



Potential to progress

Scaling Asia Pacific's
Greentech ecosystems

Supported by:



ESCAP Sustainable Business Network

KPMG. Make the Difference.





Contents

03 Foreword

07 GreenTech investments
dynamics in Asia Pacific

19 Recommendations to
maximise the GreenTech
opportunity

04 Introduction

12 The challenges facing
Asia Pacific GreenTech

36 Acknowledgements



Foreword

Sharad Somani

Head of Infrastructure, KPMG Asia Pacific
Head of ESG Consulting, KPMG in Singapore

The Asia Pacific region faces escalating climate risks due to rapid urbanisation and dependence on fossil fuels, making the shift to sustainable technologies more urgent than ever. Global environmental expectations, such as the UN's 2030 Sustainable Development Goals, further underscore the need for green innovation.

At KPMG, we are actively shaping the future of green technology innovation across Asia Pacific through a multi-pronged approach that combines strategic advisory, regional collaboration and talent development. Central to this effort is the ASEAN Decarbonisation Hub, launched in Singapore, which serves as a catalyst for low-carbon and energy-efficient projects across the region. The Hub adopts a hub-and-spoke model with Centres of Excellence focused on areas such as hydrogen solutions, solar and wind energy, carbon capture, and sustainable cities. With ASEAN's decarbonisation potential projected to touch US\$10 trillion by 2050, we support governments and businesses in securing climate financing.

Through our KPMG Impact Plan and platforms like gprnt.ai, we integrate sustainability into our operations, enhance ESG transparency and drive responsible growth. As the region faces growing climate risks and resource pressures, KPMG remains committed to enabling climate resilience, economic agility and inclusive growth through innovation and purpose-driven technology.

Spencer Low

Head of Regional Sustainability, APAC Google
Chair of the ESCAP Sustainable Business Network, Innovation Task Force

Asia Pacific stands at a pivotal moment: where the urgency of climate action meets the vast potential of technological progress. As the region charts its course toward a low-carbon future, the convergence of green innovation and digital intelligence is redefining what's possible for sustainable growth. From AI-driven energy optimisation to circular design powered by automation and data, technology is no longer just an enabler — it's a catalyst for resilience, efficiency and long-term value creation.

Potential to Progress navigates this evolving landscape, illustrating how the GreenTech ecosystem in Asia Pacific can unlock not only environmental benefits but also a profound competitive advantage. It underscores the vital role organisations play in nurturing this ecosystem, overcoming challenges, and fostering a future where technology serves as a powerful catalyst for a more sustainable Asia Pacific.

The opportunity before us is clear: translate potential into progress through collaboration, innovation and purpose-driven technology — creating a greener, smarter, and more inclusive future for the region and beyond.



Introduction

In 2015, the international community adopted the UN's 2030 Agenda for Sustainable Development, a broad framework of 17 Sustainable Development Goals (SDGs) whose scope included significant commitments to environmental protection, human health and climate action.

Home to over 60 percent of the world's population and a growing share of economic output, Asia Pacific plays a crucial role in this global movement. Owing to its rapid industrialisation, urbanisation and continued dependence on fossil fuels, the region is a major contributor of global greenhouse gas (GHG) emissions.¹ At the same time, it's also one of the world's most climate-vulnerable regions, with Asia Pacific communities being six times more likely to experience extreme weather events than those elsewhere.²

As the region's population swells, food and water systems could be stretched well beyond its capacities, while also generating significant amounts of waste that generations

could grapple with long into the future.³ Add to that the region's ongoing issues with water pollution, and it's clear that Asia Pacific is rapidly approaching a tipping point.

Governments and communities across Asia Pacific are responding by turning to GreenTech solutions to solve issues related to climate, food security, waste and water management. These range from renewable energy and flood mitigation technologies to crop monitoring tools and innovative alternative materials.

As adoption grows, so too will the space for more innovations to emerge, resulting in a positive flywheel to realise a cleaner future for the whole region.

What's slowing down Asia Pacific's GreenTech ecosystem?

Realising the promise of GreenTech will require significant investment, globally and in Asia Pacific, across a range of areas. However, in recent years, there have been significant dips in funding in the sector.

Overall, global climate tech funding fell by 40 percent year-over-year (YoY) and 44 percent in Asia, with mega-round funding falling by 47 percent over the same period (2020-2024). In 2024, climate tech M&A exits fell by 25 percent YoY to hit 284 — the lowest count since 2020. As scepticism toward ESG initiatives grows, some companies appear to be placing lower priority on climate tech acquisitions that were previously considered strategic imperatives.⁴ Meanwhile, agrifood tech funding in the region recorded strong rebound in 2024, reaching US\$4.2 billion by the end of October, representing 31 percent of the global total for the sector.⁵



China as an exception to Asia Pacific's GreenTech innovation landscape

China stands out as a notable exception in GreenTech innovation across Asia Pacific, having consistently broken clean technology records over the past decade.⁶ Its success stems from a systematic, government-led approach that integrates policy, industry and society — evident in the establishment of numerous provinces, industrial zones and cities as low-carbon pilot zones.⁷ China's dominance in green patents, accounting for 58.2 percent of WIPO GREEN's total filings, reflects its deep investment in sustainable innovation.⁸

The large emphasis placed on academia-industry partnerships further strengthens its edge, with national policy positioning industry as the primary engine of innovation that shapes higher education.⁹ This strategic alignment fosters a highly responsive academic ecosystem aligned with industrial needs, driving reform and economic transformation. Within this framework, industry and academic collaboration plays a central role in advancing structural change and optimising human capital for green growth.¹⁰

Beyond its borders, China plays a growing role in helping other Asia Pacific nations pursue low-carbon development. However, its efforts are constrained by limited knowledge transfer, as most clean tech manufacturing remains China-centric.¹¹ Host countries often receive the hardware, but not the upstream innovation or expertise needed to build their own capabilities.¹² This creates a dependency that hinders broader regional scaling, despite China's leadership and willingness to engage.

China's dominance in green patents, accounting for

58.2 percent

of WIPO GREEN's total filings, reflects its deep investment in sustainable innovation.



These declines in funding allocations are concerning given the large financing gaps within these GreenTech sectors, as well as the reality that clean energy — undoubtedly essential to economies — still commands an outsized portion of available climate funding. According to the Climate Policy Initiative, clean energy attracts almost 50 percent of mitigation financing, while other high-emitting sectors such as agriculture and waste receive less than 10 percent of investment flows.¹³

But the issue goes beyond funding. In recent years, private investors have increased their commitment to deploy capital to green investments, but there has yet to be a sustained acceleration of green initiatives in the region owing to a range of factors.

Estimates suggest that ASEAN is set to fall well below target to shift 23 percent of its total primary energy supplies to renewables by 2025.¹⁴ Construction delays on solar and wind projects, and insufficient grid infrastructure are stalling clean energy adoption.¹⁵ Food security policies are struggling to make an impact, with programmes like Singapore’s “30 by 30” achieving mixed results: public awareness remains low, while high operational costs and stringent regulatory requirements continue to pose significant economic and operational challenges to local farmers.¹⁶ Despite some flood mitigation successes in Hong Kong (SAR), China and Singapore, many coastal cities are still grappling with the pace and frequency of climate change-fuelled storms.¹⁷

About the report

Given the fact that funding does exist — and is growing in many regions — what is stymying Asia Pacific’s progress in scaling GreenTech innovation? In this report, we examine the challenges facing the sector from a whole-ecosystem perspective to uncover what’s limiting the progress of GreenTech startups in the region.

Drawing on secondary research and primary interviews with stakeholders conducted by KPMG with Google’s support, this paper sets out a hypothesis that Asia Pacific’s struggle to accelerate GreenTech innovation stems from a

range of factors, including regulatory challenges, skills gaps and immature ecosystems.

A broad category, GreenTech in this report refers to technologies focused on climate risk mitigation and adaptation, agriculture, water management, as well as waste management and circularity. The research focuses on the following key markets — Australia, New Zealand, Japan, ASEAN, China and India — and is supported by interviews with stakeholders within Asia Pacific’s GreenTech ecosystem.



GreenTech investments dynamics in Asia Pacific

Growing momentum in GreenTech funding

Many countries in the region have seen funding flow into GreenTech in recent years, with venture capital (VC) and private equity (PE) firms, as well as philanthropic organisations and impact investors, committing increasing amounts of funding throughout Asia Pacific. Insights gathered from the interviews indicated that these funding flows have persisted, despite the challenging macroeconomic situation.

In the first half of 2025, global climate fund allocations shifted 6 percent towards Asia Pacific, reflecting growing investor confidence in the region.¹⁸ The region received more than 45 percent of global investment related to energy transition and clean energy in 2023, amounting to US\$940 billion in capital flows.¹⁹



Primary drivers of GreenTech funding across Asia Pacific

1

Sustainability commitments



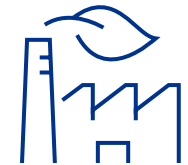
Governments across Asia Pacific are increasingly embedding green innovation, standards and targets into national strategies, with some even going so far as to establish “green plans” that outline specific climate- or sustainability-related goals.

Examples of notable policies:

- Singapore Green Plan 2030
- Viet Nam’s National Strategy on Green Growth 2021-2030, with a Vision to 2050
- Made in China 2025
- Japan Green Growth Strategy
- India’s National Action Plan on Climate Change
- Australia’s National Circular Economy Framework

2

Industrial policy and government incentives



Given the scale of the transition required to achieve climate neutrality, Asia Pacific needs a green transformation in every corner of its economy, from manufacturing and transportation to agriculture and energy generation. Sustainability-focused industrial policy is essential to accelerate the development and deployment of green technologies.²⁰ A new wave of industrial policies has emerged, where countries are adopting industrial policy as a key strategy in their green transitions.²¹

- **Government incentives for R&D** are critical for de-risking early-stage technologies, providing companies with the initial push they need to transform their ideas into reality.
- **Tax incentives** play a major role in the development of Chinese and Indian GreenTech, with the government providing significant deductions and tax exemptions on R&D into renewables and EVs.²²



3

ESG integration



Driven by consumer demand and intensifying investor and regulatory scrutiny, ESG has emerged as a top priority for corporates across Asia Pacific in recent years, accelerating notably since the COVID-19 pandemic. The crisis underscored the importance of resilience, transparency and long-term value creation, prompting companies to integrate ESG considerations more deeply into their operations.

These findings reflect results from KPMG's 2024 CEO Outlook which indicated that around a quarter of organisations view ESG as vital to value creation and a key source of competitive edge. For Asia Pacific CEOs, failure to adopt more sustainable practices could cost them their competitive advantage and jeopardise their longevity.²³

This momentum has continued with the introduction of the IFRS S1 and S2 reporting standards in 2023 which further reinforced the centrality of ESG in corporate reporting. Regulators are increasingly requiring companies to monitor, evaluate and disclose their ESG performance. At the same time, green taxonomies, ESG ratings, sustainability reporting standards and sustainability-linked investment products are proliferating. Notable developments include:

- Hong Kong (SAR), China's principles for Net Zero Transition planning
- Singapore's green and transition taxonomies
- India's regulations on ESG rating companies

The pressure to meet these new sustainability standards is driving companies to explore the potential of GreenTech to support their transition, manage their carbon footprints and minimise their environmental impacts.

4

Green finance mobilisation



Typically, financing growth can be a major hurdle for most startups, but the availability of green finance has grown over the years, largely due to government initiatives and blended finance instruments.

Blended finance has emerged as an increasingly important source of green financing, given its innovative blend of public, private and development capital.²⁴ These funds are able to mitigate the risks posed by green initiatives, which may have capital-intensive business models and long payback periods. In certain economies, such as India, PE and VC firms have emerged as influential stakeholders. However, leading experts interviewed have indicated that investment activity has been more focused on clean energy and mobility startups, rather than broader climate or water-related initiatives.



Capital flows and their impacts

In this section, we highlight several areas of green technology in which capital flows could make a significant impact in the global sustainability movement.

Climate resilience technologies

Climate resilience technologies encompass both mitigation and adaptation, complementary approaches to addressing climate change. Mitigation involves actions that limit the extent of global warming, while adaptation focuses on helping communities adjust to the current and anticipated impacts of climate change. These innovations tackle threats such as floods and droughts, optimise resource management during extreme weather events and span a wide range of solutions, including

**smart water management systems,
renewable energy technologies,
carbon removal methods and
drought-resistant crops.**

These technologies can have significant impacts on communities across Asia Pacific. One study found that villages in India using climate resilience technologies saw 35 percent higher income levels than those that didn't.²⁵ Off-grid renewables offer dependable backup power supply and guarantee functioning of vital services, such as communications and healthcare, which is essential given that Southeast Asia's electricity consumption is set to triple by 2050.²⁶





- **Water management**

Water waste is an under-discussed challenge in the sustainability agenda, but it's an issue with great implications — in total, water has an economic value equivalent to 60 percent of global GDP.²⁷ Growing awareness has led to greater investment in this segment, with capital flowing into technologies to capture and reuse water, treat wastewater and optimise water management. Techniques such as drip irrigation and precision sprinklers can optimise farming productivity while minimising waste. Meanwhile, technologies like smart water metres and leak detection systems can help monitor water distribution.

- **Circular economy and waste innovation**

As waste management becomes a growing global issue, innovations in waste management — including recycling, waste-to-energy conversion, landfill management and handling of hazardous waste — have surged in recent years. Smart recycling, plastic alternatives and textile reuse platforms are seeing rising Series A and B funding in urban hubs like Jakarta, Bangkok and Shenzhen. Meanwhile, products are increasingly being redesigned with durability, repairability and recyclability in mind.²⁸

One Singapore startup is experimenting with smart recycling boxes and lockers to manage recyclables and food waste and is projected to cut the contamination rate of recyclables to just 10 percent, well below the national average of 40 percent.²⁹ In Japan, waste incineration plants are converting heat energy into electricity for community use.³⁰

- **Agri-tech innovations**

With food security a high priority for Asia Pacific, agri-tech has become an area of focus, with startups raising US\$4.2 billion in Q3 2024, a 38 percent YoY increase. Asia Pacific is now a major hub of agri-tech funding, accounting for 31 percent of global totals.³¹ Funding is flowing into innovations such as next-generation fertilisers, vertical farming and water management, as well as AI-powered monitoring and management.

These technologies are helping farmers work more efficiently and could enable a reliable supply of food, an essential uplift given Asia Pacific's rapidly expanding populations and shrinking farming workforce. In one study, Indian farmers implementing agri-tech innovations saw a 21 percent increase in chilli yields per acre, and reduced use of pesticides and fertilisers.³²

The impact of AI on GreenTech in Asia Pacific

The advent of artificial intelligence (AI) promises to bring further change by expanding access to GreenTech solutions to a wider population and speeding up processes throughout organisations.

Within Asia Pacific's complex and evolving GreenTech ecosystem, AI could have a transformative potential by processing large amounts of data to identify patterns and predict outcomes. These could lead to better decision-making, thus making the technology a crucial driver of both GreenTech innovation and entrepreneurship. Embedding AI into GreenTech could enable Asia Pacific to optimise national grids, accelerate research and development, and strengthen decision-making through data-rich insights.³³



The challenges facing Asia Pacific GreenTech

Despite growing awareness and enthusiasm, the GreenTech ecosystem is yet to make significant inroads in the region. While substantial funding is available across the climate and environmental sectors, capital providers interviewed noted that most of the deal value and funding growth continues to concentrate on energy transition-related segments. Nonetheless, there is a noticeable uptick in investor interest in emerging areas such as sustainable agriculture and waste management.



Much more would be needed to channel capital into equally critical but under-represented segments such as water management, biodiversity and climate mitigation to enable a holistic sustainability movement. Below are several overarching challenges that are hindering progress in the GreenTech ecosystem:

Ecosystem challenges in Asia Pacific

- **Fragmented capital flows.** It constrains access to certain funding channels. These fissures may deepen in response to greater geopolitical uncertainties, which could mean that emerging markets might receive less funding than their counterparts.³⁴

Pullbacks in funding since 2023 are estimated to have resulted in nearly a quarter less investment in Asian SDG-related sectors, including climate and

environmental issues.³⁵ Some countries may even impose stricter requirements for investing in their markets, heightening compliance and operating costs that could compel global investors to withdraw from investing.

- **High financing costs.** Developing green technologies can be capital intensive, with startups forced to bear significant upfront R&D and scaling costs. Moreover, the cost of obtaining funding can be equally high, with capital for green assets becoming increasingly expensive to obtain due to higher risks and long payback periods. The cost of capital is also highly market dependent. Despite falling interest rates, growing macroeconomic uncertainty and market-specific risks are softening investor confidence, especially in emerging and developing economies,

resulting in renewable power projects costing twice as much in Viet Nam as they might in the US.³⁶

- **Longer R&D and commercialisation cycles.** Unlike software startups, GreenTech innovations often involve hardware, materials science or biotech solutions which require years of prototyping, testing and certification. This embeds dependencies on other actors, including regulators, suppliers and potential customers.
- **Lack of consistent policy and regulatory frameworks.** Asia Pacific governments have been relatively quick to respond to the need for green policymaking and regulation, but there is still a lack of consistency in how these frameworks are being implemented. Despite earlier breakthroughs, Viet Nam's renewable energy sector is now facing a slowdown due to inconsistent policy support. The expiration of the



feed-in tariff (FIT) scheme without a timely replacement has left over 4,000 MW of completed projects in limbo — lacking power purchase agreements (PPAs) and subject to frequent curtailment, largely because of inadequate transmission infrastructure.³⁷ This abrupt policy change affects the longevity and coordination in Viet Nam's energy planning.

Even in more established economies, regulators in Asia Pacific appear to be pulling back on their sustainability commitments. For example, the New Zealand Green Investment Finance (NZGIF) bank announced in April 2025 that it would halt new investments and wind down its existing portfolio,³⁸ while Singapore has delayed its sustainability reporting requirements for small-and-medium businesses for the next five years.³⁹ These rollbacks could signal declining regulator pressure, which could reduce investor confidence in GreenTech.

- **Skills gaps for scaling GreenTech.** Talent gaps are a consistent challenge facing the technology sector, impeding the pace at which innovation can be developed and deployed. Green job growth is already rapidly outpacing workforce skilling, with one in five green jobs in Asia Pacific expected to go unfilled by 2030.⁴⁰ Not all markets in Asia Pacific have the same skills and talents, however, with more mature markets like Singapore and Australia having sufficient science, technology, engineering and mathematics (STEM) talent, while others like India struggling with an outflow of such talent to the US and Europe.⁴¹ One talent issue



raised by about half of the interviewees is that many GreenTech startups lack business skills — from poor revenue models or insufficient market access — to support the commercial viability of these solutions, making it challenging to scale beyond the pilot phase.

- **Infrastructure gaps.** The lack of adequate infrastructure can limit the proliferation of GreenTech — for example, without sufficient charging networks or strong enough power grids, EVs and

renewables cannot achieve widespread adoption.⁴² Without crucial infrastructure, startups could struggle to drive commercial viability, further hindering investor confidence.

- **Slow regulation and provisioning of permits.** The cutting-edge nature of many GreenTech solutions can be stymied by the market's slow progress to establish frameworks to regulate and provide permits. This is a problem that cuts across borders, with even advanced



markets grappling with slow permitting processes, usually at the state and local levels.⁴³ Despite efforts to streamline permits for green technology projects, companies in India still face complexity due to a lack of standardisation across multiple regulatory layers, at times between different states and regions.⁴⁴

- **Geopolitical risks disrupt supply chains.** Escalating geopolitical tensions have resulted in the growing prevalence of export controls and tariffs that are hindering access to key components. This complicates scaling and delays deployments, as Asia Pacific firms are forced to regionalise supply chains or seek alternative materials to mitigate risks and/or comply with cross-border regulations (e.g. the EU's CBAM restrictions).

The startup's perspective: Asia Pacific's innovation centres

Sitting on the fringes of growth, these companies are the lifeblood of innovation, helping to enhance long-term competition. These innovative firms look beyond existing technologies to develop novel solutions to our biggest problems.

Since 2013, startups have driven VC funding into the frontiers of GreenTech innovation, such as low-carbon mobility.⁴⁵ According to insights from interviews conducted by KPMG with Google support, despite an overall weaker year for startup funding in Southeast Asia, climate-focused GreenTech firms have remained

robust, especially those working on renewables and waste management. Startups are also capable of injecting innovative capacity into larger corporations, enabling them to deliver products targeted towards specific goals in the green transition.

The issues faced by the GreenTech ecosystem, as detailed above, can be especially difficult to manage for startups, given the asset and capital-intensive nature of these technologies.





Challenges for scaling GreenTech startups

Below, we detail **five main challenges** that face GreenTech startups in Asia Pacific. These challenges were identified based on an extensive literature review and in-depth interviews with representatives of Asia Pacific's startup ecosystem:

- **Establishing product-market fit.** Founders struggle to identify a solid business model with adequate ROI before embarking on their entrepreneurship journey. This is because many founders are driven by specific passions or problem statements to solve, rather than a clear-eyed view of product-market fit.

This may be an even bigger challenge for GreenTech startups. Unlike software firms, GreenTech startups often have longer R&D and commercialisation cycles due to their dependence on hardware, materials science or biotech solutions which require years of prototyping, testing and certification. Implementing their technologies also requires extensive engagement with other stakeholders, including regulators, suppliers and potential customers. Further complicating the issue is the high cost of capital in Asia Pacific, an issue that startups could be less equipped to handle, given their limited resources.

As such, the average time for GreenTech startups to scale from Series A to Series D is more than seven years, compared to just three years for digital startups. This can lead to the risk of investor fatigue. Over time, investors could intensify the pressure to profit, leading

startups to redirect resources away from critical experimentation and long-term research.

- **Startups' funding challenges.** Current financing models are not well-suited to support climate innovation, largely due to its longer ROI timelines and capital-intensive models. While early-stage startups can often access seed funding to get started, growth-stage startups often face the "missing middle" problem, the gap between startups' early funding rounds and its aspirations to scale-up.⁴⁶

Bridging the gap between early-stage innovation and scalable implementation has become increasingly difficult across the broader tech ecosystem. As emphasised in the interviews, this challenge is compounded by the tendency of public funding to concentrate on small ventures at the ideation and validation stages. As a result, many initiatives fall into the pilot paradox, where well-funded, small-scale pilots that demonstrate promising outcomes fail to achieve widespread adoption. Limited institutional buy-in and fragmented funding mechanisms often hinder the ability to expand these pilots beyond their initial scope, preventing meaningful systemic impact.

In the case of India, the funding gap in launch and scale-up phases also means that fewer than 3 percent of startups reach Series B or beyond,⁴⁷ highlighting a systemic gap in post-sandbox and growth-stage support.

Difficulties may also result from complex foreign investment structures that can impede growth-stage

startups from accessing straightforward financing and partner engagement. GreenTech faces a particularly uphill battle given the mismatch between investor appetite and the significant capital injection needed to realise these solutions.

Another issue is the declining availability of cross-border funding because of geopolitical shifts and macroeconomic uncertainty. Asia Pacific's investment landscape is highly shaped by foreign direct investment, with significant flows incoming from China and the US.⁴⁸

- **Green and entrepreneurial talent gaps.** Shortages in both green and business skills across Asia Pacific are resulting in a tight labour market with high competition for skilled professionals. Even where there is a moderate pool of technical talent, skilled professionals are steered toward careers in government or large corporations rather than entrepreneurial ventures or many move abroad to larger markets.

While this is a trend that is affecting the entire region, startups bear the brunt of it due to their limited ability to compete for and retain talent. The challenge may be especially difficult for GreenTech startups as they need expertise that is frequently concentrated within academic institutions and corporate R&D units. Moreover, as many GreenTech founders tend to enter the sector because of their passion for a specific problem, they're often driven by climate impact and lack the necessary business acumen to scale globally.



- **Underdeveloped GreenTech ecosystem.** As highlighted in interviews, the Asia Pacific region, with the notable exception of China, has a smaller support system for GreenTech startups and innovation. This is largely due to a less vibrant entrepreneurial and investment landscape. This is primarily attributed to a less dynamic entrepreneurial and investment landscape, which may stem from an overreliance on national ecosystems and limited cross-border collaboration and innovation.

There have been some attempts at cross-border initiatives, such as the ASEAN Power Grid (APG), the Nepal-India-Bangladesh trilateral power trade, as well as a green talent initiative by the Asia-Pacific Economic Cooperation (APEC). However, these have had limited impact, especially when compared to the successes of blocs like the European Union (EU) in setting major climate initiatives such as the European Green Deal and the Carbon Border Adjustment Mechanism (CBAM). By some estimates, the CBAM could generate EUR1.5 billion in annual revenues from carbon leakages that could potentially be channelled out in the form of climate grants or aid, while also limiting emissions generation.⁴⁹ The Green Deal, on the other hand, could cut emissions by at least 55 percent if its package of initiatives spanning agriculture, transportation, building renovation and energy generation is brought to fruition.⁵⁰

- **Regulatory and policy uncertainty.** Both regulation and policy play pivotal roles in driving GreenTech innovation across Asia Pacific, though progress varies across regions, with some moving at a more gradual pace. Slow permitting results in significant red tape and delays, that can limit access to foreign investment and opportunities for technical testing. Meanwhile, delays in implementing rules can also result in rapid obsolescence of solutions amid fast pace of technological innovations.

The region's complex and non-uniform policy landscapes make it difficult for startups to scale across borders. Unclear regulatory timelines and conflicting standards, such as those around carbon markets, PPAs, green certification and environmental standards, force startups to customise solutions to each market. This raises operational costs and disparities in consumer spending ability, as well as the ease of doing business and create barriers for startups to reach maturity.



There is often a disconnect between ESG and the economic impact. Sustainability is pursued without consideration of the financial implications. Indeed, the business imperative is a last-mile problem of sustainable pursuits. One critical enabler to foster the sustainability-business nexus is awareness. To this end, academic institutions play a pivotal role in placing business knowledge in their sustainability courses — this will, in particular, ensure that GreenTech can achieve success. The way to sustain sustainable innovations is the business acumen of the leaders. ”

Prof. Lawrence Loh

Director, Centre for Governance and Sustainability (CGS)
at NUS Business School, National University of Singapore



Challenges faced by GreenTech startups throughout the startup lifecycle

As startups mature and grow, their capital needs and models shift, bringing with them new challenges at every stage of their lifecycle. Below, we map them:

		GreenTech startup lifecycle			
		Pre-seed and seed	Early stage to Series A	Series B and beyond	Exit stage
Greentech Startup Challenges	1. Regulatory, policy and geopolitical shifts	Regulatory and policy volatility and fragmentation around carbon markets, PPAs, green certifications and environmental standards within & across Asia Pacific			
		Slow permitting results in significant red tape and delays			
				Geopolitical shifts and economic uncertainties , pose significant challenges for late-stage financing from foreign sources	
				Supply chain complexity: Requires extensive coordination with stakeholders and potentially higher costs to access key components	
	2. Green and entrepreneurial talent gaps	Establishing product-market fit		Underfunding and early dilution due to misjudged capital needs	
		Developing “features” and not products	Difficulties in demonstrating both financial value and green impact of solutions		
		Talent gaps lead to a tight labour market with high competition for skilled professionals			
	3. Investor preferences			Limited funding options beyond grants and government support, leading to increased reliance on dilutive capital	
		Lack of post-sandbox support , leading to a “pilot paradox”			
		Preference for mature technologies and sectors: Nascent technologies could be overlooked			
	4. Market and infrastructure readiness	Lack of academia-industry links for the commercialisation of IP		Receptiveness of GreenTech IPOs vary significantly across the APAC region	
		Infrastructure gaps: Underdeveloped foundational infrastructure impacts scalability and bankability			
		Integration difficulties: Integration with legacy systems might slow down deployment and increasing costs			
		Less vibrant GreenTech ecosystems pose a problem for startups in their earlier stages as they have less access to mentorship, guidance and partnerships			



Recommendations to maximise the GreenTech opportunity

Asia Pacific's GreenTech ecosystems stand at a critical inflection point. With climate risks escalating, competition intensifying and persistent gaps in talent, funding and policy support, the time for dialogue must now give way to decisive action. The window for meaningful impact is narrowing but not closed.

If governments, industry leaders, investors and innovators come together to break down silos, bridge financing gaps and build robust, collaborative ecosystems, Asia Pacific can position itself as a global leader in sustainable growth. The region's climate resilience and economic future will be shaped by the bold, coordinated steps we choose to take today.



Recommendation 1

Align innovation with national initiatives

Aligning GreenTech innovation directly with clearly defined national initiatives enables startups to be more investable and scalable, unlocking stronger commercialisation pathways. GreenTech startups must move beyond passion-driven innovation to building solutions that solve real market demands as the market responds to these national initiatives.

Government

- **Ensure national level targets are time-bound, actionable and RoboHelp-addressing**, and can be accurately tracked and monitored. Analysis of the progress towards achieving these targets could send strong signals that drive demand within the industry.
- **Strengthen innovation support by establishing an integrated innovation platform** that consolidates GreenTech support across agencies — from business assessments to regulatory sandbox access — to enable startups to test and refine their products against real market needs.
- **Expand regulatory sandboxes into commercialisation pathways** through pilot procurement programmes in the public sector, which provide a supported route to market adoption and scale. Projects started in sandboxes often stall before reaching market, but taking an incremental approach allows for adjustments and refinements based on feedback and emerging challenges at each stage of growth.

Academia/Industry

- **Set up demand-driven innovation challenges** that enable startups to co-develop solutions with clear market relevance. This tackles the pilot paradox, where

risk-averse corporates and institutions stall innovation and waste capital in endless pilots that rarely scale. India's Manthan (see next) page flips this model by providing a platform where corporates and government agencies submit real-world problem statements and startups respond with tailored innovations linked to SDGs, ensuring product-market fit from the outset.⁵¹

- **Establish GreenTech co-creation hubs** in which academia, industry and startups can jointly develop and commercialise green technologies and share knowledge and resources.

Startups

- **Reframe product-market fit beyond sustainability messaging.** Emphasise broader customer value propositions such as cost savings, operational efficiency and regulatory compliance to appeal to mainstream markets and accelerate adoption of GreenTech solutions.
- **Adopt lean validation and iterative testing** methods such as rapid prototyping and micro-testing to validate assumptions early. By using low-cost Minimum Viable Products (MVPs) to gather feedback, refine value propositions and test pricing models, startups can ensure solutions are grounded in real market demand including de-risking ventures.



How India's Manthan model works



Office of the Principal Scientific Adviser
to the Government of India



Manthan

Ideas and implementation through
Science, Technologies, and Innovations

9,092.41

Funding Opportunity
Provided (Cr.)

959

Opportunities

421

Success
Collaborations

Manthan, derived from the Sanskrit word which means "churning of ideas", is an initiative led by the Office of the Principal Scientific Adviser to the Government of India (PSA) which scales science and technology-based social impact and industry research/innovations in India.

The PSA, Professor Ajay Sood launched the platform on 15 August 2022, with an aim to promote collaboration between various stakeholders of scientific research and development to help meet India's National Missions and United Nations' SDGs.

Manthan has since received global recognition at the World Governments Summit 2024 for its transformative impact on governance and innovation. Manthan has received awards including the Bharat Public Sector Units Summit Excellence Award 2025 and the Dun & Bradstreet Business Excellence Award 2022.



01

Opportunity creation that includes a call for early-stage innovation, market-ready innovation, implementation projects, Centres of Excellence, fellowships, etc.

02



Showcase of future research proposals by Academia and Market Ready Innovations of Start ups.

The platform is built on Four Pillars



03

Exhibitions by partners to showcase innovations through virtual events and expositions.

04



Conference/meeting facility to collaborate using virtual meeting rooms for organising webinars, conferences, stakeholder consultations, etc.

Two large stakeholder groups engaging on Manthan

Demand side

MSMEs

Industry

Multilaterals

Philanthropists

Coalition/consortium

PSUs & Co-operatives

Embassies & other govt.

Entrepreneurial support org.

Govt. state-central ministries

Supply side

Startups

Incubators

Research institutes

Small & medium enterprise

Centre for Excellence (CoEs)

Science & technology clusters



Recommendation 2

Enhance startup business acumen

As GreenTech startups in Asia Pacific struggle with talent gaps and underdeveloped ecosystems, founders need more than technical innovation — they require strong business foundations as they scale. This includes financial management, operations and process optimisation, talent acquisition and retention, sales and business development and others. Insights gathered from interviews indicated that GreenTech startups focus more on scientific and technical aspects of their innovations, resulting in the lack of business acumen being more apparent. By embedding entrepreneurial skills into education, industry partnerships and startup support programmes, GreenTech startups can build more bankable, commercially viable and globally competitive solutions that are built for scale.

Government

- **Embed business training in national GreenTech talent programmes**, such as modules on financial modelling, market strategy and commercialisation. These talent programmes can enhance workforces by providing training pathways and reskilling support, with a focus on business and entrepreneurship skills alongside technical expertise to build holistic capabilities of GreenTech talents.
- **Reform education curricula to include business fundamentals**, working to systematically integrate sustainability, entrepreneurship, business planning, financial literacy and strategic thinking into STEM education. Curricula should equip students with practical business skills to prepare them for real-world challenges and green entrepreneurship through action-oriented, project-based learning. APAC governments can take inspiration from China's policy, which made AI education mandatory in schools beginning September 2025 to reduce the learning curve⁵², increase interest in STEM fields and contribute to the robust development of AI talent pipeline from an early age. Similarly, in Andhra Pradesh, India has initiated state-level programmes to launch a transformative skilling initiative. A private sector green skilling taskforce⁵³ will be established to align local talent with both national and global clean energy demands, with a particular emphasis on integrating green micro-entrepreneurs into the ecosystem.

Industry and Academia

- **Develop more business-focused green curricula with universities** that blend sustainability science with business fundamentals. Achieve this through:
 - Actively reviewing and revising existing curricula with industry partners.
 - Introduction of new courses that integrate business fundamentals such as go-to-market strategies, digitalisation, investor relations and scaling operations alongside technical content.
 - Offers of hands-on business experience as core part of green education.
- **Provide on-the-job business training and mentorship** with industry through mentorship, secondments or joint projects to give early-stage founders and technical teams business experience to improve execution capabilities. These benefits provide early-stage founders and technical teams with first-hand experience to enhance execution abilities.

Startups

- **Engage in business-focused accelerators and mentorship programmes** that prioritise business training and execution of discipline, not just technical innovation. Participation in these accelerators also expands startups' strategic networks, and helps founders understand commercial dynamics, benchmark their progress and adopt best practices in business management.



Recommendation 3

Adopt innovative financing models

To address startups' financing challenges, existing models should evolve to prioritise long-term economic and environmental value over short-term returns. By integrating climate impact into financial decision-making, Asia Pacific's GreenTech ecosystems can become more inclusive and resilient. Blended finance mechanisms and patient capital could expand GreenTech startups access to funds, which could enable them to better navigate the various growth phases of their journeys — from seed to maturity, where the majority of GreenTech startups struggle and eventually fail.

Government

- **Mobilise private capital to bridge the “missing middle”** by structuring blended finance mechanisms that de-risk mid-stage GreenTech innovations, enabling private capital to engage more confidently.
- **Establish new incentives for large institutional investors** (development banks, pension funds or insurance companies) that reward them for bringing GreenTech solutions to market, rather than only funding experimental startups at the early stages.
- **Create policy framework and incentives to direct philanthropic capital** to support ventures with high societal impact but lower immediate commercial returns by taking the “first-loss” position to make scaling innovation more bankable. The growing influence of family offices in Asia presents a strategic opportunity,⁵⁴ potentially playing a catalytic role by deploying patient capital. Leveraging their long-term vision and flexibility can further unlock blended finance models that attract institutional investors.
- **Craft policies that reward climate-positive outcomes**, such as tax benefits that are unlocked when certain environmental criteria are achieved.

Singapore's Refundable Investment Credits (RIC)

Introduced in Budget 2024, the Refundable Investment Credit (RIC) aims to attract high-value investments in key sectors and emerging growth areas. Administered by the EDB and EnterpriseSG, companies are awarded up to 50 percent tax credit⁵⁵ on qualifying expenditures (e.g. capital, manpower, R&D, logistics) for projects that contribute to Singapore's long-term competitiveness, including sustainability and innovation. Each award has a qualifying period of up to 10 years.⁵⁶ Unused credits are refunded in cash within four years once conditions are met.



Industry/Academia

- **Establish dedicated climate innovation funds or allocate dedicated capital** for investing in GreenTech startups as an alternative to traditional in-house R&D. This approach provides faster access to emerging technologies without the need to build from scratch, while also creating a pipeline for future partnerships, acquisitions or talent recruitment. These funds can be structured to accommodate longer ROI timelines and higher risk profiles, while also offering strategic support such as mentorship, market access and technical expertise.
- **Utilise innovative financing mechanisms that are more patient** and prioritises long-term growth potential such as convertible notes, revenue-based financing, mezzanine instruments and evergreen funds. This better supports the unique needs of GreenTech startups by addressing the “time-horizon” mismatch and providing greater flexibility in investment periods and exit strategies.

Startups

- **Utilise AI, machine learning techniques and predictive modelling of earnings in investors pitching** to build forecasts and simulation models to test greater volumes of growth scenarios to demonstrate commercial and technical viability. Continuously refine these models with updated performance data at each funding round to improve accuracy.
- **Tailor investment pitch to investor’s key investment mandates** to create a compelling impact narrative that aligns with the investment values of different stakeholders.





Recommendation 4

Strengthen GreenTech ecosystems

With China being a notable exception, Asia Pacific's relatively underdeveloped GreenTech ecosystems mean there is relatively little support for startups to scale both regionally and globally. If startups can tap into a cross-border network, they can access the knowledge and connections they need to realise the full potential of their innovations. To revitalise Asia Pacific's innovation landscape, long-term policy frameworks should be embedded, alongside efforts to foster deeper industry-academia ties and empower startups to act as agile ecosystem builders.

Government

- **Strengthen ecosystems infrastructure and governance** by connecting ecosystem stakeholders and building on existing MOUs/bilateral relations. One example of this is the Australia-Singapore Green Economy Agreement, which promotes trade in environmental goods and services, as well as fosters business collaboration, through the Go-Green Co-Innovation grants programme.
- **Work with industry/academia to establish a central information hub** to orchestrate and strengthen engagement within innovation ecosystems.

Industry/Academia

- **Establish central information hubs** to orchestrate and strengthen engagement within innovation ecosystems. The hub can reduce network fragmentation and enable seamless knowledge flow across the value chain — from industry leaders to startups and universities. By facilitating direct collaboration, co-development of technologies, and smoother pathways for technology transfer through shared R&D facilities and distribution partnerships, the hub can unlock commercial potential more efficiently.

- **Deepen engagement and adopt a more involved approach** to enable companies to refine strategies.
- **Promote collaboration among complementary solutions** where VCs and accelerators play an active role in encouraging startups to collaborate with each other by matching complementary strengths.

Startups

- **Foster a culture of collaboration** by organising community events, hackathons and cross-sector forums that build trust and facilitate knowledge spillover among researchers, entrepreneurs and investors.
- **Prioritise cross-border expansion and localisation**, especially in cases where domestic ecosystems may not yet support certain innovations. AI can be used to help navigate extensive regulation and discover best product-market fit, while early internationalisation can unlock new growth pathways.



Australia-Singapore Go-Green Co-Innovation Grants (GGCIP)

The Go-Green Co-Innovation Programme (GGCIP), jointly administered by Australia's DFAT and Enterprise Singapore, aims to incentivise co-innovation between enterprises in both countries. It supports the development and commercialisation of green solutions that drive decarbonisation and advance the transition to net zero.

AU\$20 million in funding is available for projects in priority sectors such as renewable energy, waste management, sustainable agribusiness, green transport and energy-efficient technologies.

Eligible projects should involve collaboration between at least one company from each country and demonstrate potential for commercial impact. The programme strengthens bilateral trade and fosters innovation in green growth sectors.

Climate Collective as an ecosystem orchestrator

Climate Collective Foundation (CCF) is India's largest non-profit climate tech ecosystem orchestrator. Founded by clean tech entrepreneurs, since 2016, CCF has executed over 90 climate tech acceleration programmes, supporting 1,270 early-stage climate tech startups (i.e. ranging from pre-revenue with MVP to approximately US\$1 million in revenue).

CCF continues to strengthen the fragmented climate-startup landscape through coordinated ecosystem orchestration, bringing stakeholders together to collaborate and reduce friction in achieving climate outcomes with limited resources.

Its work spans direct support for climate tech startups through accelerators and industrial decarbonisation pilots with utilities and manufacturers; early-stage funding from pre-seed grants to pre-Series A syndication; and the cultivation of a 25,000-strong community across South Asia, Southeast Asia, the Middle East, and Africa.

CCF also drives broader ecosystem development by building and sharing knowledge, expanding networks, and convening stakeholders at conferences, round tables, and executive-level networking events.

Through the above, CCF bridges private and development sectors to strengthen local climate startup ecosystems and ultimately drive the deployment of scalable solutions for climate mitigation and adaptation, as well as the circular economy.



Recommendation 5

Implement holistic policies

Policy uncertainty and inconsistency can stymie GreenTech startups' ability to build solutions that can scale effectively. Asia Pacific needs to harmonise its policy frameworks and national programmes to foster innovation, while also encouraging public and private sector collaboration. Establishing long-term, cross-administration policy frameworks can sustain interest in and consistent support for GreenTech innovation, thus strengthening investor confidence and building greater innovation momentum.

Government

- **Embed GreenTech innovation goals into legally binding frameworks** to strengthen the legal foundation in green transformation such as China's Energy Law.
- **Create independent innovation councils/agencies** to oversee continuity, such as Horizon Europe (2021-2027), the EU's key funding programme for sustainability R&D that transcends national politics.
- **Craft policy to facilitate ease of business across borders in Asia Pacific**, such as streamlined trade agreements, reduced tariffs and supportive supply chain management.
- **Exert additional pressure on companies to prioritise environmental and societal welfare** by allocating a share of their profits towards welfare funds and activities, as well as GreenTech innovation funding.

Industry/Academia

- **Establish corporate policies to ensure GreenTech demand extends across the entire value chain** in areas such as supply chain management, procurement and operations to ensure GreenTech demand extends across the entire value chain.

Startups

- **Keep abreast of both national and corporate policy updates** to ensure their solutions meet market needs and achieve product-market fit, especially when they are aiming to partner with industry players.



Google's commitment to the sustainability agenda in green corporate policies

Google has a climate moonshot to reach net-zero emissions across all of our operations and value chain by 2030, supported by another climate moonshot to run on 24/7 carbon-free energy on every grid where we operate by 2030.

To achieve these ambitious moonshots, Google takes a multi-pronged approach:

- Incubating new companies such as Tapestry internally through X, the Moonshot Factory.
- Running a dedicated Google for Startups Accelerator. Climate Change, a 10-week⁵⁷, equity-free programme for Seed to Series A startups using technology to address the climate crisis.
- Making direct investments through GV (Google Ventures), e.g. AMP, a company that uses AI and robotics to sort recyclable materials.⁵⁸
- Partnering with startups, such as Fervo Energy to develop next-generation, enhanced geothermal systems, and Kairos Power to deploy a US fleet of advanced nuclear power projects with Google as a major offtaker.⁵⁹



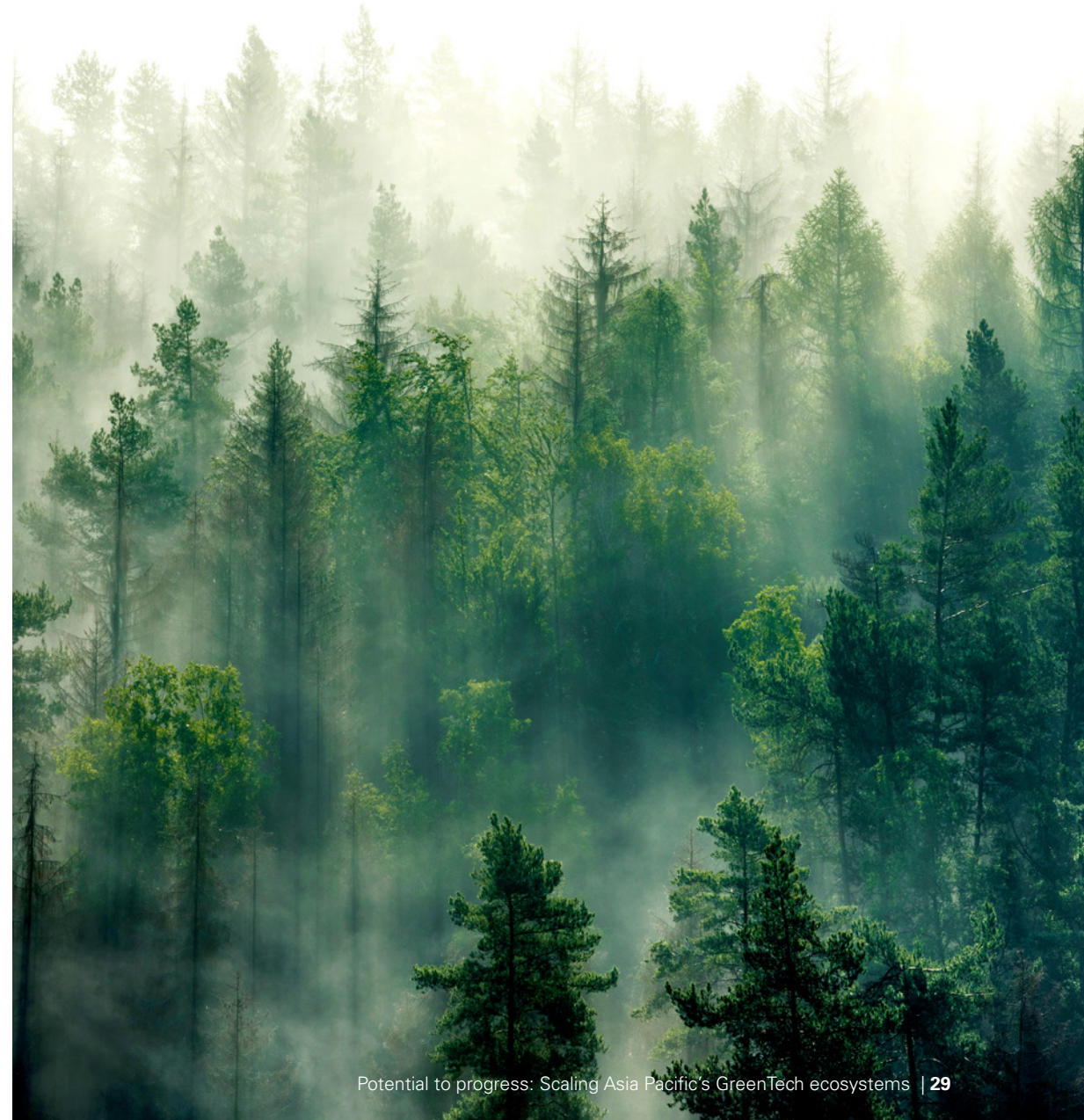


About KPMG

KPMG is a global organisation of independent professional services firms providing Audit, Tax and Advisory services. KPMG is the brand under which the member firms of KPMG International Limited (“KPMG International”) operate and provide professional services. “KPMG” is used to refer to individual member firms within the KPMG organisation or to one or more member firms collectively.

KPMG firms operate in 142 countries and territories with more than 275,000 partners and employees working in member firms around the world. Each KPMG firm is a legally distinct and separate entity and describes itself as such. Each KPMG member firm is responsible for its own obligations and liabilities.

Through a multi-pronged approach that combines strategic advisory, regional collaboration, and talent development, KPMG actively shapes the future of green technology innovation across Asia Pacific.





About Google

Across Asia Pacific, the GreenTech ecosystem is gaining momentum — powered by innovators who are designing solutions for climate mitigation, adaptation, and resilience. Yet, scaling these innovations requires more than ingenuity; it demands access to reliable clean energy, robust digital infrastructure, and advanced AI capabilities. Google's technology and partnerships are helping to build that foundation. These include Google Cloud and Earth Engine, which provide startups and researchers access to the data and tools they need to model climate risk or optimise resource use; as well as regional initiatives such as the APAC AI Society, which commits US\$10 million to enable organisations to leverage AI to solve challenges in

agriculture, energy and sustainability. Through these wide-ranging programmes, Google is enabling the GreenTech ecosystem to translate promising ideas into tangible impact.

These efforts are reinforced by major clean energy investments that strengthen the region's sustainability backbone. Google has signed the region's first geothermal PPA with Baseload Capital⁵⁹, alongside a 495 MW offshore wind deal with Copenhagen Infrastructure Partners⁶⁰, both of which help expand renewable energy access for local industries. Similar partnerships across India, Japan, Singapore, and Australia — totaling around 275MW of new clean

energy capacity — further illustrate how demand from technology players can catalyse green infrastructure for the wider ecosystem. Meanwhile, AI-driven tools like Flood Hub, AnthroKrishi and Solar API continue to empower innovators to predict, adapt to, and mitigate environmental risks more effectively.^{59,61}

By combining digital innovation, clean energy commitments, and ecosystem partnerships, Google is helping unlock Asia Pacific's *potential to progress* — enabling a new generation of GreenTech solutions to scale faster, operate cleaner, and build a more climate-resilient future for the region.



About ESCAP Sustainable Business Network

The UN ESCAP Sustainable Business Network (ESBN) serves as a dynamic platform for fostering collaboration among the private sector, policymakers, and international organisations in the Asia Pacific region. Its main objective is to accelerate the achievement of the UN 2030 Agenda for Sustainable Development by promoting sustainable business practices. ESNB scales up business ambition and action, tackling global challenges such as climate change, social inclusion and economic inequality.

By aligning its efforts with the UN 2030 Agenda and related sustainable development frameworks, the ESNB advocates for innovative solutions, partnerships and knowledge sharing. It empowers businesses to take the lead in the transition to a greener, more resilient future. The network fosters collaboration through peer-to-peer learning, policy advocacy and collective action, enabling businesses to drive sustainable development both within and beyond their operations. This initiative plays a crucial role in shaping the region's sustainability efforts, facilitating better business practices and inspiring positive change towards a more sustainable future.





References

- ¹ UNESCAP, 11 November 2024, <https://www.unescap.org/kp/2024/climate-ambition-asia-pacific>
- ² UNESCAP, 23 March 2023, <https://www.unescap.org/blog/asia-pacific-riskscape-how-do-changes-weather-climate-and-water-impact-our-lives>
- ³ World Economic Forum, 26 June 2024, <https://www.weforum.org/stories/2024/06/why-clean-water-tech-is-essential-for-addressing-pollution-challenges-in-asia/>
- ⁴ CB Insights, 6 February 2025, <https://www.cbinsights.com/research/report/climate-tech-trends-2024/>
- ⁵ AgFunder, 2024, <https://research.agfunder.com/asia-pacific-agrifoodtech-investment-report-2024-0b7fbaa910844b51b7888e63f8bb7252.pdf>
- ⁶ Eco-Business, 30 September 2025, <https://www.eco-business.com/news/can-china-share-its-green-expertise-with-the-global-south/>
- ⁷ United Nations in China, 13 December 2021, <https://china.un.org/en/169396-unleashing-potential-cities-net-zero-future-undp-rethink-2021-conference-held-beijing-and>
- ⁸ WIPO, May 2024, <https://www.wipo.int/en/web/office-china/w/news/2024/wipo-china-driving-green-development-through-innovation-to-contribute-to-the-un-sustainable-development-goals>
- ⁹ National Development and Reform Commission, 9 October 2019 **【关于印发国家产教融合建设试点实施方案的通知(发改社会〔2019〕1558号)】-国家发展和改革委员会**
- ¹⁰ The Government of China, 19 December 2017, [国务院办公厅关于深化产教融合的若干意见_教育_中国政府网](http://www.gov.cn/jiaoyu/2017/12/19/content_5211117.htm)
- ¹¹ Eco-Business, 30 September 2025, <https://www.eco-business.com/news/can-china-share-its-green-expertise-with-the-global-south/>
- ¹² Ibid
- ¹³ Climate Policy Initiative, 24 June 2025, <https://www.climatepolicyinitiative.org/press-release/global-climate-finance-hits-1-9-trillion-bridging-the-climate-investment-gap-remains-within-reach/>
- ¹⁴ ASEAN Centre for Energy, 26 September 2024, <https://aseanenergy.org/publications/the-8th-asean-energy-outlook/>
- ¹⁵ Eco-Business, 22 January 2024, <https://www.eco-business.com/news/delayed-construction-of-renewables-stalls-southeast-asias-2025-targets-report/>



- ¹⁶ The Agritect Chronicles, 31 July 2024, <https://www.linkedin.com/pulse/overcoming-obstacles-singapores-pursuit-local-food-henry-gordon-smith-55ihf/?trackingId=dfvF0R6GRmC4XXqHo9%2FM3A%3D%3D>
- ¹⁷ Journal of Cleaner Production, Volume 187, 20 June 2018, <https://www.sciencedirect.com/science/article/pii/S0959652618308941>
- ¹⁸ The Business Times, 15 September 2025, <https://www.businesstimes.com.sg/esg/global-climate-fund-allocations-asia-pacific-6-percentage-points-h1-2025-report>
- ¹⁹ UNESCAP, 30 June 2025, <https://www.unescap.org/kp/2025/call-action-developing-sustainable-capital-markets-financing-energy-transitions-and>
- ²⁰ OECD, <https://www.oecd.org/en/topics/sub-issues/green-industrial-policies.html>
- ²¹ UNIDO, October 2024, IID Policy Brief 14 - Asia-Pacific Industrial Policy.pdf
- ²² Ibid
- ²³ KPMG, February 2025, <https://assets.kpmg.com/content/dam/kpmgsites/xx/pdf/2024/12/kpmg-2024-ceo-outlook-asia-pacific.pdf>
- ²⁴ OECD, 2025, <https://www.oecd.org/en/topics/sub-issues/leveraging-private-finance-for-development/blended-finance.html>
- ²⁵ MDPI, 30 December 2021, <https://www.mdpi.com/2071-1050/14/1/382>
- ²⁶ International Renewable Energy Agency (IRENA), September 2022, https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2022/Sep/IRENA_Renewable_energy_outlook_ASEAN_summary_2022.pdf
- ²⁷ World Economic Forum, 18 January 2024, <https://www.weforum.org/stories/2024/01/technology-innovation-zero-water-waste-future/>
- ²⁸ Journal of Environmental Hazards, Volume 8, 2024, <https://www.hilarispublisher.com/open-access/from-waste-to-resource-innovations-in-sustainable-waste-management.pdf>
- ²⁹ The Straits Times, 27 June 2024, <https://www.straitstimes.com/singapore/smart-recycling-boxes-and-lockers-for-another-83-locations-in-s-pore-by-january>
- ³⁰ The Government of Japan, 2015, https://www.japan.go.jp/tomodachi/2015/winter2015/advanced_waste_disposal_technology.html
- ³¹ AgFunder, 2024, <https://agfunder.com/research/asia-pacific-agrifoodtech-investment-report-2024/>



³² World Economic Forum, 3 June 2025, <https://www.weforum.org/impact/ai-for-agriculture-in-india/>

³³ Ibid

³⁴ World Economic Forum, January 2025, https://reports.weforum.org/docs/WEF_Navigating_Global_Financial_System_Fragmentation_2025.pdf

³⁵ World Economic Forum, 5 June 2025, <https://www.weforum.org/stories/2025/06/blended-finance-asia-sustainable-development-goal-investment-gap/>

³⁶ IEA, 1 August 2025, <https://www.iea.org/commentaries/cost-of-capital-expectations-for-2025-diverge-amid-rising-uncertainty>

³⁷ Vietnam Net, 30 May 2025, Over 4,000 MW of completed renewable energy projects still await PPAs

³⁸ New Zealand Government, 8 April 2025, <https://www.beehive.govt.nz/release/government-wind-down-green-investment-finance>

³⁹ The Straits Times, 26 August 2025, <https://www.straitstimes.com/business/companies-markets/singapore-delays-full-climate-disclosures-for-small-and-mid-sized-listed-companies>

⁴⁰ LinkedIn, 2024, <https://economicgraph.linkedin.com/content/dam/me/economicgraph/en-us/PDF/Global-Green-Skills-Report-2024.pdf>

⁴¹ FactoData, 20 April 2025, <https://factodata.com/brain-drain-how-many-people-left-india-from-1960-to-2025/>

⁴² Sustainability Directory, 30 April 2025, <https://sustainability-directory.com/question/what-obstacles-hinder-green-tech-adoption/>

⁴³ The Hamilton Project, 22 May 2024, <https://www.hamiltonproject.org/publication/economic-fact/eight-facts-permitting-clean-energy-transition/>

⁴⁴ SCIE Publishing, 2025, <https://www.sciepublish.com/article/pii/629#link-discussion>

⁴⁵ OECD, <https://www.oecd.org/en/topics/sub-issues/start-up-driven-innovation-and-growth.html>

⁴⁶ Heatmap, 28 October 2024, <https://heatmap.news/technology/missing-middle>

⁴⁷ MUFG, https://www.bk.mufg.jp/global/globalnetwork/asiaoceania/pdf/India_Climate_Tech_Startup_Landscape.pdf

⁴⁸ ASEAN, October 2024, <https://asean.org/wp-content/uploads/2024/10/AIR2024-3.pdf>

⁴⁹ Foundation for European Progressive Studies, November 2024, <https://feps-europe.eu/wp-content/uploads/2024/11/Impact-of-CBAM.pdf>



⁵⁰ European Commission, https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en

⁵¹ GovInsider, 10 January 2024, <https://govinsider.asia/intl-en/article/high-time-for-private-sector-participation-indias-multi-stakeholder-platform-matches-emerging-tech-innovators-with-sustainable-development-goals>

⁵² <https://www.channelnewsasia.com/east-asia/china-schools-ai-courses-4990306>

⁵³ <https://www.sightsinplus.com/news/industry-news/andhra-pradesh-launches-indias-largest-green-skilling-initiative>

⁵⁴ The Business Times, 29 September 2025, <https://www.businesstimes.com.sg/esg/successful-impact-investing-family-offices-needs-high-level-collaboration-longer-term-mindset>

⁵⁵ KPMG, April 2025, <https://assets.kpmg.com/content/dam/kpmg/sg/pdf/2025/04/taxalert-202505.pdf>

⁵⁶ Ibid.

⁵⁷ Google Sustainability, 2025, <https://sustainability.google/reports/google-2025-environmental-report/>

⁵⁸ Google Ventures, <https://www.gv.com/portfolio>

⁵⁹ Google Sustainability, 2025, <https://sustainability.google/reports/google-2025-environmental-report/>

⁶⁰ Google, April 22 2025, <https://blog.google/feed/google-offshore-wind-power-purchase-agreement-taiwan/>

⁶¹ Google, <https://agri.withgoogle.com>



Acknowledgements

This report has been greatly enhanced by the perspectives of more than 20 esteemed industry leaders from across Asia Pacific. Their valuable insights added depth and clarity to our analysis, and we extend our sincere appreciation to all those who participated in our interviews and surveys.

Special acknowledgement to contributors:

Rachel Yang
Giant Leap Australia

Romain Brillie and Juhern Kim
Global Green Growth Institute

Sajjad Shuvro
Floatmeal

Jonathan Wong
ESCAP

Nalin Agarwal
Climate Collective

Tejus AV
CleanMax

Kodai Nagano
BEFF

Rupa Chanda
ESCAP

Sarah Cragg
The Earthshot Prize

Dr Sapna Poti
Manthan

Jane Zhang
Breakthrough Energy

Ryan Carvalho
ESCAP

**Hiral Sarvaiya
Chauhan, Young Park
and David Lim**
AVPN

Adam Lyle and Derrick Chiang
Padang & Co

Jackie Surtani and Jugnu Pati
ADB

KPMG report production team:

Sharad Somani

Soniya Sree Saravanan

Dawn Westerhout

Dawn Lee

Farhan Imran

Nur Syahiirah Sulaiman



Contacts

Sharad Somani

Head of Infrastructure, KPMG Asia Pacific
Head of ESG Consulting, KPMG in Singapore
sharadsomani@kpmg.com.sg

Farhan Imran

Associate Director, ESG
KPMG in Singapore
farhanimran@kpmg.com.sg

Spencer Low

Head of Regional Sustainability
APAC, Google
spencerlow@google.com

Kaela Montgomery

Sustainability Program Manager
Asia Pacific, Google
kaelam@google.com



kpmg.com

The information contained herein is of a general nature and is not intended to address the circumstances of any particular individual or entity. Although we endeavor to provide accurate and timely information, there can be no guarantee that such information is accurate as of the date it is received or that it will continue to be accurate in the future. No one should act on such information without appropriate professional advice after a thorough examination of the particular situation.

© 2026 KPMG Services Pte. Ltd. (Registration No: 200003956G), a Singapore incorporated company and a member firm of the KPMG global organization of independent member firms affiliated with KPMG International Limited, a private English company limited by guarantee. All rights reserved.

KPMG refers to the global organisation or to one or more of the member firms of KPMG International Limited ("KPMG International"), each of which is a separate legal entity. KPMG International Limited is a private English company limited by guarantee and does not provide services to clients. For more detail about our structure please visit kpmg.com/governance.

The KPMG name and logo are trademarks used under license by the independent member firms of the KPMG global organisation.

Throughout this document "we", "KPMG", "us" and "our" refers to the KPMG global organisation, to KPMG International Limited ("KPMG International"), and/or to one or more of the member firms of KPMG International, each of which is a separate legal entity.