System for Existing Buildings v1.0		○	○		○	○				◑		◑	◑	◑	○
Thailand	TREES – NC/CS Version 2		○	○		○	○	○			◑		◑	◑	◑	○
Vietnam	LOTUS New Construction v4 draft 2 (August 2025)		◑	◑	◑	◑	◑	◑	●	●	◑	◑	◑	◑	◑	◑
UK/International	BREEAM International Non Domestic Refurbishment 2015		○	○	◑	○	○	◑	○	◑	○	◑	◑		◑	◑
USA/International	LEED BD+C v5		◑	◑	◑	○	○	●	●		○	○	●	◑	◑	◑
USA/International	LEED O+M v5		◑	◑	●			◑	●		○		◑	○		
International	EDGE v3 01.12.2024		◑	◑				○			○		○			○
International	EDGE v4 (draft)		◑	●	○			●	●		○		○			●

Mapping key

●	◑	○	
Fully aligned (mandatory credit)	**Aligned, but scored** (optional credit)	**Partially aligned** (similar intent)	**Not aligned/not covered**

Table 8: Alignment of assessed green building rating schemes to the acquisition or ownership of buildings TSC and DNSH criteria of the ASEAN Taxonomy

			Technical screening criteria			Do no significant harm						
			Climate change mitigation		Climate change adaptation	Climate change mitigation	Climate change adaptation	Protection of healthy ecosystems and biodiversity				
Country/region	**Rating tool**	**Overall alignment**	Acmv monitoring and assessment	Ee improvement plan	Projections, risks and adaptation	Carbon emissions (scopes 1,2,3)	Climate risk and vulnerability assessment	Impact on water	Impact on noise	Impact on air	Impact on soil	Impact on biodiversity
Australia/Pacific	Green Star Buildings		●	●	◑	●	●	◑	◑	●	◑	◑
Australia/Pacific	Green Star Performance		●	●	◑	●	◑	◑	◑	●	◑	◑
China	GB/T 50378-2019 (New Buildings)		●	◑		◑		◑	◑	◑	○	◑
China	GB/T 51141-2015 (Existing Buildings)		◑	◑		◑		◑	◑	◑	○	◑
HK/Greater China	BEAM Plus New Buildings v2.0.2025		◑	○	○	◑	◑	◑	◑	◑	○	◑
HK/Greater China	BEAM Plus Existing Buildings v3.0		◑	◑	◑	◑	◑	◑	◑	◑	○	○
India	IGBC Green New Buildings Rating System v3.0 Sep2016		◑	○		○		○		◑	○	◑
India	IGBC Green Existing Buildings O&M v2 Nov 2023		◑	◑		○		◑	○	◑	○	○
Indonesia	Greenship New Buildings 1.2		●	○		○		◑	○	◑		○
Indonesia	Greenship Existing Buildings 1.1		◑	●		○		●	○	◑		◑
Malaysia	GBI Non-Residential New Construction		◑	○		○		◑	○	◑	◑	◑
Malaysia	GBI Non-Residential Existing Building		◑	○		○		◑	○	◑	◑	
Malaysia	GreenRE Non Residential v4		●	○		○		◑	○	◑	○	○
Malaysia	GreenRE Existing NonResidential Building v3.3		◑	◑		○		◑	○	●		○
Malaysia	MyCREST Operation and Maintenance v2.0			◑		◑		◑	○	◑	○	○
Philippines	BERDE Buildings v5.0.0		○	◑	◑	◑	◑	◑	◑	◑	●	◑
Singapore/Asia	Green Mark 2021		●	◑	◑	◑	◑	◑	◑	◑	◑	◑
Singapore/Asia	Green Mark 2021 In Operations		●	●		○		●	○	●		
Sri Lanka	Green SL Rating System for New Constructions v2.1		○	○		◑		◑	◑	◑	◑	◑
Sri Lanka	Green SL Rating System for Existing Buildings v1.0		◑	◑				◑		◑	◑	◑
Thailand	TREES – NC/CS Version 2		◑	○		○		◑		◑	◑	◑
Thailand	TREES – EB Version 1.0		○	◑		○		◑		◑	◑	◑
Vietnam	LOTUS New Construction v4 draft 2 (August 2025)		●	●	◑	◑	●	◑	◑	◑	◑	◑
Vietnam	LOTUS Buildings In Operation v1 2019		◑	◑	◑		◑	◑		◑	◑	○
UK/International	BREEAM New Construction International V7		◑	○	◑	◑	◑	◑	◑	◑	○	◑
UK/International	BREEAM In Use International V6		○	◑	○	◑	◑	◑	○	◑		◑
UK/International	BREEAM International Non Domestic Refurbishment 2015		◑	○	◑	◑	○	○	◑	◑		◑
USA/International	LEED BD+C v5		●	◑	◑	●	●	●	○	●	◑	◑
USA/International	LEED O+M v5		●	●	●	◑	●	◑		◑	○	
International	EDGE v3 01.12.2024		◑	○		○		●		○		
International	EDGE v4 (draft)		◑	○	○	●	●	●		○		

Mapping key

●	◑	○	
Fully aligned (mandatory credit)	**Aligned, but scored** (optional credit)	**Partially aligned** (similar intent)	**Not aligned/not covered**

Findings by environmental objective

Environmental objective 1: climate change mitigation

Technical screening criteria	
Do no significant harm	

There is strong alignment between green building rating tools and the climate change mitigation objective — an expected outcome given the foundational role these tools play in promoting energy performance and reducing emissions in the built environment.

However, alignment with the DNSH criteria for carbon emissions is more variable. Many rating tools address energy use, sustainable material selection, and renewable energy integration directly, but do not always explicitly quantify or manage carbon emissions, particularly Scope 1 and 2.

Energy Efficiency Improvement Plans show mixed alignment, particularly for tools focused on new construction. These tools typically target design-stage performance, emphasising low energy demand from the outset. While this is consistent with the mitigation objective, fewer tools require a post-completion decarbonisation or transition plan. Exceptions include more recently updated schemes like LEED v5, Green Star, and Green Mark, all of which include credits for longer-term energy transition planning.

In contrast, China's Three Star (GB/T 50378-2019) integrates property management and resource-saving plans that support long-term efficiency outcomes. Similarly, BERDE adopts a whole-of-life certification approach that includes operational energy performance requirements (Stage 3), enhancing alignment with both mitigation and DNSH principles.

The ASEAN Taxonomy (Version 3, Dec 2024) sets out specific mitigation-related criteria, including:

- TSC: Energy Efficiency Improvement Plan to reduce Energy Use Intensity (EUI)
- TSC: Efficient HVAC operation monitored (for systems >290 kW)
- TSC: Energy Efficiency Improvement of ≥30% (T1) or ≥15% (T2)
- DNSH: Identification and management of Scope 1 and 2 GHG emissions, with Scope 3 where relevant

However, it is notable that these thresholds apply specifically to renovation of existing buildings. For new construction and acquisition, the Taxonomy does not define absolute performance thresholds, instead recognising alignment through certification under a 'credible national/international green building rating tool' achieving an advanced level (T1), or certified by a recognised rating tool (T2).

A closer look: energy efficiency criteria and interpretation

Energy performance requirements vary across rating systems and are assessed using diverse metrics, including:

- prescriptive EUI (Energy Use Intensity) targets
- EUI reduction relative to a national code or baseline (e.g., ASHRAE 90.1)
- reduction against a historical baseline
- energy cost savings
- benchmarking against national top-percentile thresholds
- system-level efficiency criteria without a whole-building performance target

This variation necessitates careful interpretation when mapping to the Taxonomy's TSC.

For example, tools that define EUI improvements relative to rigorous baselines (e.g., ASHRAE 90.1) can be considered highly aligned — particularly where they demonstrate ≥30% reductions, a threshold comparable to high-performing new buildings. Likewise, percentile-based schemes like BEAM Plus, which benchmark buildings against top national performers, also support meaningful alignment.

Conversely, tools using energy cost savings as a primary metric may show weaker alignment. Cost-based measures are sensitive to energy pricing and fuel type, and may obscure real energy or carbon savings. A low-cost but carbon-intensive energy mix may appear more efficient than an all-electric, low-emission design — contrary to the intent of mitigation-oriented frameworks.

Key distinction between energy use intensity and energy cost savings.:

- EUI reflects actual physical energy consumption per unit (square metre).
- Energy Cost Savings reflect financial outcomes, influenced by pricing and market variability, and may not correlate with reduced emissions.

Finally, rating tools without whole-building performance metrics but with strong system-level efficiency requirements were assessed as partially aligned. These may drive substantial efficiency outcomes but lack the consolidated data needed to demonstrate direct taxonomy compliance.

India's Approach to Energy Performance under IGBC O&M v2 (Nov 2023)

The *IGBC Green Existing Buildings Operations and Maintenance (O&M) v2, Nov 2023* introduces a novel Energy Performance Index (EPI) approach that sets normalised energy performance thresholds for assets based on climate zone, building typology, and proportion of air-conditioned area. This method offers a way to define tailored, context sensitive performance targets that reflect the heterogeneity of the built environment. An approach that could be adapted by other countries or energy standards in shaping bespoke energy targets.

The framework applies a simple linear formula:

$y=(a\times x)+c$

Where:

- y = Energy Performance Index (EPI), defined as total electricity purchased and generated ÷ built-up area (kWh/m²/year).
- a = multiplier based on asset class, size, and climate zone.
- x = percentage of air-conditioned area relative to total built-up area.
- c = base value for the given asset class, size, and climate zone (representing the EPI of a fully non-air-conditioned building).

For example, in office buildings, the EPI bands are defined for operations of 8–9 hours per day, six days per week, with correction factors available for buildings operating under different schedules.

Office

Offices	Built-up area
Large Offices	>30,000 sq.m.
Medium Offices	30,000 sq.m – 10,000 sq.m
Small Offices	<10,000 sq.m.

Source: Bureau of Energy Efficiency (BEE): Schedule for Office Buildings Star Rating

Climatic Zone	Building Category	4 Credit Points	6 Credit Points	10 Credit Points	14 Credit Points
Composite	Large Office	y = 0.9x + 50	y = 0.85x + 40	y = 0.8x + 30	y = 0.75x + 20
	Medium Office	y = 1.05x + 50	y = x + 40	y = 0.95x + 30	y = 0.9x + 20
	Small Office	y = 0.6x + 50	y = 0.55x + 40	y = 0.5x + 30	y = 0.45x + 20
Warm and humid	Large Office	y = 0.85x + 55	y = 0.8x + 45	y = 0.75x + 35	y = 0.7x + 25
	Medium Office	y = 0.85x + 55	y = 0.8x + 45	y = 0.75x + 35	y = 0.7x + 25
	Small Office	y = 0.65x + 55	y = 0.6x + 45	y = 0.55x + 35	y = 0.5x + 25
Hot and dry	Large Office	y = 1.05x + 45	y = x + 35	y = 0.95x + 25	y = 0.9x + 15
	Medium Office	y = 1.2x + 45	y = 1.15x + 35	y = 1.1x + 25	y = 1.05x + 15
	Small Office	y = 0.7x + 45	y = 0.65x + 35	y = 0.6x + 25	y = 0.55x + 15

Source: Bureau of Energy Efficiency (BEE): Schedule for Office Buildings Star Rating

To illustrate, consider a large office (>30,000 m²) in a warm-humid climate (similar to much of ASEAN) with 80% air-conditioned floor area. The EPI thresholds for EE Credit 2, Option 1 would be:

EE Credit 2, Option 1	EUI (EPI) kWh/m2/yr	Formula
4 Points	123	y=0.85x+55
6 Points	109	y=0.80x+45
10 Points	95	y=0.75x+35
14 Points	81	y=0.70x+25

Environmental objective 2: climate change adaptation

Technical screening criteria	
Do no significant harm	

The Climate Change Adaptation objective, along with its associated DNSH criteria, demonstrated the lowest overall alignment among the rating tools assessed in this study.

This is not unexpected. While mitigation has long been a core focus of green building tools, particularly through energy, emissions, and resource-related credits, adaptation-related requirements have historically been less developed or entirely absent. This reflects a broader pattern: adaptation measures are often seen as site- or context-specific, and more difficult to standardise in performance frameworks.

To meet the ASEAN Taxonomy's Technical Screening Criteria, a building must be designed and constructed (or renovated) to do one of the following:

- address material physical climate risks through certified adaptation measures, or
- undertake a robust climate risk assessment, or
- follow science-based climate analysis, consistent with IPCC guidance

Further requirements include ensuring the building:

- does not cause harm,
- aligns with adaptation plans, prioritises nature-based solutions, and
- is monitored for the effectiveness of implemented adaptation measures

The DNSH criteria add that a Climate Risk and Vulnerability Assessment (CRVA) must be in place.

Table 9: Extract of the relevant parts of the CRVA checklist

Item	Description	Explanation
Climate related hazards	Potential climate related risks to the activity (asset)	Identify and list potential risks to the activity from table 10, considering location of the activity and applicable scenarios and trends using both ipcc climate scenarios and trends
	Evaluate most common potential risks to the activity	Consider the likelihood of the risk based on the location of the activity
Risk assessment	Projection of climate hazards	What potential hazards may occur based on using both ipcc climate scenarios and trends?
	Potential impact of climate related hazards	How could climate-related hazards affect elements of the activity? Direct impacts may not always occur; some may also be indirect (or impacts in succession). Where appropriate, use flowchart to map the anticipated risks and impacts from each identified climate-risk hazard.
Identify adequate and effective adaptation solutions	Adaptive solutions	List adequate and effective adaptation solutions under identified climate-related hazard

Table 10: Classification of climate-related hazards (Source: Appendix 3, ASEAN Taxonomy)

	Temperature related	Wind related	Water related	Solid mass related
Chronic	• changing temperature (air, freshwater, marine water) • heat stress • temperature variability	• changing wind patterns	• changing precipitation patterns and types • precipitation or hydrological variability • ocean acidification • saline intrusion • sea level rise • water stress	• coastal erosion • soil degradation • soil erosion • solifluction
Acute	• heat wave • wildfire	• cyclone, hurricane, typhoons • storms (including dust and sandstorms) • tornadoes	• drought • heavy precipitation • flood (coastal, fluvial, pluvial, ground water)	• landslide • subsidence

Strengthening climate adaptation criteria in rating tools

More recently updated tools such as Green Star, Green Mark, LEED v5, BERDE, BEAM Plus, and the draft version of LOTUS v4 demonstrate a moderate to strong degree of alignment with the Climate Change Adaptation objective. These schemes incorporate elements such as climate risk identification, resilience planning, and passive design features intended to enhance adaptive capacity.

However, the quality and depth of climate risk assessments remain variable. In particular:

- **how** the climate risk analysis is performed,
- **who** conducts it, and
- **what recommendations** emerge from it

...are all critical factors. Without these, there is a risk that assessments become checklist exercises, lacking the rigour or site-specific insights needed to support genuine climate resilience.

A core opportunity for green building councils

Historically, adaptation has not been a core focus of green building tools, which have prioritised mitigation — particularly energy, carbon, and materials. However, in the Asia-Pacific region, where the built environment faces increasing exposure to climate-related hazards (e.g., flooding, heat stress, typhoons), there is a clear need to:

- expand the scope of adaptation-focused credits
- embed practitioner-led analysis and ipcc-aligned methodologies
- encourage climate-resilient design as part of mainstream certification

Enhancing climate adaptation components within rating systems will not only improve alignment with the ASEAN Taxonomy but also support long-term asset valuation, resilience, and access to sustainable finance.

Tool spotlight: IFC's Building Resilience Index (BRI)

One promising pathway to improve alignment with adaptation-related DNSH criteria is the Building Resilience Index (BRI) developed by the International Finance Corporation (IFC).

Although the IFC's EDGE rating system does not currently include explicit adaptation criteria, the BRI offers a web-based tool that evaluates a building's exposure and resilience to key hazards:

- wind-related risks
- water and flood risk
- geoseismic threats
- fire and heat extremes

The BRI assesses both hazard exposure and the effectiveness of mitigation measures, assigning a letter-grade score (A+, A, B, C, or R). Importantly, IFC has indicated that a 'B' grade or higher meets the threshold for DNSH alignment with both the ASEAN and EU Taxonomies for Climate Adaptation.

This makes the BRI a valuable reference model for:

- rating tools currently lacking adaptation-focused content
- policymakers or investors seeking a baseline standard for climate resilience
- practitioners seeking actionable tools to supplement building certifications

By adapting or integrating tools like the BRI, rating systems in the region can rapidly close adaptation-related gaps, align more closely with sustainable finance frameworks, and play a meaningful role in preparing the built environment for future climate impacts.

Environmental objective 3: protection of healthy ecosystems and biodiversity

Do No Significant Harm	

As a whole, green building rating tools demonstrate moderate alignment with the DNSH criteria related to ecosystem protection and biodiversity. While many schemes address environmental risks during building construction and operation, the extent and specificity of this coverage varies across tools.

This objective encompasses a broad set of environmental impact areas:

Environmental impact assessment	
Impact on water resources	• Identify and manage environmental detrimental risks associated with the construction/operation of the building related to water quality and/or water consumption at the appropriate level; • Water quality protection and conservation management plans are developed, and implemented, which include tangible commitments to minimise environmental impacts through the appropriate management of water utilised during the activity's lifecycle; • Monitor the compliance and effectiveness of the mitigation measure.
Impacts related to noise	• Neither the construction nor operation of the building will cause significant harm to the environment through noise emissions. Noise emitted by the activity must comply with maximum permissible noise levels for the area; • Noise management plans are developed.
Impacts on air	• Air quality management plans are developed. • Possible sources of air pollution are minimised during construction and operation of the building.
Impact on soil	• Neither the construction nor operation of the building will cause significant harm to the environment by impacting soil quality. Minerals and chemicals such as metals, pesticides, polychlorinated biphenyl, and total petroleum hydrocarbons contained in the soil must be within the permissible limits; • Management plans such as soil erosion and sediment control plans are developed.
Impact on biodiversity	• Manage environmental detrimental risks associated with the construction or operation of the building related to biodiversity at the appropriate level. • Ensure all relevant management plans such as biodiversity management plans are developed.

Table 11: Overall mapping of rating tools with EO3: Protection of healthy ecosystems and biodiversity criteria

	Environmental impact assessment	**Impact on water**	**Impact on noise**	**Impact on air**	**Impact on soil**	**Impact on biodiversity**
Overall alignment						
Construction of buildings						
Acquisition or ownership of buildings	n.a.					
Renovation of existing buildings						

Detailed findings on environmental objective 3: protection of healthy ecosystems and biodiversity

Environmental impact assessment (EIA)

Across the assessed tools, EIA-related criteria show the weakest alignment within this environmental objective. This may reflect the fact that EIAs are often mandated by national or local regulations, and thus not typically embedded as explicit, scored elements within voluntary rating tools.

EIAs are typically triggered for specific site conditions — such as greenfield developments near ecologically sensitive areas (e.g. forests, wetlands, or waterways) or brownfield sites with potential contamination. Given their broader application, most rating tools are not designed solely for these cases. However, several tools include site selection criteria that discourage development in ecologically sensitive areas, thereby indirectly supporting the intent of an EIA.

Where rating tools do include EIA-related credits, the information generated — such as baseline environmental assessments, mitigation plans, and stakeholder engagement records — can also support compliance with other EO3 DNSH requirements.

Water

Water-related criteria emerge as an area of stronger alignment across most tools. Many rating systems include credits for:

- reducing water consumption
- installing efficient fixtures
- integrating alternative water sources, such as rainwater harvesting or greywater reuse
- managing stormwater runoff, often with quantitative thresholds and site-sensitive approaches.
  Several tools also include monitoring and verification requirements, further reinforcing alignment with the DNSH expectations of water resource protection and conservation planning.

Noise

Noise impacts present mixed levels of alignment.

Some tools address indoor noise control, focusing on occupant health and acoustic comfort through:

- prescriptive noise level thresholds for different space types
- equipment selection to reduce mechanical noise.
  Others extend further, incorporating external acoustic planning, such as building orientation, sound buffers, and soundscaping techniques that manage ambient sound for urban resilience and wellbeing. However, there remains a notable gap in the treatment of construction-phase noise pollution, and few tools include comprehensive Noise Management Plans as required under the taxonomy.

Air quality

Air quality is an area where many rating tools demonstrate strong internal alignment, particularly through criteria for:

- ventilation rates
- air filtration
- use of low-emission materials (e.g. low-VOC paints and adhesives).
  These focus on indoor environmental quality, in keeping with the historic emphasis of green building tools. However, gaps remain in addressing construction-phase air pollution, such as dust control, vehicle emissions, and other short-term but high-impact sources of air pollution, which are central to DNSH compliance.

Soil

Soil-related criteria reveal a consistent gap across most rating tools.

The DNSH expectations in this area include:

- soil erosion prevention
- sediment control during construction
- pollution prevention and chemical contamination limits.
  While some tools may touch on these themes through site disturbance minimisation or landscape protection, few offer dedicated or detailed criteria aligned with the pollution prevention lens of the ASEAN Taxonomy.
  The underrepresentation of soil-related impacts, especially during construction, may again stem from reliance on national regulations rather than certification-based requirements.

Biodiversity

Criteria related to biodiversity represent another notable gap.

While most rating tools include credits for green space, tree planting, or landscaping, relatively few go further to require:

- biodiversity management plans
- habitat protection or restoration
- support for native species or ecosystem services. There is an emerging opportunity for rating tools to adopt regenerative design principles, integrating ecological resilience and biodiversity enhancement into both site and building-level design. This would more directly align with the ASEAN Taxonomy's emphasis on ecosystem protection as a core element of sustainability.

Environmental objective 4: resource resilience and the transition to a circular economy

Technical screening criteria	

For renovation activities, the ASEAN Taxonomy sets out the following requirements:

- **Structural retention:** Maintain at least 75% of the existing building's structure (including floors and roof decking) and envelope (excluding windows and non-structural roofing). For Tier 2 (Amber) classification, the threshold is 45%. Unsafe or structurally unsound elements may be excluded from the calculation.
- **Non-structural reuse:** Retain at least 30% of existing interior non-structural elements (e.g., interior walls, doors, ceilings, floor coverings) in the completed building, including any additions.
- **Life cycle assessment (LCA):** Conduct an LCA of the project's structure and enclosure, demonstrating at least a 10% reduction (or 5% for Amber Tier 2 classification) in three out of six environmental impact categories, as defined in LEED v4.1's Building Life-Cycle Impact Reduction credit — one of which must be global warming potential.

Inconsistencies in the ASEAN Taxonomy's treatment of resource efficiency and circularity

A key limitation in the ASEAN Taxonomy is the exclusive application of this environmental objective to renovation activities. For new construction, resource efficiency and circularity are considered only under the DNSH criteria, rather than through dedicated Technical Screening Criteria. This represents a notable gap, particularly given the importance of material reuse, lifecycle impacts, and construction-phase emissions in shaping a circular economy for the built environment.

While this guide recognises the value of referencing established rating tools to enhance taxonomy usability, the direct inclusion of a specific LEED v4.1 credit appears inconsistent with the taxonomy's typically principle-based approach. Moreover, that credit is no longer included in the updated LEED v5 BD+C and O+M schemes, raising concerns about the long-term relevance of such a reference.

Nevertheless, the emphasis on material retention and adaptive reuse is valid — especially in the Asia Pacific context, where large-scale retrofit and additions offer meaningful pathways to decarbonisation in rapidly urbanising cities. Encouraging renovation over demolition aligns with both emissions reduction and resource conservation objectives.

Findings from the mapping exercise

Most rating tools did not meet the specific thresholds outlined in the ASEAN Taxonomy (e.g., 75% structural retention, 30% non-structural reuse). However, many include robust criteria supporting the conservation of structural and interior building elements. Material reuse credits — considering both on-site and off-site reuse — are common across systems.

Several rating tools promote embodied carbon reduction, responsible material sourcing, and sustainable procurement. However, measurement methodologies vary: some tools apply cost-based thresholds (e.g., 80% of materials by cost must be recycled or reused), while the taxonomy uses area- or volume-based measures. This dscrepancy complicates direct alignment.

The DNSH criteria also call for Lifecycle Assessments (LCA) aligned with ISO 14040 and 14044. While many rating tools include sustainable product selection criteria (such as certified, recycled, or rapidly renewable materials), fewer require full LCA analysis.

Tools such as Green Mark, LEED, Green Star, EDGE, MyCREST, BREEAM, and LOTUS v4 (draft 2) incorporate whole-life carbon or LCA-based approaches, offering a partial alignment with the taxonomy. However, EDGE, for instance, explicitly defines its LCA boundary as cradle-to-gate, while the ASEAN Taxonomy specifies cradle-to-grave — further limiting alignment.

Although the mapping does not yield high levels of formal alignment, it is important to recognise that most of the rating tools assessed contain a comprehensive set of material-related criteria. The challenge lies less with the tools themselves and more with the ASEAN Taxonomy's current approach, which lacks fully developed circular economy criteria for new construction and uses outdated references. There is an opportunity for future versions of the taxonomy to better reflect the state of practice in the built environment and create more consistent, forward-looking benchmarks for material and resource resilience.

Recommendations for taxonomy compliance

The mapping exercise demonstrates that while current green building rating tools provide a solid foundation for assessing sustainability performance, important gaps remain when measured against the evolving expectations of sustainable finance.

Addressing these gaps would allow rating tools to play an enhanced role — not only in guiding building design and operational performance, but also in supporting sustainable finance decision-making, regulatory compliance, and climate risk disclosure.

To strengthen alignment, rating tools should be more explicit about the environmental objectives their criteria aim to address, taking cues from the structure adopted by sustainable finance taxonomies. Importantly, while any such evolution must be sensitive to the diverse regulatory and market contexts in which these tools operate, the analysis suggests that organising rating criteria around clearly defined environmental objectives would improve transparency, comparability, and strategic value.

Criteria that must be covered

To support alignment with the principles of the ASEAN Taxonomy, green building rating tools should explicitly incorporate criteria that correspond to the Taxonomy's three core Environmental Objectives (EOs):

- **EO1/EO4:** climate change mitigation, including resource resilience and the transition to a circular economy
- **EO2:** climate change adaptation
- **EO3:** protection of healthy ecosystems and biodiversity

These three environmental objectives serve as the foundation for sustainable finance alignment in the built environment. By structuring rating tool content to clearly map against these EOs, rating systems can better enable taxonomy-aligned disclosures, unlock sustainable investment, and enhance clarity for all stakeholders — including developers, investors, and regulators.

At the same time, it is important to emphasise that this alignment should not constrain innovation or broader sustainability ambitions. Rating tools should continue to reflect the environmental, social, and cultural priorities of their local markets, and remain flexible enough to address issues that extend beyond the taxonomy's minimum requirements such as equity, resilience, and wellbeing.

In short, alignment with the ASEAN Taxonomy should be seen as a floor, not a ceiling, a shared foundation upon which more ambitious and context-specific sustainability outcomes can be built.

EO1/EO4: climate change mitigation — including resource resilience and the transition to a circular economy

This section sets out recommended criteria for green building rating tools to strengthen alignment with the ASEAN Taxonomy's first and fourth Environmental Objectives. It supports integration with sustainable finance frameworks by encouraging a greater focus on performance metrics, emissions reduction pathways, and material circularity across the building lifecycle.

Operational carbon reduction, transition plans and electrification

Energy performance

Rating tools should require the disclosure of building energy consumption, covering all energy sources. Future updates should incorporate tiered performance thresholds that become more stringent at higher certification levels — ensuring that top-tier certifications represent genuine best practice while supporting continuous improvement.

Several rating tools already demonstrate this approach. Green Mark, Green Star, and BEAM Plus have embedded performance-based tiers, with LEED adopting similar thresholds in version 5 and LOTUS integrating them in its version 4 draft. These benchmarks should be regularly updated to reflect evolving technologies and market transformation, and move away from cost-based metrics towards:

- modelled energy use for new buildings, and
- measured performance data for existing buildings

To support decarbonisation in line with national climate goals, rating tools are encouraged to include forward-looking performance roadmaps, aligned with or exceeding each country's Nationally Determined Contributions (NDCs).

Operational carbon focus

Rating tools should expand their metrics to include operational carbon intensity (e.g., kgCO_2/m²/year), enabling a more accurate representation of climate impact. This should include:

- **Scope 1 (direct)** emissions from on-site fuel use
- **Scope 2 (indirect)** emissions from purchased electricity

For existing buildings, tools should require asset-level operational transition plans, including:

- defined interim carbon targets
- identified emissions reduction strategies (e.g. retrofitting, system upgrades)
- monitoring and reporting frameworks to track progress over time

Electrification — with consideration of grid capacity

Electrification of systems such as heating, cooling, and hot water should be incentivised within rating tools. However, tools should also account for grid reliability and emissions intensity. In markets where grids are unstable or carbon-intensive, tools should support:

- on-site renewable generation
- fossil fuel–free backup power and storage systems, to ensure both decarbonisation and resilience

Upfront embodied carbon, materials and construction

Upfront Embodied Carbon Integration

Embodied carbon, particularly from material extraction, production, and construction, accounts for a significant portion of building lifecycle emissions. Despite the availability of lower-carbon alternatives, uptake remains low in many Asian markets, due to limited demand and immature supply chains.

Integrating embodied carbon thresholds into rating tools can help overcome these barriers by sending clear demand signals to industry and suppliers. This is particularly important for hard-to-abate sectors, such as steel and cement.

Case study: steel sector

The steel industry provides a strong example of the impact rating tools can have:

- Blast Furnace (BF) methods, still dominant across Asia, emit approximately 2.33 tonnes of CO_2 per tonne of steel
- In contrast, Electric Arc Furnace (EAF) and Direct Reduced Iron (DRI) technologies — which use recycled steel and alternative fuels — can emit as little as 0.68–0.70 tonnes of CO_2 per tonne
- In 2023, China produced nearly 1.02 billion metric tonnes of crude steel, with most output from BF processes

By setting clear embodied carbon performance thresholds, rating tools can stimulate demand for lower-emission steel and accelerate the transition to cleaner production technologies.

Assessment, reporting and adaptive reuse

Rating tools should require comprehensive embodied carbon assessments with:

- defined maximum thresholds by building type and certification level
- transparent calculation methodologies
- verified reporting protocols

To support circular economy principles, criteria should also discourage premature demolition and encourage the adaptive reuse of viable structures, recognising both the emissions savings and material value preservation this can deliver.

EO2: climate change adaptation

Recommended criteria for rating tools:

Climate risk assessment integration

Rating tools should require robust climate risk assessments that evaluate both current and projected future climate conditions over the anticipated life of the building. These assessments must address a range of region-specific hazards, including extreme heat, shifting precipitation patterns, storm intensity, and sea level rise, and explicitly link identified risks to design and operational responses.

To move beyond checklist compliance, rating tools should specify who conducts the risk assessment (e.g., qualified professionals) and how its outcomes must influence project design, including site selection, structural design, and service continuity planning.

Adaptation strategy requirements

Following hazard identification, rating tools should mandate the implementation of clearly defined adaptation strategies that are commensurate with the level of risk. These strategies should include design and operational responses to:

- acute shocks (e.g., flooding, heatwaves, typhoons)
- chronic stresses (e.g., higher average temperatures, water scarcity)

Performance criteria should cover:

- thermal resilience in high-heat scenarios
- structural durability under extreme weather
- operational continuity during disruptions (e.g., maintaining access to cooling, water, power)

Importantly, adaptation measures should be designed in parallel with mitigation goals — ensuring, for example, that resilience solutions (like backup generators or mechanical cooling) do not inadvertently increase emissions or energy demand. Cross-criteria consistency (e.g., low-energy cooling design) should be explicitly considered.

Resilience planning and performance

Rating tools should embed broader resilience planning into certification criteria, addressing both site-level and systemic risks. Key performance areas include:

- stormwater management and urban drainage
- back-up power generation and storage (e.g., battery systems)
- emergency access and response plans
- urban heat island mitigation, outdoor thermal comfort, and passive survivability

Standards and benchmarks should be forward-looking, based on scientifically grounded climate projections (e.g., IPCC-aligned RCP scenarios) rather than historical norms. This ensures buildings remain functional and safe under plausible future conditions.

Biodiversity and nature-based adaptation

Where possible, resilience criteria should integrate nature-based solutions. These may include:

- green infrastructure for stormwater attenuation
- vegetated roofs and facades for thermal buffering
- native landscape planting for drought tolerance and ecological support

Such measures contribute not only to adaptation outcomes but also support Environmental Objective 3 (Protection of Ecosystems and Biodiversity), reinforcing co-benefits across environmental goals.

EO3: protection of healthy ecosystems and biodiversity

In the ASEAN Taxonomy, Environmental Objective 3 encompasses a range of environmental safeguards related to ecosystems, biodiversity, and pollution prevention. The relevant criteria span across water use, waste management, site pollution, and nature-based solutions. While many of these themes are represented in existing green building rating tools, there remain opportunities to enhance alignment with the taxonomy — particularly by introducing more robust performance measurement and construction-phase requirements.

Resource use — water efficiency and waste management

Most rating tools assessed incorporate water efficiency and operational waste management measures. To strengthen alignment with sustainable finance frameworks, rating tools should aim to capture consistent, performance-oriented data, including:

Water performance metrics	• annual water consumption (m^3) • water use intensity ($m3/m^2$) • annual water savings compared to baseline (m^3 or %) • recycled/reused water (m^3 or %)
Waste management metrics	• waste sent to landfill (tonnes or %) • waste sent to landfill intensity • operational waste recycling rate (%) • hazardous waste properly managed (tonnes)

While operational metrics are generally well addressed, greater focus is needed on pollution control during the construction phase. Specific areas for enhancement include:

- stormwater management and protection of local water bodies from runoff
- sediment and erosion control
- construction waste segregation and appropriate disposal
- on-site water management protocols

Importantly, these should move beyond design documentation to site-based monitoring and verification throughout the construction lifecycle.

Pollution prevention and control

The mapping identified wide variation in how tools address construction-phase environmental risks. This represents a significant gap in taxonomy alignment.

Rating tools should explicitly include pollution prevention and control requirements across the following dimensions:

- **noise management** during site preparation and construction
- **air quality controls**, including dust suppression and low-emission equipment
- **soil protection**, through erosion and sediment control planning
- **control of hazardous substances**, such as hydrocarbons or effluents
- **preservation of local ecosystems and habitat zones** during construction

Some tools in the region are leading in this area:

- **TREES (Thailand)** includes a mandatory prerequisite for construction pollution control (EP P1) that applies to all rating levels.
- **LOTUS v4 (Vietnam)** includes a planned prerequisite (SE-PR-2) addressing sediment, dust, emissions, hydrocarbons, pesticides, effluent, and noise.

Further advancement is needed in addressing the transition of construction practices, including:

- on-site electrification of equipment and site offices
- phased grid connection to reduce reliance on diesel
- encouragement of alternative fuel technologies

Biodiversity and nature-based solutions

While many rating tools address greenery, landscaping, or urban greening, relatively few include comprehensive criteria on biodiversity enhancement or ecosystem connectivity.

Rating tools should:

- shift from aesthetic greening to ecological performance outcomes
- incentivise native species planting, habitat restoration, and pollinator support
- consider nature-based approaches for flood management, cooling, and stormwater retention
- support habitat continuity through site selection and landscape design strategies

These enhancements would allow rating tools to better reflect the integrated ecological outcomes envisioned by the ASEAN Taxonomy.

Other considerations

Criteria related to health and wellbeing — such as indoor air quality, acoustics, and accessibility — are generally well embedded within green building rating systems. However, there is scope to:

- introduce more quantitative, performance-based thresholds for air and acoustic quality
- account for external stressors such as pollution events and extreme heat
- ensure design strategies for accessibility and inclusion are regularly updated to reflect evolving social needs

Cross-cutting issues

In addition to aligning with the ASEAN Taxonomy's environmental objectives, several systemic issues influence the effectiveness of green building rating tools in enabling sustainable finance, climate-related risk disclosure, and market transformation. These cross-cutting considerations address structural elements that underpin the credibility, usability, and relevance of rating tools in the taxonomy-aligned finance ecosystem.

Clear procedures to showcase taxonomy compliance through rating tools

To improve alignment with the ASEAN Taxonomy, rating tools must provide users — particularly asset owners, financiers, and regulatory actors — with unambiguous procedures to demonstrate compliance. This includes:

- Clearly identifying how specific credits or performance benchmarks map to taxonomy Technical Screening Criteria (TSC) and Do No Significant Harm (DNSH) criteria;
- Indicating whether the rating tool supports T1 (Green) or T2 (Amber) classification, based on its certification level and credit structure;
- Providing guidance on what certification tiers correspond to 'advanced certification levels' as defined in the taxonomy;
- Ensuring supporting documentation (e.g., calculators, templates, technical manuals) is available in English and clearly cross-referenced to environmental objectives and criteria.

Transparent asset performance information

To meet the expectations of investors and financiers — particularly those reporting against financed emissions targets or climate-related financial disclosures — green building rating tools must provide consistent, verifiable, and performance-oriented asset data. The mapping exercise identified gaps in how well current tools report on critical metrics.

Recommended minimum metrics

Energy performance

- **Energy use intensity (kWh/m²):** Absolute operational energy use normalised by floor area for comparability.
- **Annual energy savings (kWh or %):** Relative to a clearly defined national or international baseline. The baseline must be transparently disclosed.

Carbon emissions

- **Direct fossil fuel emissions:** Including gas, diesel, or other fuels used on-site for heating, cooling, hot water, or cooking.
- **Emissions from electricity consumption:** Using both location-based and market-based emission factors to capture grid intensity and procurement choices.
- **Operational emissions intensity ($kgCO_2e/m^2$):** Captures whole-building carbon impact from operations, enabling alignment with financed emissions calculations.
- **Upfront embodied emissions intensity ($kgCO_2e/m^2$):** Including emissions from material extraction, manufacturing, and construction.
- **Global warming potential (gwp) of refrigerants:** Where refrigerants are used, their type and leakage potential must be measured and disclosed.

These metrics must be consistently reported across all certification levels and building types, with clear definitions, baselines, calculation methodologies, and verification mechanisms to ensure comparability and reliability. Rating tools that use internal calculators should provide transparent outputs and clearly define how performance is benchmarked.

Social sustainability integration

While the ASEAN Taxonomy's environmental focus forms the core of this alignment analysis, many rating tools — especially in Asia-Pacific — operate in markets where social sustainability and just transition principles are becoming increasingly relevant. Future iterations of rating tools should explore the inclusion of criteria related to:

- community impact assessments (e.g., displacement risks, accessibility)
- local economic development and job creation
- fair labour practices and supply chain ethics
- workforce development and capacity building for green skills

Embedding these criteria can position rating tools as more holistic instruments that support both environmental and social dimensions of sustainable finance, especially in emerging and developing economies.

Performance monitoring and certification validity

Evergreen certifications — those with no expiration or reassessment — conflict with best practices for both sustainability assurance and green finance. Such static certifications risk creating a disconnect between initial design intent and ongoing building performance, especially given the performance gaps frequently observed post-occupancy.

To maintain credibility and enable taxonomy-aligned investment, rating tools must embed time-bound certification validity linked to reassessment cycles:

- **New construction ratings:** Valid for a maximum of five years post-completion, to allow for commissioning, tuning, and operational data collection.
- **Operational or in-use ratings:** Valid for a maximum of three years, requiring regular recertification to reflect operational realities and enable continuous improvement.

This aligns with sustainable finance requirements for performance over time, supports investor confidence, and creates structured opportunities to integrate updated benchmarks and environmental priorities.

Clear activity and life stage definitions

A further insight from the mapping exercise relates to clarity on rating tool applicability by building lifecycle stage. In some jurisdictions, rating tools for new construction are applied to major renovation projects, but this distinction is often unclear to international users.

To enhance usability and market transparency:

- Rating tools should clearly define the intended stage of application (e.g., new construction, major renovation, operational performance);
- Certification documentation should specify market definitions of 'major renovation', including scope thresholds (e.g., floor area affected, structural changes, or services upgrades);
- Public documentation should clearly delineate how credits and criteria shift based on building phase and activity classification under taxonomies.

Clarifying these boundaries will ensure more appropriate use of rating tools in international taxonomy contexts and facilitate consistent application across borders.

Call to action

The built environment across Asia Pacific is diverse — shaped by cultural, climatic, and market-specific conditions. There is no one-size-fits-all model for delivering sustainable buildings at scale.
These contextual differences make it challenging to implement consistent, interoperable performance metrics, creating barriers to unlocking sustainable investment and managing climate-related risks effectively.

Green building rating tools can help bridge this gap. When aligned with sustainable finance taxonomies, they provide a structured, trusted mechanism for connecting environmental performance with capital markets.

Aligning rating tools and taxonomies

Aligning green building rating tools with sustainable finance taxonomies addresses two critical gaps:

- **between industry sustainability ambitions and financial sector expectations;** and
- **between existing market practices and national or regional policy goals**

When rating tools are explicitly recognised within taxonomies — and when taxonomies reference those tools clearly — the result is a more streamlined, transparent pathway for sustainable investment. Capital can flow more efficiently to high-impact projects. Complexity is reduced. Diverging standards are brought into alignment. This empowers all stakeholders — from developers to regulators to investors — to integrate sustainability into core real estate and infrastructure decision-making.

The long-term vision is clear: green buildings must form the foundation of a low-carbon, climate-resilient future.

Collaboration is critical

Achieving this vision requires stronger collaboration between the built environment sector, financial institutions, and policymakers — particularly across Asia Pacific. Without more coordinated action, the investment flows required for deep transformation will remain out of reach.

Collaboration can reduce fragmentation, unlock capital, and enable a more effective flow of finance into sustainable buildings. Each stakeholder has a role to play:

- **Policymakers** can align sustainability criteria, establish enabling incentives and regulations, and strengthen implementation frameworks;
- **Banks and financial institutions** can support taxonomy-aligned investment by increasing transparency and accountability;
- **Green Building Councils (GBCs)** can lead the charge in aligning rating tools, reducing compliance burdens, and enabling consistent, data-driven measurement of impact.

By working together, these actors can accelerate transformation at scale.

WorldGBC's role

The World Green Building Council (WorldGBC), through its regional networks and national GBCs, is uniquely positioned to act as a trusted intermediary between the financial sector and the built environment. With deep technical expertise and long-standing industry relationships, WorldGBC can:

- Foster meaningful collaboration across sectors;
- Provide clarity on sustainability criteria and alignment pathways;
- Help de-risk green building investment; and
- Translate sustainability ambitions into credible, financeable outcomes.

Through this coordinated effort, the Asia Pacific region can lead in shaping a global built environment that is sustainable, investable, and resilient — underpinned by trusted tools and transparent taxonomies.