

Breaking new ground: Sustainability in Malaysia



Preface

“Breaking new ground: Sustainability in Malaysia” is an MIT Technology Review Insights report developed in collaboration with InvestKL. This report is based on interviews with sustainability experts and senior executives of global companies in Greater Kuala Lumpur. The interviews were conducted in February and March 2022 to find out what global companies in Greater Kuala Lumpur – and Malaysia as a whole – are doing to achieve their environmental, social, and governance targets, and how their local experiences could be applied globally. Ross O’Brien was the writer of the report, Kwee Chuan Yeo was the editor, and Nicola Crepaldi was the publisher. The research is editorially independent, and the views expressed are those of MIT Technology Review Insights.

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Foreword

Environmental, social, and governance (ESG) principles have shifted the world, transforming business landscapes and influencing decisions, and it is now marked as a prudent investment practice. As nations adopt more determined goals to decarbonize, there is no doubt that investors play a vital role to support the transition to a green economy by incorporating ESG principles into their strategic plans and business activities.

In Southeast Asia, Malaysia has committed to one of the region's most ambitious carbon-neutrality pledges in the 12th Malaysia Plan. We aim to increase the share of renewable energy capacity to 40% by 2035 as part of plans to become a carbon-neutral country by 2050 at the earliest.

Underpinning the government's overall economic development framework is its New Investment Policy, which aims to strengthen the country's investment ecosystem through key pillars of the National Investment Aspirations to develop high-value sectors, while promoting inclusive growth and enhancing ESG practices.

As a city, Greater Kuala Lumpur (GKL) is stepping up on its sustainability efforts to align with the government's goals. Developers in the capital city are required to use at least 30% renewable energy components in projects, while the local government is planting more trees and adding more pedestrian walkways and bicycle lanes to encourage greener lifestyles. These are some of the many steps taken to transform GKL into one of the region's most livable cities by 2025.

Many leading GKL-based global companies are also committed to similar emissions reduction pledges, resulting in a business environment of mutual collaboration around sustainability. This conducive environment is part of the reason why hundreds of leading global companies have chosen GKL as their regional hub to conduct high-impact activities. Companies in GKL continue to grow and expand, and we are seeing an increasing number of greening opportunities for some of the country's traditional economic clusters, in particular the energy, electronics manufacturing, IT outsourcing, and other digital economy sectors.

Furthermore, GKL is equipped with robust infrastructure, a flourishing digital and technology ecosystem, and a diverse pool of talent ready for future industries. We believe that sustainability-oriented global companies can achieve their ESG targets through their operations in GKL and use their Malaysian experience as a template for sustainable innovations in their global business. At InvestKL, we will continue to support growth in this direction and attract investments at the forefront of sustainability for a better and greener future.

Muhammad Azmi Zulkifli

Chief Executive Officer, InvestKL

CONTENTS

01 Executive summary	4
02 Asia seeks a sustainable future.....	6
03 Malaysia as a platform for regional green growth	9
04 Scoping it out: Green energy and the race to reduce emissions	13
05 Green city and diversity.....	17
Stronger together	17
The greening of the valley.....	19
06 Green mobility	20
A regional “green influencer”	20
07 Conclusion: Innovation, interoperability, and sustainability	22

01 Executive summary

“We’re dealing with a crisis here, folks.” The warning from John Kerry, the US president’s top climate envoy, to global leaders at the World Economic Forum at Davos in May 2022 couldn’t have been clearer. And Asia Pacific – home to 60% of the global population and responsible for more than half of the world’s greenhouse gas (GHG) emissions – is pivotal in the battle to stop global warming.¹ Especially as the region’s GHG emissions are expected to continue rising in the coming years, with an anticipated increase of 34% by 2030 compared with 2010 levels.²

Reflecting the increased urgency, countries and cities across the region have stepped up long-term pledges to cut emissions and incorporate environmental, social, and governance (ESG) goals into strategic decisions and business activities. Among them, one of Southeast Asia’s fast-growing urban centers, Greater Kuala Lumpur – and Malaysia as a whole – has pledged to achieve carbon neutrality by 2050, which is one of the region’s most aggressive decarbonization plans.³

Technology is central to the country’s sustainability agenda. Malaysia’s commercial hub, Kuala Lumpur, has rolled out a smart city plan, which includes accelerating digital transformation by focusing on education and promoting cloud technologies and artificial intelligence (AI), among other areas.⁴ The Malaysian government has also emphasized technology investment in its Budget 2022, with up to MYR 100 million (US\$ 23.7 million) in grants for areas such as smart automation and at least MYR 30 billion (US\$ 7 billion) for government-linked

companies investing in renewable energy, supply-chain modernization, and 5G infrastructure.⁵

In recent years, Kuala Lumpur has also seen an increasing number of “greening” opportunities. For instance, the city governance has employed a smart “City Brain,” which uses Alibaba Cloud’s computing systems to optimize services like traffic control and even calculate the best routes for emergency services.⁶ International technology and mobility companies such as Microsoft and Korea-based Socar, which are eyeing green innovation and business opportunities, have also invested and expanded their operations in Kuala Lumpur. At the same time, traditional industries, in particular energy and electronics, have been trying to reinvent themselves.

In light of this shifting environment, this report explores what global companies in Greater Kuala Lumpur are doing to achieve their ESG targets, the opportunities the location has to offer, and how their local experiences could be applied globally.

The key findings of this report are:

Malaysia is committed to becoming a regional decarbonization leader, as reflected in its pledge to be carbon neutral by 2050. The country’s current master plan that charts its economic development through 2025 includes numerous programs aimed at advancing sustainability by increasing renewable energy-generation capabilities, developing green mobility solutions, building sustainable and resilient cities, and developing a circular

economy. This sustainability commitment comes even as the country continues to derive economic growth from traditionally carbon-intensive industries, such as oil and gas development, energy production, electronics manufacturing, and agriculture. Yet, while some countries' reliance on fossil fuels and other traditional industries weighs on their decarbonization commitments, Malaysia uses its deep, globally integrated industry clusters and supply chains to develop new, greener business processes and less carbon-intensive manufacturing and logistics processes.

Greater Kuala Lumpur has seen an increasing number of “greening” opportunities. Asia's fast-growing digital economies have also created unique synergies for digitally “native” firms that are looking to use Kuala Lumpur as a hub from which they can tap green business opportunities in the region. These include Korean green mobility firm Socar, which is expanding its “people-to-people” ridesharing model across Southeast Asia from its Kuala Lumpur base. Schlumberger, which has one of seven global “Innovation Factori” centers in Kuala Lumpur. The center works to accelerate the adoption of its AI for

boosting energy transition efforts in East Asia. And companies like Microsoft see the city as a place where the government's clear vision reflects their corporate sustainability targets.

Malaysia's maturing sustainability stance is creating a culture of monitoring, measurement and, ultimately, accountability. This can serve as a framework for ESG-minded firms to chart their own journeys. Such efforts are far from cosmetic, they are essential to a market's economic prospects. Global, sustainability-oriented firms can both achieve their ESG targets through their Greater Kuala Lumpur operations and use their Malaysian experience as a template for sustainable innovation in their global operations. Malaysia's role as a global sustainability hub is critical. Its economy uniquely straddles many industry sectors, including high technology and energy production, which are pivotal in shifting the world's development toward a low-carbon future. And it has policies to nurture a diverse and inclusive workforce and support global businesses in finding new ways to achieve their sustainability goals. Collaboration and communication are essential to these efforts.



Global, sustainability-oriented firms can both achieve their ESG targets through their Greater Kuala Lumpur operations and use their Malaysian experience as a template for sustainable innovation in their global operations.

02 Asia seeks a sustainable future

The warnings have been hard to ignore. In March 2022, the UN's Economic and Social Commission for Asia and the Pacific (ESCAP) said in a report that none of the region's economies are on track to achieve their 2030 Sustainable Development Goals (SDGs). At the current lackluster rate, the targets are expected to be achieved in 2065.⁷ A month later, the Intergovernmental Panel on Climate Change told the world it's "now or never" to limit global warming to 1.5 degree Celsius if it wants to stave off a climate disaster.⁸

Such reports underscore growing pressure on global enterprises to implement net-zero carbon targets and more rigorous – and transparent – sustainability goals. There is also increasing urgency for businesses to prioritize projects and markets with "green resilience" and sustainable, inclusive development, as evidenced by the world's burgeoning appetite for green bonds. This is nowhere truer than in Asia, the world's fastest-growing region economically and home to almost two-thirds of the world's population, with a fast-expanding middle class.⁹

Despite the ESCAP report, Bruno Carrasco, director-general for sustainable development and climate change at the Asian Development Bank (ADB), says the region's governments are increasingly committed to advancing sustainability. Among the 41 developing Asian economies supported by the ADB, "30 of them have begun to align their national development plans with SDG targets, 23 have established inter-governmental or multi-stakeholder mechanisms to support this agenda, and 10 have issued



Malaysia and its capital city, Kuala Lumpur, have been stepping up their sustainability efforts to make sure that foreign direct investment continues to flow in after a strong rebound in 2021.

laws related to SDGs or decreased carbon emissions," says Carrasco. "These are very important signifiers of building awareness and taking ownership of development from a sustainability perspective."

With this increasing awareness comes a critical shift in Asia's business environment: emission reductions and sustainable operating practices are not only essential to combat global warming, but they also are becoming the norm. With ESG principles becoming more widespread, and even attractive for consumers and potential

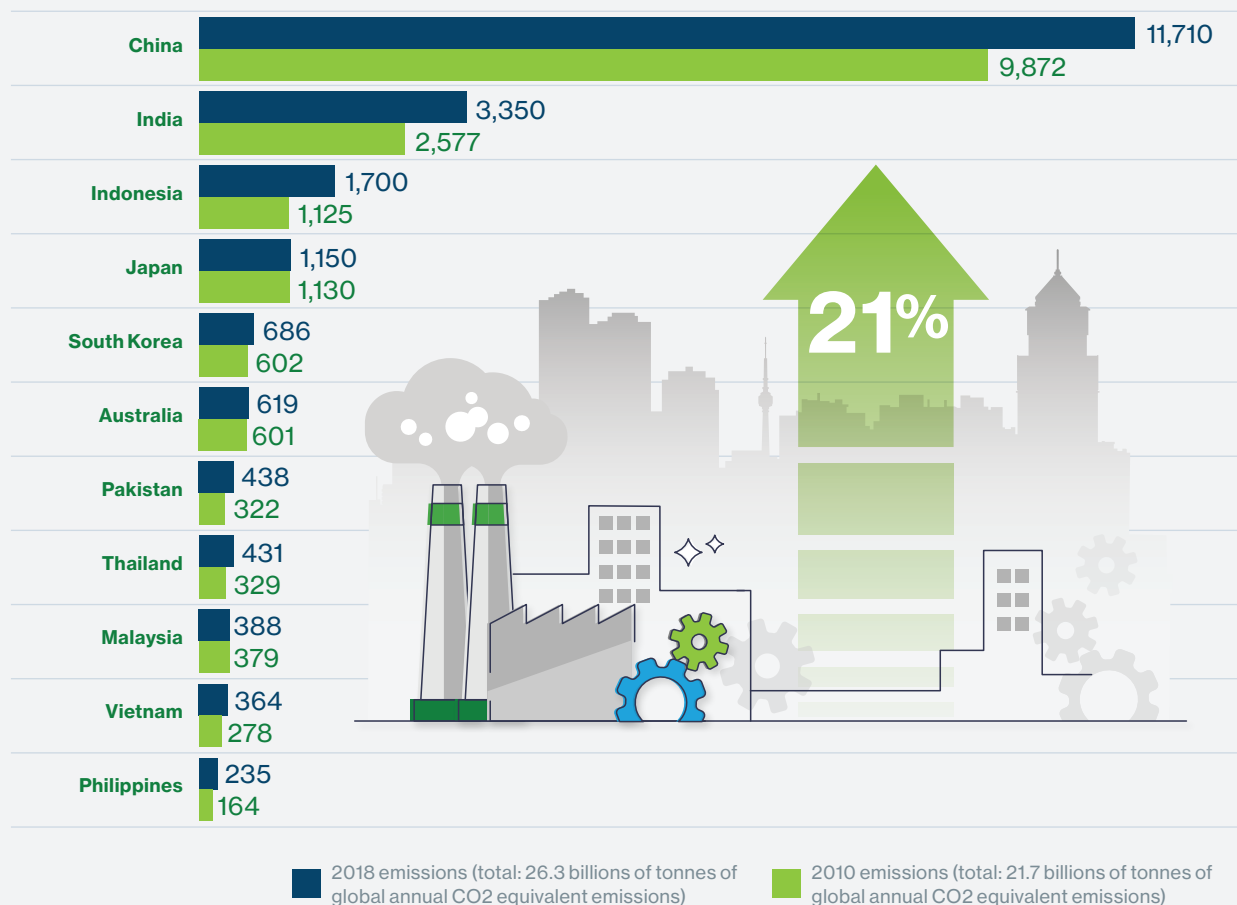
employees, companies are recognizing the importance of making their stance known, and communicating their compliance to demonstrate their shared values. Having these values is just the starting point though. For countries and cities to become sustainable growth platforms capable of attracting global firms, they'll need to provide necessary sustainability resources: affordable, available green power, energy-efficient infrastructure, a diverse, inclusive pool of talent, clear regulatory policies and benchmarks, and an ecosystem of like-minded partners and suppliers.

Even though there is increasing awareness and adoption of ESG principles, action can't come soon enough for

Asia Pacific. The ESCAP's warning is largely due to the rapid increase in GHG emissions from the region of late (see Figure 1): it estimates that these grew by over 21% between 2010 and 2018. This growth, however, has varied widely in the region, and there are a few bright spots – Malaysia is one of them. The country's expansion in GHG emissions during that time, at 2.4%, was among the slowest (see Figure 2). This seems to be bolstering its attractiveness as a destination for investment and business, which doesn't seem to be lost on the country. Malaysia and its capital city, Kuala Lumpur, have been stepping up their sustainability efforts to make sure that foreign direct investment (FDI) continues to flow in after a strong rebound in 2021 (see Figure 3).

Figure 1: Growth of greenhouse gas (GHG) emissions in Asia Pacific, 2010 - 2018

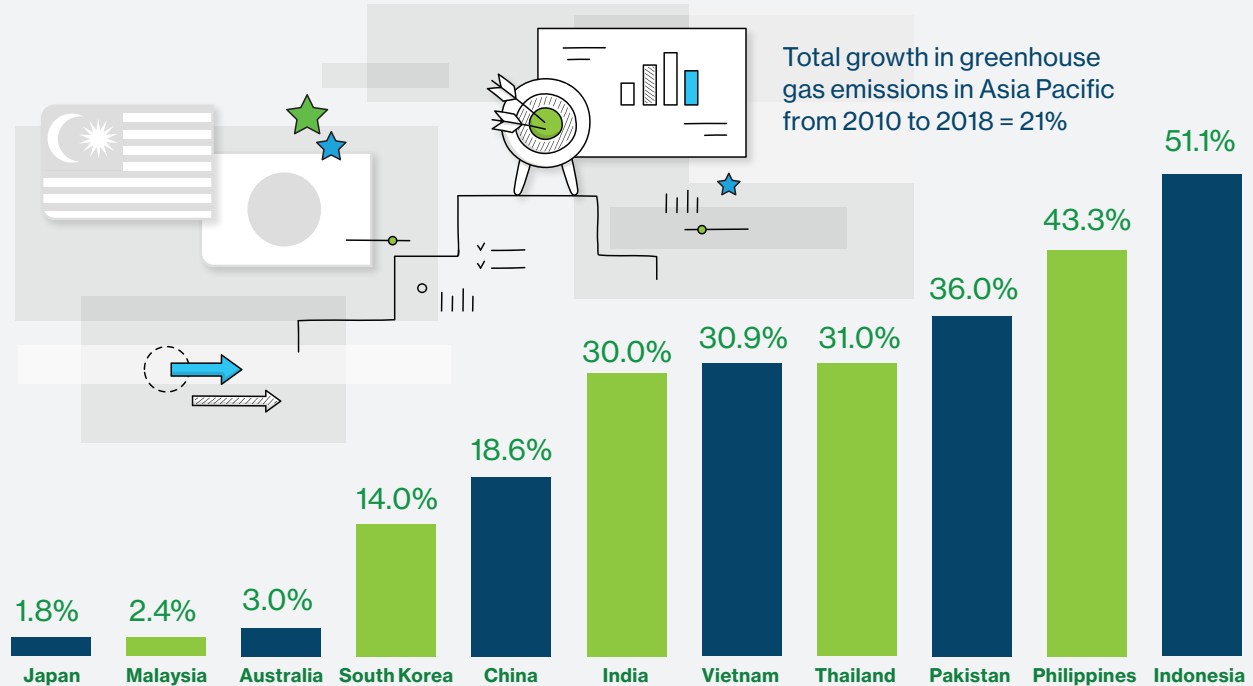
GHG emissions in Asia Pacific rose more than 21% in the period between 2010 and 2018.



Source: Compiled by MIT Technology Review Insights based on data from the UN Economic and Social Commission for Asia and the Pacific's Reclaiming Our Future report, April 2022¹⁰

Figure 2: Comparison of growth in GHG emissions among Asia-Pacific countries, 2010 - 2018

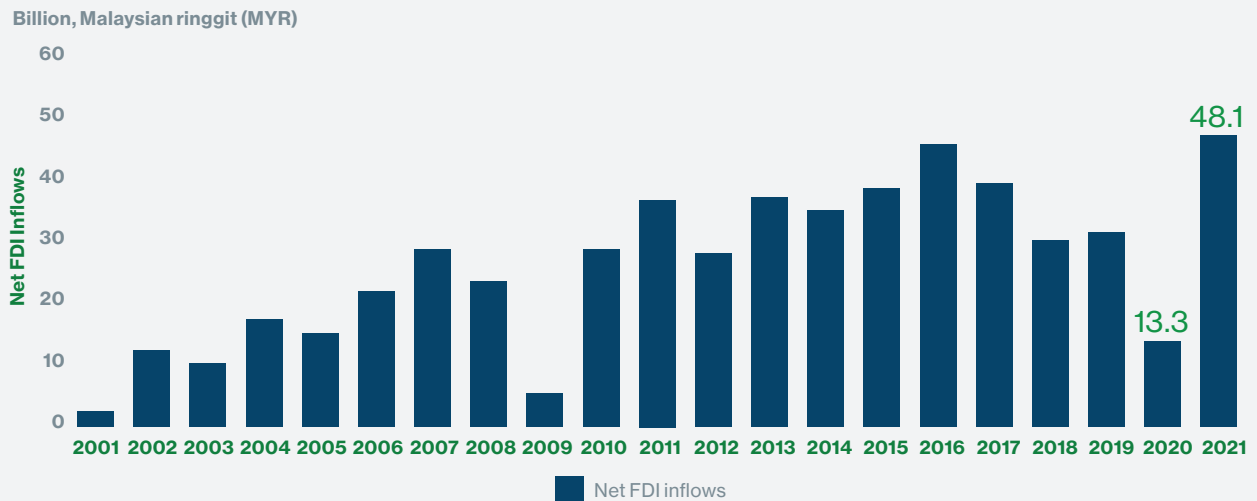
Japan and Malaysia recorded the lowest percentage increases in GHG emissions among Asia-Pacific countries between 2010 and 2018.



Source: Compiled by MIT Technology Review Insights based on data from the UN Economic and Social Commission for Asia and the Pacific, April 2022¹¹

Figure 3: Malaysia's incoming foreign direct investments (FDI), 2001 - 2021

FDI in Malaysia rebounded sharply in 2021 following a four-year decline. The leading sources included the Netherlands, Singapore, China, Austria, and Japan.



Source: Department of statistics, Malaysia, 2021¹²

03 Malaysia as a platform for regional green growth

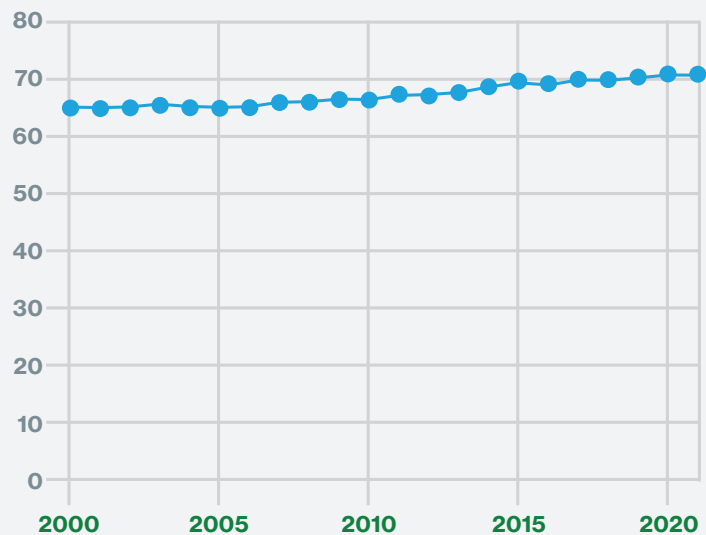
In Southeast Asia, Malaysia has committed to what appears to be one of the region's most ambitious carbon-neutrality pledges in its 12th Malaysia Plan (12MP), announced in September 2021.¹³ The 12MP is the master plan charting the country's economic development through 2025. Underpinned by an estimated MYR 400 billion (US\$ 91.6 billion) in public investment, the plan includes programs linked to one of its three core themes: advancing sustainability. In line with that, the government aims to increase renewable energy-generation capabilities, develop green mobility solutions and sustainable and resilient cities, and lay the foundation for a circular economy, adding to the progress that

Malaysia has achieved over the past decade (see Figure 4). The government has announced that it plans to increase the share of renewable energy in its installed capacity to 31% in 2025 and 40% in 2035 under its power-generation plan.¹⁴ Currently, renewable energy makes up 23% of the country's energy mix.¹⁵

Malaysia's sustainability ethos is also quickly expanding beyond its physical infrastructure into its commercial and financial spheres. Underpinning the government's overall economic development framework is its New Investment Policy.¹⁶ The policy aims to strengthen the country's investment ecosystem by increasing economic

Figure 4: Malaysia's progress in achieving sustainable development goals (SDGs), 2000 - 2020

Malaysia achieved an overall score of 70.38, placing it 72 out of 163 countries. The overall score measures total progress toward achieving the UN's 17 SDGs. A score of 100 indicates that all SDGs have been achieved.



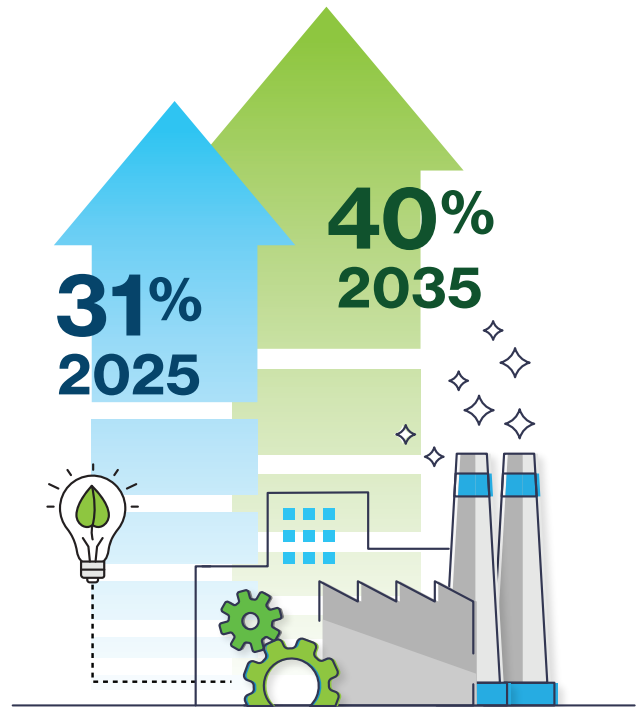
Source: Cambridge University Press's Sustainable Development Report 2022¹⁷

Figure 5: Key strategies in Kuala Lumpur's climate action plan 2050

Kuala Lumpur City Hall has put in place myriad programs to reduce emissions by 70% in 2030 and by 93% in 2050 compared to 2010 levels.

Climate strategies	Prioritized climate actions
Mobility and infrastructure	Street design to prioritize active mobility
	Comfortable & safe pedestrian networks
	Accessible, affordable housing in priority area
	Dedicated bus lane network
Green Adaptive City	Deploy low-impact development
	Depave public space with the community
	Protect parks and increase biodiverse areas
Energy-efficient and climate-proof buildings	Building vegetation covering
	Low-carbon building checklist validation
	Building performance-benchmarking and -rating
	Near-zero emissions building roadmap
Smart waste management	Solid waste-reduction through a waste masterplan
Disaster management	Flood management and response plan
	Heat management and response plan
	Drought management and response plan

Source: Kuala Lumpur City Hall, 2021¹⁸



Malaysia has announced that it plans to increase the share of renewable energy in its installed capacity to 31% in 2025 and 40% in 2035 under its power-generation plan

complexity, creating high-value job opportunities, extending domestic linkages, developing new and existing economic clusters, and enhancing ESG practices.¹⁹ Malaysia's pension fund, the Employees Provident Fund (EPF), has also integrated ESG principles into its operations, including prioritizing climate change and workers' well-being in its investment decision-making. The EPF plans to have its entire portfolio ESG-compliant by 2030 and wholly carbon neutral by the government's 2050 target.²⁰ This isn't the only way that state organizations are becoming ESG compliant. Turning to the government's Budget 2022, in line with the 12MP it has also earmarked bond issuances worth MYR 10 billion (US\$ 2.3 billion) to be channelled into social or environmentally friendly projects.²¹

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Yogendran Nadaraju, East Asia Facilities Manager, Schlumberger

Kuala Lumpur, the commercial heart of the country, has aligned with the national government’s sustainability goals through its own Climate Action Plan 2050 (see Figure 5, previous page). The municipal government aims to reduce carbon emissions by 70% as it seeks its own status as a carbon-neutral city. Some of the initiatives include requiring developers to use at least 30% renewable energy components in projects, installing solar power systems, planting an estimated one million trees, and building more pedestrian walkways and bicycle lanes to connect residential areas to the city center.²² Meanwhile, Selangor, a part of Greater Kuala Lumpur that is Malaysia’s most populous state and largest state economy, is working to transform itself into one of Southeast Asia’s most “livable smart states” by 2025. Under the Smart Selangor Action Plan 2025, since 2020 the state government has been implementing initiatives to improve public services, promote a greener and safer urban environment, and provide economic opportunities for businesses. To achieve this end, it’s centering digital technologies such as cloud, blockchain, and the internet of things (IoT).²³

Malaysia and Greater Kuala Lumpur’s 2050 carbon-neutral target reflects that of many leading Kuala Lumpur-based international firms, including from traditionally carbon-intensive industries. This has culminated in a business environment of mutual collaboration surrounding sustainability. “There is a lot of alignment in the language they are speaking and what we are trying to bring on board as well,” says Yogendran Nadaraju, Schlumberger’s

Clean transition: Petronas’ pivot to new energy

Malaysia’s state energy firm Petronas has committed itself to developing new business units to meet its new, sustainable business revenue targets. The cornerstone of these efforts is its low-carbon subsidiary, Petronas Gas + New Energy. Established in 2020, it is on track to develop three gigawatts of renewable energy capacity by 2024.²⁴ Petronas’ efforts to seed this ecosystem also include eight carbon emissions reduction projects in 2021, and collaborative R&D efforts with its energy partners in Japan to develop a blue and green hydrogen energy production and transport chain.²⁵

To ensure Petronas’ success in its green overhaul, chief sustainability officer Charlotte Wolff-Bye believes the engagement of senior management is critical. “The sustainability challenge in our society is well understood by our board of directors, as it creates a dynamic risk picture, and that needs good oversight,” she says. Wolff-Bye also points to the dedicated corporate sustainability function she heads up. “I don’t think any other major oil and gas company has this function reporting straight to the CEO,” she says. In addition, Petronas’ CEO is engaging with the wider Malaysian business community as the chair of the CEO Action Network, an informal group with members from leading Malaysian businesses focused on sustainability advocacy.

facilities manager for East Asia. He adds that the leading global oil services company is increasingly engaged in renewable energy projects with like-minded cohorts. “We are looking at some solar project initiatives in Malaysia,” says Nadaraju. “There is a growing commonality and synergy between the oil and gas companies, with the Malaysian government-linked firms serving as the backdrop of these sustainability efforts.”

Outside the energy industry, companies, including Microsoft, believe that being based in Kuala Lumpur

provides an important platform for their corporate sustainability objectives. The global technology company announced in 2020 that it plans to be carbon negative, water positive, and zero waste by 2030. “We plan to remove the equivalent of all the carbon emissions our operations have ever produced since our 1975 inception by 2050,” says Azizah Ali, chief marketing and operations officer for Microsoft Malaysia. The country’s sustainability goals allow Microsoft’s local operations to better contribute to its ambitious global targets. “This is where we feel that the government not only has a clear vision but clearly measurable outcomes.” Having a robust business ecosystem of like-minded firms also helps. “Malaysian corporate organizations have really stepped up their sustainability goals,” says Ali. Microsoft participates in many cross-industry initiatives such as the CEO Action Network – an informal group with members from leading Malaysian businesses focused on sustainability advocacy.

Greater Kuala Lumpur has seen an increasing number of “greening” opportunities for some of the country’s traditional innovation clusters, in particular the energy, oil and gas, electronics, IT outsourcing, and other digital economy sectors. The city is home to one of Schlumberger’s seven global “Innovation Factori” centers, where the company’s domain and data science experts work with energy industry customers to accelerate their AI adoption in East Asia to boost energy transition efforts.²⁶ Meanwhile, the growth of the region’s digital economies has also created a unique set of synergies, which underpin Microsoft’s decision in April 2021 to invest some \$1 billion to build an Azure datacenter in Kuala Lumpur, the first in the region.²⁷ Collaboration and communication are essential to these efforts. The national and Kuala Lumpur federal governments – and their related entities – have shared their green visions with industry and regional partners, working with them to accelerate decarbonization.

In November 2020, Malaysia’s state energy conglomerate Petroliaam Nasional Berhad (Petronas) became Asia’s first oil and gas business to commit to a net-zero emissions target.²⁸ The country’s sole Fortune 500 company has broadened its goals into a “50-30-zero” framework, says the company’s chief sustainability officer Charlotte Wolff-Bye. “Improving cashflow by 50% by 2025, generating 30% of our total revenues from non-traditional sources by 2030, and then achieving our aspiration of

net-zero carbon emissions by 2050,” she explains. That will require the company to cap its emissions in absolute terms within the next two years, at 49.5 million metric tons of carbon dioxide. Wolff-Bye notes that while Petronas’ strategic intent is strongly linked to business incentives that align with sustainability objectives across the organization, this is “a huge business, and all of our goals – particularly that of transitioning 30% of our revenues beyond the scope of a traditional oil and gas business – is an enormous undertaking, and it means we must create a whole new ecosystem of businesses and incubate new ideas.”



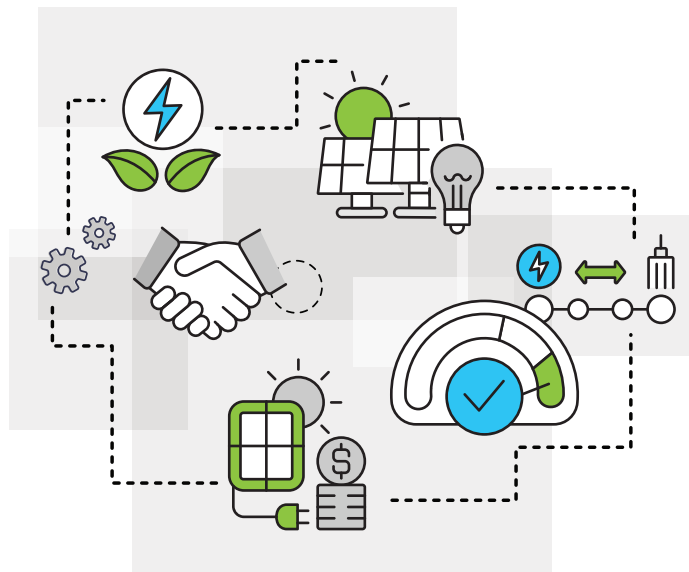
“Malaysian corporate organizations have really stepped up their sustainability goals.”

Azizah Ali, Chief Marketing and Operations Officer, Microsoft Malaysia

Scoping it out: Green energy and the race to reduce emissions

owering carbon emissions at all levels – Scope 1, 2, and 3 – is the foundation of most firms' carbon-neutral agendas.²⁹ Tackling all these categories does not come easy, however, as having reliable access to clean power is often a challenge for enterprises. Renewable power capacity is fast-expanding globally, with the International Energy Agency (IEA) estimating that 70% of the US\$530 billion spent globally on new electricity generation in 2021 went into clean energy projects.³⁰ The crux of the issue lies in the uneven distribution and availability of clean power, forcing many companies to pay “greenium” price increases on green electricity to meet their decarbonization targets. This is a challenge in Malaysia as well, although firms are beginning to leverage the country's emerging sustainable business ecosystem to both augment the country's clean power supplies and develop other innovative paths to lower-carbon productivity. “We've already initiated a couple of talks with power agencies about how we can collaborate with them and participate in solar power installations,” observes Wen-Bin Qian, the Asia-Pacific vice president of clean hydrogen and large investments for Linde, the world's largest industrial gas producer.

In 2021, Linde established a global sustainability objective that cascades into its regional operations, including its Kuala Lumpur-based unit. “We call it ‘35 by 35’: by 2035, our absolute Scope 1 and 2 GHG will be reduced 35% from our 2021 levels,” says Qian. He notes that this is particularly challenging, because not only does Linde already produce an equivalent of 30 million or



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40 million metric tons of carbon dioxide annually, but the US-German company is also still growing all its industrial gas businesses. “If we follow our conventional business approach, our carbon footprint is only going to increase,” Qian says. That has prompted Linde to pivot its industrial businesses into greener pastures, which mainly translates into building up its clean hydrogen business as a key pillar. Qian says this requires work because, while Linde produces an estimated over 8,000 metric tons of hydrogen per day, nearly all of this is “grey” (hydrogen produced from fossil fuels), meaning the carbon dioxide emissions amount to more than 20 million metric tons per year. “So what do we do? We use capture and sequestration technologies [that] we are developing in our engineering arm to decarbonize our existing business,” he says.

Like most multinationals with firm decarbonization targets, the acquisition of renewably sourced electricity is also an element of Linde’s decarbonization strategy. This is particularly vital for powering its air separation plants, which separate atmospheric air into oxygen, nitrogen, and other gases, in Malaysia. Qian estimates that 20% to 30% of the 650,000-megawatt hours the company consumes annually in the country is currently green. “Renewable energy sourcing is currently the main contributor of our carbon-emissions program,” he says. “The Malaysian government has created a renewable energy roadmap – by 2025 they are targeting to inject about 31% renewable energy into the grid. Malaysia has a very good green

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energy platform for industries seeking to accelerate their carbon reduction.” This is key for Linde, a company that Qian estimates is one of Malaysia’s top 10 electricity consumers. “Over the next 10 years, Malaysia’s target is to reduce 45% of absolute carbon emissions by 2030 – that is the Malaysian government’s target, and this is quite in line with Linde’s target.”

At first glance, Malaysia’s economic reliance on many traditionally carbon-intensive industries – hydrocarbon-based extraction and energy production, and agriculture chief among them – may seem at odds with its decarbonization efforts. For countries dependent on fossil fuels for electricity, or on extractive industries for export

Microsoft Malaysia leverages the cloud to promote decarbonization

Microsoft launched its “Bersama Malaysia” initiative in April 2021. Over five years, the company will invest \$1 billion as part of a new partnership program with government agencies and local companies to establish the country’s first “datacenter region” in Greater Kuala Lumpur and provide cloud services. Not only will the new datacenter region deliver Azure availability zones, but it will also support Microsoft’s sustainability goals, says Microsoft Malaysia’s chief marketing and operations officer Azizah Ali. She believes Microsoft can realize its green strategy for its upcoming datacenter region establishment in Malaysia, noting that four of Microsoft’s datacenters globally are already LEED (Leadership in Energy and Environmental Design) gold certified, a globally recognized symbol of sustainability achievement and leadership. Microsoft has a global commitment to shift to 100% supply of renewable energy by 2025, which will include having power purchase agreements for green energy contracted for all the carbon-emitting electricity consumed by its data centers, buildings, and campuses.



“We’ve now stopped all work with power stations or any projects linked to fossil-fuel power. Projects with oil and gas companies looking to shift away from hydrocarbons is a growing sideline business for us.”

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revenue, concerns about the health of these sectors or the cost and effort involved in energy transition often weigh on their sustainability efforts. At the 26th United Nations’ Climate Change Conference (COP26), held in November 2021 in Glasgow, more than 40 countries agreed to phase out their use of coal power. However, many Asia-Pacific countries – including China, India, Australia, Japan, Thailand, and Malaysia – did not.³¹ While this might look like a giant step backward, Malaysia is still making progress on severing ties with fossil fuels. In September 2021, the country’s prime minister pledged to stop building new coal-fired power plants as part of the country’s 2050 carbon-neutrality commitments.³²

Despite the anchoring effect of its hydrocarbon industry, Malaysia is one of several countries in the region that is using its supply of hydrocarbons and deep, globally integrated industry clusters to accelerate its decarbonization efforts. It is looking to achieve this through developing new business processes and technological innovations around less carbon-intensive manufacturing and logistics processes. “We originally looked at pockets of sustainability; we would get certain projects where clients would insist that we embed it as part of the process,” explains Thomas SK Tang,

AECOM’s executive director of land supply and municipal in Hong Kong. “As climate change issues have come to a head, we knew we needed to treat ESG issues with more urgency, and now they are kind of enmeshed in our business practices. We now look at sustainability on two fronts: inward-facing and outward-facing. Inward-facing is pretty straightforward, as we are consulting engineers and designers, and most of our footprint is in our office space.” Tang says AECOM, a US construction and engineering firm, has its own system to track its Scope 1 and 2, and even Scope 3, emissions. The third category involves the supply chain, which has a bigger impact than the other two. “It’s a complex system that looks at building materials, to all the stuff we procure, and it’s been a huge challenge that involves parties from finance to admin to HR.”

Externally, AECOM says its sustainability approach is increasingly shaping its work with clients. “We advise them on what types of system, what type of data to collect around climate risk,” says Tang, “and using the tools we have to help clients get on the right path to carbon measurement and reduction.” This approach has also influenced the type of work it takes on. “We’ve now stopped all work with power stations or any projects

linked to fossil-fuel power and, in fact, projects with oil and gas companies looking to shift away from hydrocarbons is a growing sideline business for us.” As an example, Tang cites a master service agreement with Shell, which includes a planned hydrogen distribution network using the company’s existing petroleum retail chain.

Meanwhile, Microsoft’s Ali explains that Malaysia’s and Greater Kuala Lumpur’s energy transition vision is clear, but more needs to be done. Microsoft’s 2021 Environmental Sustainability Report indicated that while the company’s Scope 1 and 2 emission levels decreased, Scope 3 emissions, which are found along Microsoft’s entire value chain, increased. “That is why we want to bring everyone in on this sustainability journey with us – from our customers and partners to suppliers – to decarbonize so we can collectively achieve our Scope 3 targets,” says Ali. She is optimistic that Microsoft’s plan to establish its first regional data center in Malaysia, announced in 2021, will support its ecosystem’s sustainability goals (see section “Microsoft Malaysia leverages the cloud to promote decarbonization”).

A green data center would allow Microsoft to extend its own decarbonization efforts to its customer ecosystem. If

customers move their resources from a fossil fuel-powered data center to Microsoft’s zero-carbon cloud, the client will enjoy the same decarbonization benefit, Ali explains. Meanwhile, Microsoft is also rolling out its “Cloud for Sustainability” platform in Malaysia – a voluntary data analytic sandbox allowing emissions and sustainability impact activity to be recorded and reported. This allows Microsoft “to co-create innovation around sustainable solutions” with its customers.

Malaysia’s maturing sustainability stance creates a culture of monitoring and measurement – and, ultimately, accountability – which can serve as a framework for ESG-minded firms to chart their own journeys. “When we started setting targets and KPIs (key performance indicators) for the group, we looked at what the government is really trying to do,” explains Ong Pang Yen, executive director at the chairman’s office of Sunway Group. “The 12MP promotes sustainability as one of its three main themes. So, when the government says it is committed to carbon neutral by 2050, we aligned with the government’s aspiration by establishing a roadmap to achieve net-zero carbon emissions by 2050, because in order for the government to deliver, it needs the participation of corporations and everyone in the nation.”

“When the government said it was committed to becoming carbon neutral by 2050, we aligned with this aspiration by establishing a roadmap to achieve net-zero carbon emissions by 2050. For the government to deliver, it needs the participation of corporations and everyone in the nation.”

Ong Pang Yen, Executive Director of Chairman’s Office, Sunway Group

05 Green city and diversity



Sunway's sustainability journey, however, goes back decades before ESG became the buzzword for corporations and governments. In the 1990s, the Malaysian conglomerate – which has a diverse portfolio covering real estate, health care, and education, among other industries – turned a tin mining wasteland into an 800-acre township, Sunway City Kuala Lumpur.³³ With a quarter of it forested and populated by more than 200,000 people, the township is the first sustainable urban development built by Sunway. Its green credentials include buildings equipped with solar panels, electric buses that run on an elevated highway, and a water treatment plant that processes 8.5 million liters of water a day. It is the lodestar in a constellation of three green city projects that the group is building nationwide and serves as the focal point for Sunway's overall sustainability efforts.

Malaysia's Green Building Index recognizes Sunway City Kuala Lumpur as the country's first green integrated township, while the Ministry of Environment and Water deems it a low-carbon city. Ong notes that having access to a growing cohort of sustainability organizations in Malaysia allows Sunway to tap into their carbon intensity recommendations to assess whether industry benchmarks are accurate and workable, while the group stays focused on annual reduction targets of 3.5% to 4% to meet its 45% reduction goal over the next 20 years.

Meanwhile, outside Sunway Group, Kuala Lumpur's green developments have also been earning nods of approval. One of them is Malaysia's first international financial hub,

“Last year, 55% of key-profile professional hires were female. This is the right place for us, with a diverse talent pool on tap.”

Matima Ratanapinyowong
East Asia Human Resource Manager,
Schlumberger

the Tun Razak Exchange, which has been touted as the first development in Southeast Asia to achieve both provisional Green Building Index platinum township certification and the internationally recognized LEED (Leadership in Energy and Environmental Design) neighborhood development gold certification.³⁴

Stronger together

Greater Kuala Lumpur, and Malaysia as a whole, are also becoming important centers for cultural diversity, providing a key resource for multinational firms (and local firms with global footprints), which increasingly need to access talent that meet diversity, equity, and inclusion principles.

Matima Ratanapinyowong, human resource manager for East Asia at Schlumberger, says Malaysia's talent pool provides the global energy technology firm with a key

capability for her company to build up its regional operations. “There is a lot of potential in the workforce here: when we initially set up our hub here, we needed to bring knowledge from other markets to establish our operations, but we also needed local talent to support our regional business,” she says. “The Malaysian government has a knowledge transfer program, and many local universities have partnerships with European and US universities, making the education system quite rich, with really well-groomed talent.”

Malaysia’s talent pool also provides Schlumberger with a key capability that enables its global ESG aspirations – in particular, the country’s high number of tertiary-educated women (see Figure 6). Traditionally an engineering company, Schlumberger aims to transform its global workforce so that 25% of its women employees have qualifications beyond a bachelor’s degree by 2025. “Malaysia’s diversity and education environments are completely aligned with these goals: more than 50% of Malaysian graduates are females, and the education ecosystem really promotes women in STEM (science, technology, engineering, and mathematics),” Ratanapinyowong says. “Last year, 55% of key-profile

professional hires were female. This is the right place for us, with a diverse talent pool on tap.”

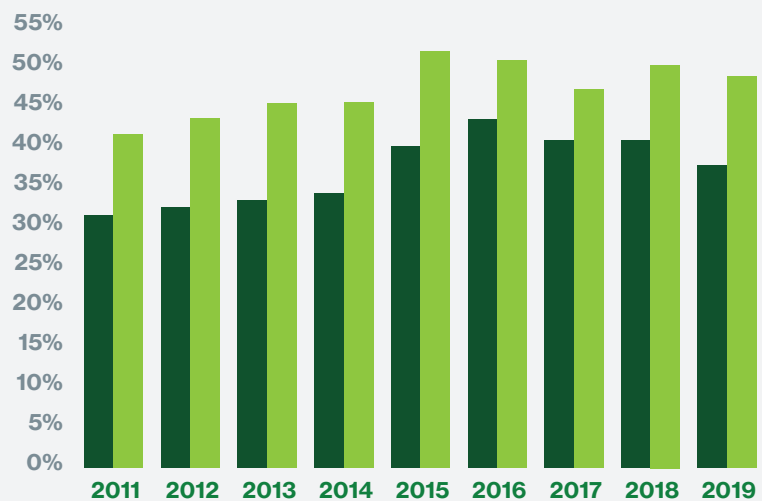
Many companies are also actively helping further expand this pool. Microsoft says it plans to provide digital skills to an additional one million Malaysians by the end of 2023. The company has also established the “MyDigital Alliance Leadership Council” to enable leaders from the public and private sectors and academia to collaborate on cloud-first and digital-native policy recommendations.³⁵ Petronas’ Wolff-Bye highlights the oil company’s talent development goals, including sponsoring the education of some 24,000 graduates by 2024, in its overall sustainability agenda. “We need great talent and new types of skills to drive these businesses and help deliver on our aspirations.”

As the buzz surrounding ESG gets stronger, jobseekers in sustainability-minded markets are also increasingly seeking out firms with goals and values that mirror their own. US infrastructure consultant AECOM says its “inward-facing” ESG activities helps it to attract talent. “Recruiting people for our industry is really, really challenging,” says AECOM’s Tang. “Our ESG and sustainability credentials serve as a means of

Figure 6: Tertiary education enrollment rates in Malaysia by gender, 2011 - 2019

From 2011 to 2019, women made up at least 40% of the total number of students enrolled in tertiary education.

■ Gross enrollment ratio, men
■ Gross enrollment ratio, women



Source: UNESCO, Institute for Statistics, 2022³⁶

differentiating ourselves, and a way to motivate and incentivize people.” For example, Tang says AECOM’s global “Time Bank” initiative allocates paid leave to employees for volunteer work in their preferred ESG causes. “We are trying to create social innovation: seeing how we could use our knowledge, planning, and engineering to serve our community.” He points to AECOM’s projects in Malaysia, which include building homes for indigenous communities. “A lot of initiatives like this reinforces the equity, diversity, and inclusion policy that runs throughout the veins of the company,” he adds. “This gives potential employees another factor in their decision-making process beyond salary or their career path – the opportunity to really do work that is meaningful.”

The greening of the valley

The ADB’s Carrasco points out the tradeoff between fast economic growth and more measured, sustainable, and inclusive development. Balancing these requires a country to address many issues at once, beginning with “the political will to create a clear vision that articulates how its economic and sustainability goals align, and meaningful stakeholder consultation around that vision to achieve societal buy-in,” he explains. “Political and economic stability is also needed, along with the fiscal headroom to prioritize sustainability projects. Finally, a country must build partnerships for coordinated development interventions to mobilize resources to support investment in SDGs.”

Kuala Lumpur is becoming something of a “sandbox” for such efforts, according to Tang. He describes several

projects aimed at balancing sustainable infrastructure development with natural resources. For example, AECOM is “working to develop the Klang Valley MRT (Mass Rapid Transit), which will transform Kuala Lumpur into an interconnected green metropolis; and the River of Life, which is transforming the inner heart of the capital into a livable and sustainable urban core,” he says. This latter project, launched by the government as an economic transformation program a decade ago, is a \$1.3 billion river cleaning, beautification, and urban rejuvenation effort led by AECOM. It involves 781 hectares of urban space and 63 hectares of water bodies. “These projects represent where Malaysia is going, and I see them replicated on a different scale all over the country as it becomes a high-income economy, which grows in harmony with its natural resources,” says Tang.

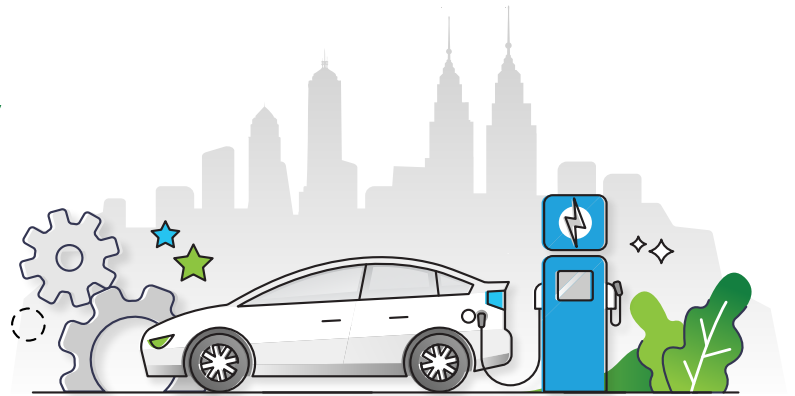
Such efforts are far from cosmetic – they are essential to a market’s economic prospects. The ADB’s Carrasco says that bringing climate change into the mainstream is becoming an important enabler of development. “When you build a road to provide rural communities access to their schools or primary healthcare, you want it to be able to sustain extreme weather events,” he explains. And this is true for integrating all aspects of ESG. “Climate change is a very present risk, making SDGs part of the solution to all the development challenges Asia faces. ESG guidelines allow us to recognize that there is that connectivity across all these goals, and if we can’t achieve that connectivity, we will most likely fail to attain the sustainability levels that the region needs for continued social and economic progress.”

“A country must build partnerships for coordinated development interventions to mobilize resources to support investment in sustainable development goals.”

Bruno Carrasco

Director General for Sustainable Development and Climate Change,
Asian Development Bank

06 Green mobility



In July 2011, the government began building the Klang Valley MRT system, which sought to reduce traffic congestion through increasing the share of public transportation in Kuala Lumpur from 18% in 2009 to 40% in 2020.³⁷ In the 11th Malaysia Plan in 2020, the government also introduced smart-city initiatives, including IoT-managed smart mobility infrastructure in Kuala Lumpur and other cities. It concurrently launched its Intelligent Transport System Blueprint, with data analytics central to the plan.³⁸

While Malaysia's plans to decarbonize transportation have long been on the cards, there has been little discernable impact to date relative to the efforts to reduce emissions in the industrial base (see Figure 7). As a result, attention is increasingly turning to electrifying the transportation grid. For starters, the GoKL City Bus, which is a free service, will become electrified by early 2023.³⁹ Malaysia's 2022 Budget included a proposal to completely exclude electric vehicles (EVs) from all import, excise, and road taxes, albeit for a limited time, and include income tax relief of up to MYR 2,500 (US\$ 570) for EV charging.⁴⁰ With these incentives, the government aims to make EVs 15% of total national vehicle sale volumes by 2030.⁴¹

A regional "green influencer"

Malaysia has 4,000 EV charging stations nationwide, according to a New Straits Times report from January 2022.⁴² This might not seem much for a country of about 32 million people, but there's an ambition to expand this by over 3,000% – the country's National Electric Mobility Blueprint has outlined a plan that aspires to have 125,000

Figure 7: Malaysia: carbon intensity in industry and road transport, 1990 - 2019

Malaysia's efforts to reduce emissions in the industrial sector have been relatively more successful than in road transportation.

Malaysia: carbon intensity (Grams of carbon dioxide equivalent per megajoule of energy)				
	1990	2000	2010	2019
Industry energy consumption	60.2	52.6	48.7	43.4
Road transport energy consumption	71.2	71.2	70.6	69.7

Source: Compiled by MIT Technology Review Insights based on data from the International Energy Agency, 2019⁴⁴

EV charging stations in service by 2030.⁴³ The current lack of EV charging infrastructure is seen as a hurdle for emissions-free mobility adoption by industry observers. "Our green mobility trial depends on two elements: firstly, increasing the number of electric cars on our hiring platform and, secondly, securing the charging infrastructure to support this expansion," says Max Myoung-hwan Choi, acting CEO of Socar Mobility

Malaysia, a joint venture between SK Holdings and car-sharing company Socar Korea. “The first thing is relatively easier than the second – thanks to government support, we can purchase up to 500 EVs in the next two years without any taxation,” says Choi. “But securing charging points is quite a struggle at the moment.”

Choi explains that Socar Malaysia currently has a fleet of over 2,500 hire cars across Malaysia, which can be rented for as little as an hour. In 2018, Socar chose Malaysia as the site of its first international expansion to achieve its goal of becoming Southeast Asia’s leading comprehensive mobility platform. “Malaysia is a good base to do this for several reasons,” Choi explains. “It has one of the world’s highest vehicle penetration levels, its transportation infrastructure is high quality, and it has a very open foreign investment environment – and is very encouraging of new mobility innovation investments.”

This is of particular interest to Socar as it experiments with its second business model: a peer-to-peer carsharing business called Trevo. This has been operating in Malaysia since early 2020, with over 5,000 user-owned cars shared by some 200,000 app users. “The Korean government still strictly regulates peer-to-peer carsharing, so there are not enough opportunities to trial new sustainable mobility models,”

Choi says. “The best country to do this has been Malaysia, and now we can enter other countries using the experience and [successful] track record and knowhow we’ve acquired here.” Socar launched its peer-to-peer business in Indonesia in late 2020, and Choi estimates that it has over 250,000 users sharing around 3,000 individual cars on their platform; the company is planning launches in Singapore, Thailand, and Vietnam soon.

Choi believes that Malaysia provides a unique innovation platform that his greentech company is well suited to exploit as it seeks to cultivate a digitally powered sustainability service market. “We are a culture-changing organization – that is our competitiveness and our value proposition,” he says. “We have already changed consumers’ minds about sharing cars instead of owning their own vehicles. Similarly, we can change consumers’ minds about EVs by providing affordable, convenient access to electric cars. And when this is achieved, we will change ecosystem players’ minds – carmakers, workshops, and insurers – to accept an EV-centered mobility model. Malaysia is an optimized place to make these changes, with a sustainability-minded business community and government that can build more EV-friendly parking lots, and more charging stations nationally.”

“Malaysia has one of the world’s highest vehicle penetration levels, its transportation infrastructure is high quality, and it has a very open foreign investment environment. It is very encouraging of new mobility innovation investments.”

Myoung-hwan Choi, Acting CEO, Socar Mobility Malaysia

07 Conclusion: Innovation, interoperability, and sustainability

The green aspirations of Greater Kuala Lumpur and Malaysia as a whole are increasingly aligned with the carbon-neutral goals of the industries and firms that have established their presence in the capital city. As this report has described, the growing synergy between the ESG goals of Malaysia – and Greater Kuala Lumpur – and their economic constituents is creating a virtuous cycle. Global businesses are not only finding support in policies to effectively contribute to emissions reduction and other sustainability targets, but they are also relying on the country and its capital city as a platform for transforming their overall green agenda.

This cannot be achieved without transparency and collaboration – the key to creating and maintaining a robust ecosystem of sustainability-minded organizations lies in the way that governments, corporations, and civil society collectively generate and share data on carbon-reducing activity, as well as ideas around innovative solutions and emerging best practices.

Countries that provide such an ecosystem, says AECOM's Tang, "allow us to position ourselves as a global employer, sensitive to the needs of society, and allow us to serve clients who clearly want to build projects that can lift the nation." He adds that Asia, as a whole, is "pretty rife with people that have the sustainability vision" and Malaysia, in particular, is an excellent place to combine those needs with the "reliability fundamentals: infrastructure, connectivity, roads, and power."

Global sustainability-oriented firms can achieve their ESG targets through their Greater Kuala Lumpur operations, and then extrapolate these successes to their global processes. Malaysia's role as a global sustainability hub is critical, as its economy uniquely straddles many industry sectors, including high technology and energy production, which are pivotal to shifting the world's development toward a low-carbon future.

But equally important is Malaysia's position as a platform for emerging sustainability businesses, such as Socar, to expand into one of the world's fastest-growing economic clusters. As Petronas' Wolff-Bye explains, "Southeast Asia is the beating heart of the world economy, with transformational industries and a rapidly growing middle class," which has created a civil society increasingly concerned about how to decouple its growth from environmental degradation and carbon-emission production. As a result, "there is nowhere else where there is so much momentum, so much will and so much focus on sustainability issues."

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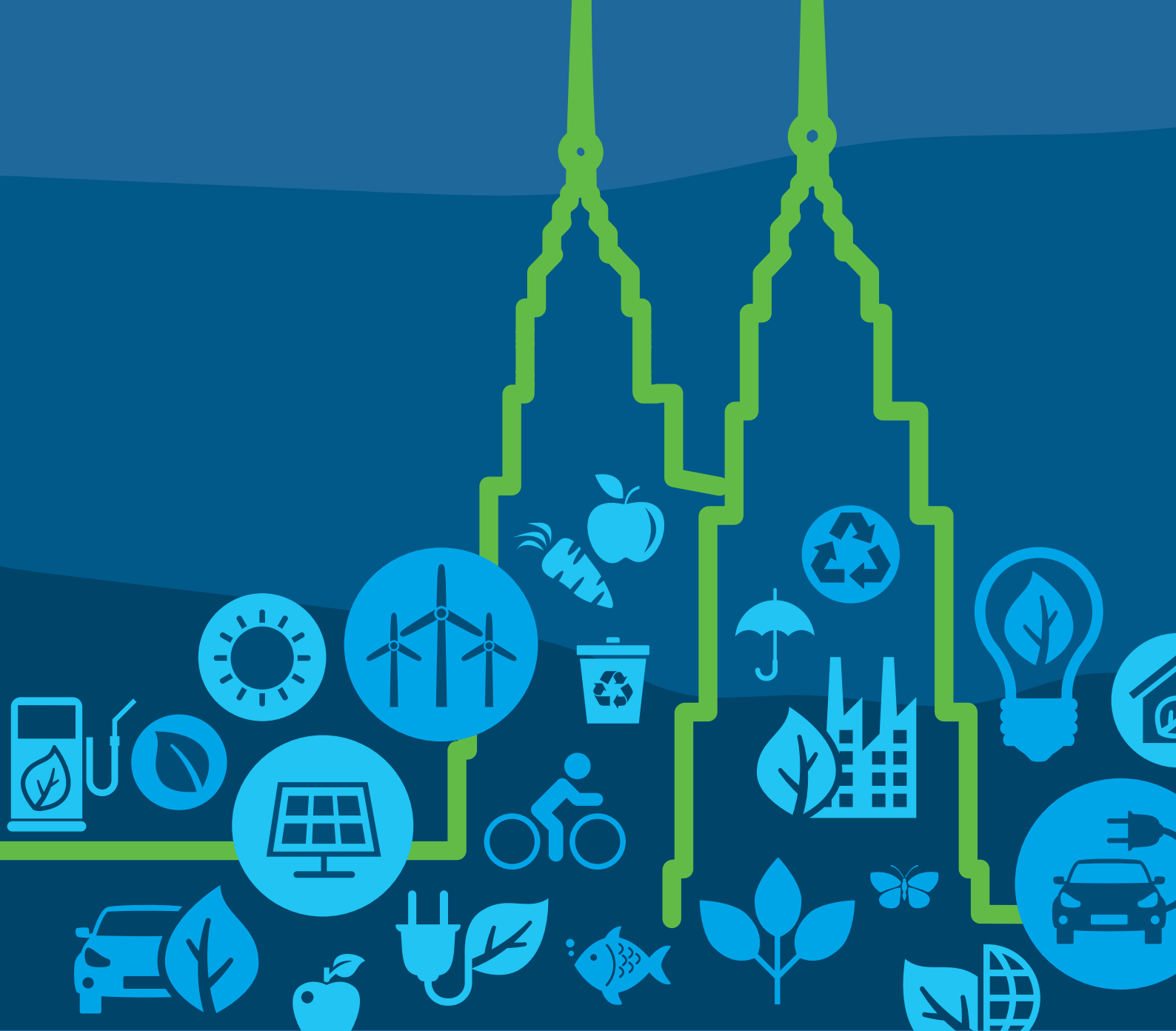


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