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The Paradox of Sustainability

A Critique of the Modern World's Approach to Sustainable Development

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COVER: Workers break down coal at a coal yard near a mine on November 23, 2021, in Sonbhadra, Uttar Pradesh, India (Ritesh Shukla/Getty Images).

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Summary

This paper analyzes the paradox of sustainability, which stems from the high expectations placed upon the environmental and economic progress of developed and developing nations. Focusing on the coal-powered electricity sector, which has underpinned most of the world's electrification, I examine the time it took for Western European countries and the United States of America to modernize and the time it will take for developing economies, like those in Southeast Asia and India, to modernize while pursuing a quest for sustainable development. I also attempt to propose potential solutions, including such means as renewable energy and multilateralism, to mitigate the challenges of achieving both modernization and sustainability through greater collaboration among countries. My focus is on how developing countries will need to concentrate on increasing their renewable energy production capability; I do not attempt to address other elements of the sustainability narrative, such as reducing pre-existing carbon emissions, environmental protection, reducing poverty and hunger, responsible consumerism, or the circular economy.

The Paradox of Sustainability

A Critique of the Modern World's Approach to Sustainable Development

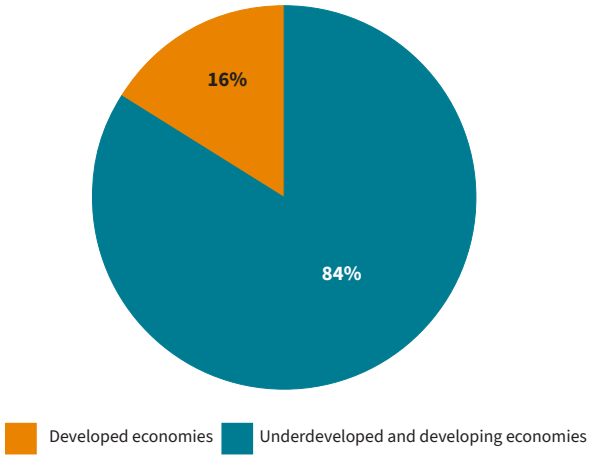
Life is not short of paradoxes. Living on Kalimantan, Indonesia's largest island and one with enough sub-bituminous coal to power most of the developing and, to some extent, the developed economies, frequent brownouts are part of everyday life. This conundrum exists because much of Indonesia's power generation capability that uses this fuel has been built in other parts of the nation, particularly the island of Java, where demand has been higher and economic development priorities are more front-and-center. This is, however, likely to change as Indonesia continues to develop and pushes—through more robust fiscal space creation (collection of tax and non-tax revenues) and monetary space creation (foreign direct investment, net trade surplus, borrowing, and quantitative easing)—for a more distributed development process.

If one were to ask a typical member of any developing economy (much less an underdeveloped economy) what matters most to them, the frank answer would likely be the need to put food on the table for their family. Whether or not the energy they use should be emitting less or zero carbon is almost beyond the frame of thinking of the citizenry of the developing and underdeveloped world. They could not care less about such concepts as energy transition or renewable energy, much less the attainment of carbon neutrality by the year 2050. The narrative of sustainability doggedly resonates with only the population of the developed economies, no more than 16 percent of the global population, and seems elitist and irreconcilable to the narrative of development, which resonates with the remaining 84 percent (see figure 1).

The concept of sustainability has become a central tenet of development policy in the twenty-first century as countries strive to balance economic growth with environmental protection. However, the paradox of sustainability arises from the relatively equally high expectations placed on both developed and developing economies to achieve sustainable development. While the Western or developed world has historically relied on fossil fuels to

power its economies and, in doing so, has contributed most of the carbon emissions since humanity first had a taste of industrialization of scale in the eighteenth century, developing countries remain in pursuit of a development narrative that will allow them to feed themselves, while under pressure to curb emissions and pursue low-carbon development trajectories.

FIGURE 1 Population ratio of developed economies versus developing and underdeveloped economies, 2022



Note: Country classification is based on income level: developed economies have a gross national income (GNI) per capita above US $13,205; developing and underdeveloped economies have a GNI per capita of US $13,205 or below.
Source: World Bank 2021a.

This paper will attempt to offer observations on and potential solutions to the developed world's approach to sustainability and the challenges faced by Indonesia and other developing countries in Southeast Asia to modernize[1] while being held to the sustainability objectives set by the developed world. Although this paper is largely about Southeast Asia, a reference or comparison to other developing countries of scale, such as India, is occasionally needed to underline the nature of such a large developing economy as Indonesia. My focus here is on how developing countries in Southeast Asia will need to concentrate on increasing their renewable energy production capability; I do not attempt to address other important elements of the sustainability narrative, such as reducing humanity's pre-existing carbon emissions, environmental protection, reducing poverty and hunger, responsible consumerism, and the circular economy.

The Paradox

The historical context of coal-powered electricity in the Western world began during the Industrial Revolution in the eighteenth century and marked a turning point in human history. Coal-powered electricity became the backbone of economic growth in the Western

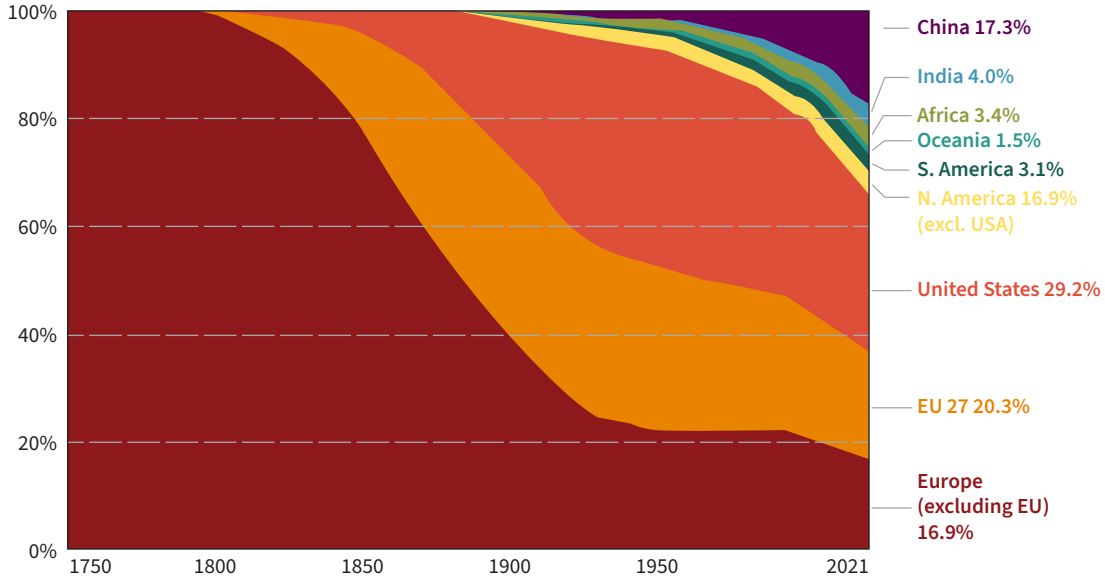
1 This paper recognizes that there are many metrics by which to measure a nation's modernity. It solely uses the term "modern" to distinguish between countries with different degrees of electrification and by no means suggests that people in developing countries are not modern by any other standard.

world, providing reliable and relatively cheap energy for burgeoning industries. The widespread use of coal-powered electricity fueled rapid industrialization and economic development in the United Kingdom, other Western European countries, and, later on, the United States. This growth allowed these countries to build robust economies and improve their citizens' quality of life. Nonetheless, the environmental consequences of this development became increasingly apparent in the twentieth century as concerns about climate change and air pollution grew.

As a result of the use of coal and other fossil-related sources of energy, around 1.7 trillion tons of carbon dioxide have been released into the atmosphere since the Industrial Revolution (see figures 2 and 3 for cumulative CO_2 by region and year). The concentration of carbon dioxide in the atmosphere has risen from 275 parts per million (ppm) in the year 1750 to 415 ppm in the year 2021 (United States Environmental Protection Agency 2022). Consequently, developed countries began transitioning away from coal-powered electricity into investing in renewable energy sources and promoting energy efficiency. Nonetheless, despite these efforts, the Western world's historical reliance on coal has left a lasting environmental legacy, with carbon emissions continuing to contribute to climate change.

The paradox facing developing economies like Indonesia and others in Southeast Asia is that, with rapidly growing populations and rising energy demand, they must find ways to provide reliable and affordable electricity to their citizens while minimizing their environmental impact, at a seemingly impossible economic cost. These countries need to essentially balance economic growth with environmental protection. This is even though Southeast Asia, as a region, has significantly underperformed with respect to China in the last 30 years in terms of GDP per capita (Southeast Asia's GDP per capita grew by 2.7x vs. China's by 10.1x over the last 30 years) and is strongly compelled to achieve a higher growth trajectory in the future (World Bank 2022b). As Southeast Asian countries attempt to catch up with developed countries, they are expected to meet stringent emissions reduction targets, often with limited financial and technological resources. Moreover, they face pressure to transition away from coal-powered electricity, even though coal remains the most affordable and abundant energy source for many developing countries.

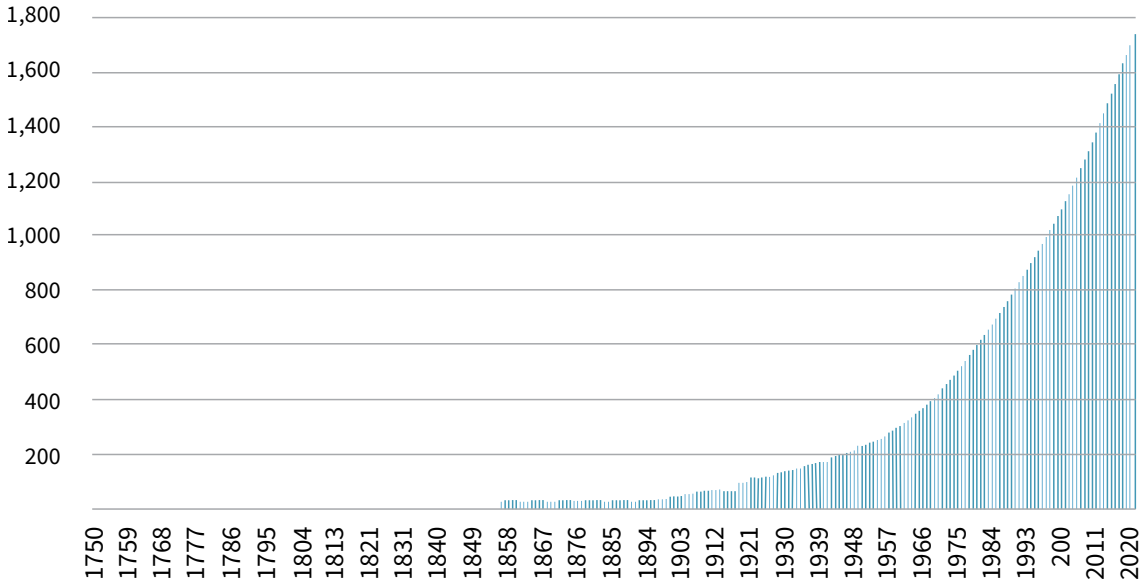
FIGURE 2 Cumulative CO_2 emissions by world region since the Industrial Revolution (1750)



Note: CO_2 emissions from fossil fuels and industry only; land use change is not included.

Source: Our World in Data 2023.

FIGURE 3 Cumulative CO_2 emissions (in billion tons), 1750–2020



Note: Cumulative emissions are the running sum of CO_2 emissions produced from fossil fuels and industry since 1750.

Source: Our World in Data 2023.

Electrification in Southeast Asia (and other developing economies)

The attainment of carbon neutrality in 26 years by the year 2050, as stipulated in the UN climate change summitry leading up to COP26 in Glasgow on November 13, 2021, and to COP28 in Dubai on November 30, 2023, is a narrative that is noble yet one that is difficult or impossible to be embraced by developing countries whose citizens' main concern is the ability to put food on the table. One way to parse the difficulty of attaining carbon neutrality by 2050 is to categorize nations by their degree of electrification. Electrification is a key metric in measuring a nation's development trajectory and, by extension, its modernity.

Many developing countries like India and Indonesia (and most others in Southeast Asia and Africa) are electrified only to the extent of around 1,000 kWh (kilowatt hour) per capita or less, as seen in figure 4 (World Bank 2019). By comparison, most developed or modern countries in the world are electrified at a rate higher than 6,000 kWh per capita. For illustrative purposes, the developed economies of Singapore and the United States of America are each electrified between around 8,845–12,994 kWh per capita (World Bank 2019).[2]

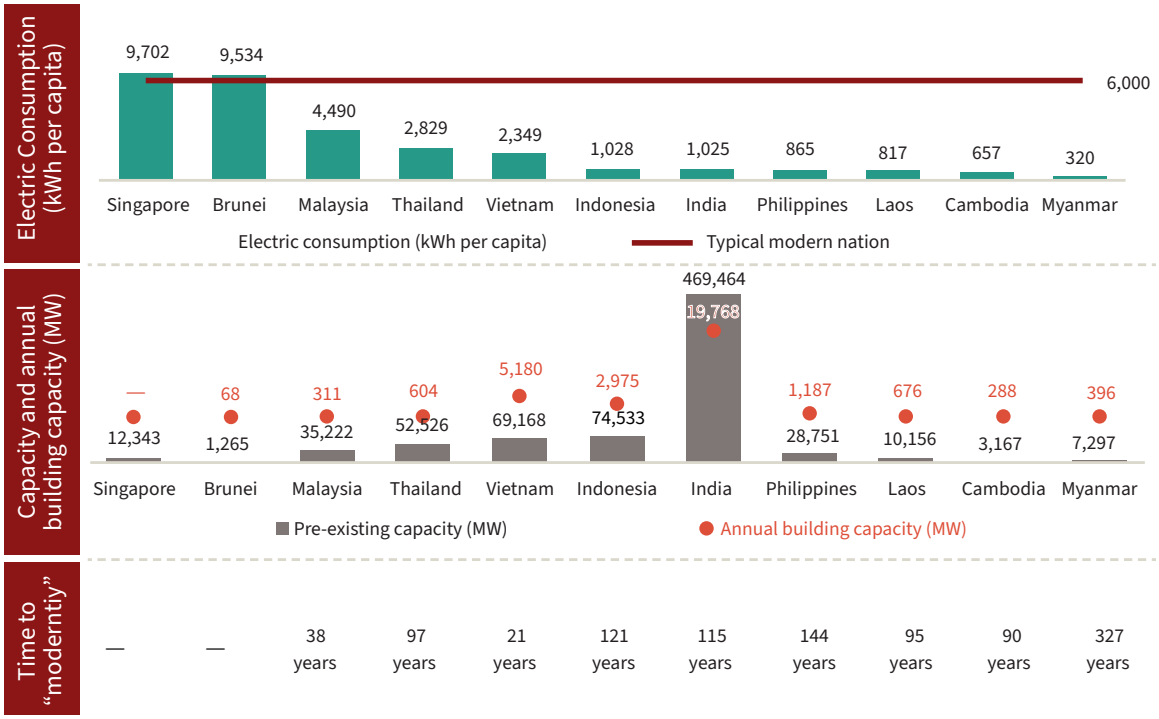
The 2021 power generation capabilities of India and Indonesia were around 469,000 megawatts (MW) and 74,000 MW; as seen in figure 4, each has the annual capability to build and increase 19,000 MW and 3,000 MW, respectively (Global Economy 2021). For India and Indonesia to increase electrification from 1,000 kWh to 6,000 kWh per capita, they would need to increase their power generation capabilities to over 2.5 million MW and 400,000 MW, respectively. At the constant annual rate they have been building power generation capabilities, it would take India and Indonesia 115 years and 121 years, respectively, to attain modernity as defined by electrification per capita of at least 6,000 kWh. As shown in the bottom row of figure 4, the other countries in Southeast Asia[3] would need between 21 and 327 years to reach electrification of 6,000 kwh per capita; most need much longer than the 26 years remaining to attain carbon neutrality by the year 2050.

2 This threshold definition for modernity at 6,000 kWh per capita strictly refers to the pre-existing electrification on a per capita basis in most developed or modern countries. Some multilateral institutions define the threshold at 1,000 kWh per capita. Admittedly, the evidence of the degree of modernity in a 10,000 kWh country is starkly different from that in a 1,000 kWh country. In essence, countries like India and Indonesia would need to increase their respective power generation capabilities or electrification per capita by 5 to 6 times to be considered modern.

3 Excluding Singapore and Brunei, which are already electrified at more than 6,000 kWh per capita.

The seemingly irreconcilable nature between the need for modernization or development and the narrative of sustainability is dauntingly inescapable for most Southeast Asian and other developing economies around the world. This wedge also serves as a paradox that the global community must be sensitive to when crafting the most realistically acceptable remedy and balance between scalability and environmental friendliness—without jeopardizing the developing economies' development narrative.

FIGURE 4 Electrification, annual building capabilities, and time to attain modernity of Southeast Asian countries and India



Note: Average annual building capacity is the average of annual increase in installed capacity over the past 5 years, from 2017 until 2022; "modernity" equals electrification at 6,000 kWh per capita.
Sources: IMF 2024; Global Economy 2021; World Bank 2021b; World Bank n.d.

Renewable Energy in Southeast Asia

Renewable energy still represents a relatively small percentage of total power generation capability in Southeast Asia (with the exception of Vietnam, Myanmar, Cambodia, and Laos), as shown in figure 5. The main reasons for the relatively low percentages of renewable energy sources in most Southeast Asian countries are:

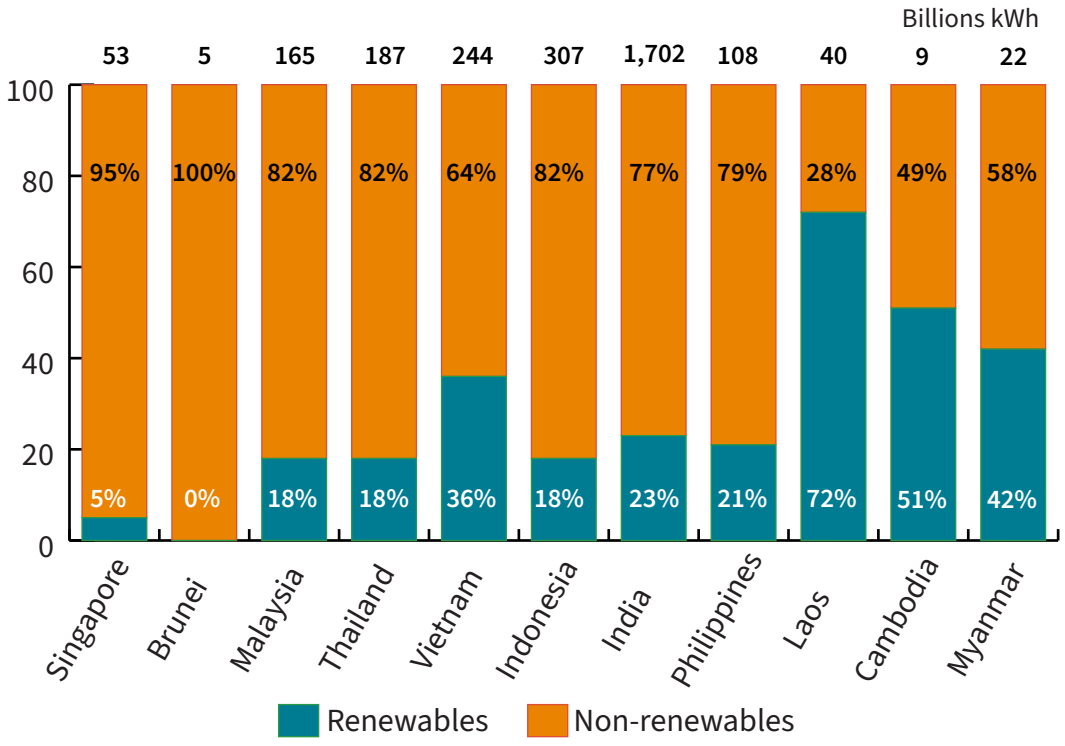
(1) the pre-existing use of liquid natural gas (LNG), a relatively environmentally friendly fuel, such as in Singapore;

(2) the abundant supply of fossil fuel, such as in Brunei;

(3) the relatively exorbitant cost of developing renewable energy-based power generation capabilities;

(4) the lack of purchasing power at both the wholesale and retail or individual levels for renewable energy.

FIGURE 5 Power generation capabilities across Southeast Asia, renewables vs non-renewables (in billions kWh), 2022



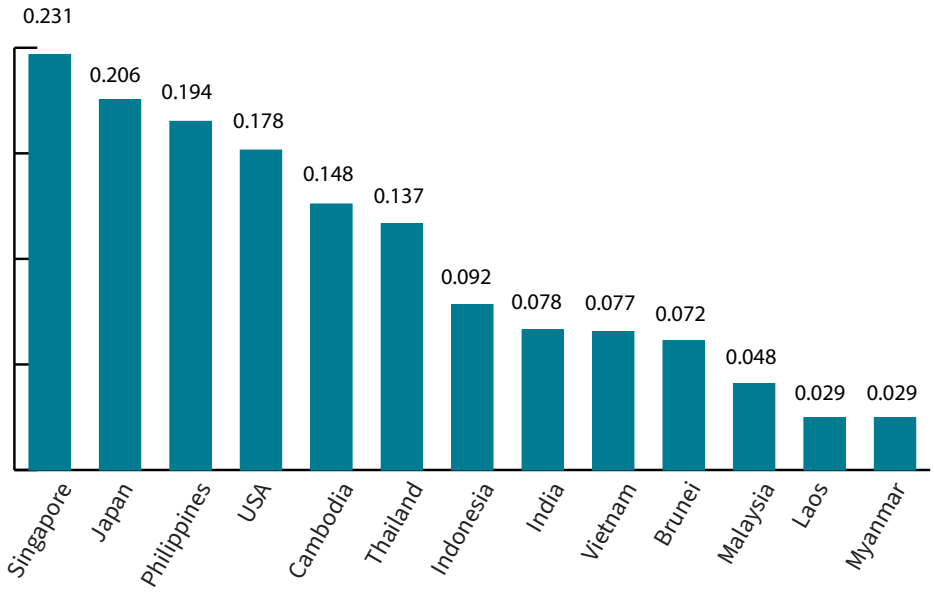
Source: IEA 2022 (aggregated data).

For the development of renewable power generation capabilities to be economically viable, the costs need to be recoverable by charging at least US $0.15 cents per kWh. As figure 6 shows, this is currently unaffordable for most Southeast Asians, never mind those in under-developed countries. An optimal intersection between the provision of renewable energy and an increase in purchasing power can only be attained if continuous technological inno-

vation helps decrease the cost of developing renewable energy sources and if Southeast Asia experiences a robust economic growth trajectory that augments its purchasing power.

It is reasonable to expect that Singapore and Brunei, with their significant economic wealth, will be able to pursue a more robust renewable energy strategy in the future. Excluding again those two countries, the other Southeast Asian countries all have a GDP per capita of US $11,000 or less.[4] Until and unless these Southeast Asian countries break through the upper threshold of a typical middle-income economy with a GDP per capita of at least $12,000, they are structurally limited in terms of their ability to follow a robust renewable energy development narrative.

FIGURE 6 Electricity prices for households as of March 2023 (in US$ per kwh)



Source: GlobalPetrolPrices 2023.

Spreading Sustainability: The Demand Side

One way to try to contemplate remedying this highly perplexing challenge of getting humanity to attain carbon neutrality is to first look at the demand side of the energy equation. Both the architecture and engineering of humanity toward a behavioral choice furthering the demand for environmental friendliness and protection are less complex than what needs to be done on the supply side. The demand side is simpler, except with one critical

4 The GDP per capita of Singapore and Brunei is around US $72,000 and $31,000, respectively.

catch: behavioral changes are only easy if there are alternatives that do not disrupt people's current lifestyles and economics. Zero-carbon-emitting alternatives that disrupt lifestyles will generally not be successful.

From an economic standpoint, asking someone to switch from an internal combustion vehicle to an electric one is a matter of whether the new option is economically sound in the short and the long run. Similarly, asking someone to walk to work instead of using a carbon-emitting motorcycle, automobile, or public transportation vehicle is likely to be a function of economic efficiency (the distance to the workplace and the extent of opportunity loss should walking be pursued) more than lifestyle. To the extent that there are affordable renewable energy alternatives, the alignment between behavioral choice with attainment of carbon neutrality is more likely to be warranted.

From a lifestyle standpoint, changing one's behavior from a carbon-emitting lifestyle may seem difficult in the short run, given that most of the world population seems cavalier about climate change. One simple and admittedly crude way to understand this is to look at Instagram popularity. Greta Thunberg, perhaps the best-known environmental activist among youth on social platforms, has 15 million followers. This number, though huge, is dwarfed by someone like Kylie Jenner with 399 million followers. Jenner's lifestyle—fashion, travel, makeup—clearly emits a lot of carbon. At the moment, most elements of humanity's lifestyle are still produced or procured more efficiently using non-renewable energy sources. Influences like Jenner are simply a mirror of the world's current aspirations.

It is also clear, based on the latest report by Wood Mackenzie that the long-term demand for fossil fuels is not likely to decline. Notwithstanding an encouragingly continuous decline in demand for fossil from the automotive sector thanks to the robust increase in the manufacture and consumption of electric vehicles,[5] demand is still likely to increase in the aviation and petrochemical sectors. The weight of electric batteries means that electrifying the aviation sector will be extremely difficult; the petrochemicals sector will likely see increased demand because most of the components in any transportation mode, electric or otherwise, are correlated with the production of petrochemical products (Wood Mackenzie, n.d.).

5 The share of electric cars in total global car sales increased from 9 percent in 2021 to 14 percent in 2022 (IEA 2023).

Spreading Sustainability: The Supply Side

The challenges facing the supply side of the energy equation are both technological and economic. From a technological standpoint, innovations have and will continue to help the planet decarbonize, including solar photovoltaic (PV) cells, hydro, nuclear, geothermal, and wind, etc. Such technological innovations have not only brought about scalability but also increased economic efficiency in terms of cost per unit produced. Aside from nuclear energy, Southeast Asia has only had sporadic exposure to these renewable energy sources.

While the availability of resources and technological innovation drive the geographic distribution of such renewable energy sources in Southeast Asia, economic factors play an even larger role. Southeast Asia's dogged use of sub-bituminous coal can be attributed to its abundant supply (and naturally its low cost) and the relatively low cost of development of coal-fired power generation capability. This has made it possible for most countries in Southeast Asia to electrify themselves at an affordable rate of US $0.05–.07 per kWh, a range that entails economic efficiency both for the end users and producers.

TABLE 1 Capital cost comparison of renewable and conventional energies

Type	USD per kW
Renewable energy	
Solar PV—rooftop residential	$2,230–$4,150
Solar PV—community and commercial/industrial	$1,200–$2,850
Solar PV—utility-scale	$700–$1,400
Geothermal	$4,705–$6,075
Wind—Onshore	$1,375–$2250
Wind—Offshore	$3,000–$5,000
Conventional energy	
Gas peaking	$700–$1150
Nuclear	$8,475–$13,925
Coal	$3,200–$6,675
Gas combined cycle	$650–$1,300

Source: Lazard 2023.

At the rate that most Southeast Asian countries are electrified (less than 6,000 kWh per capita), what is imperative is a renewable energy development initiative that is both scalable and economically efficient. Table 1 represents varying capital costs required to develop power generation capabilities using different sources of renewable energy. It is evident that while some cost at or below US $2,000 per kW, others like geothermal, nuclear, and coal are still significantly higher. Note that in table 2 the relatively high cost of development for coal is for new power generation capabilities that use coal with a high calorific value (unlike the sub-bituminous coal used in many developing countries). Such technologies are more environmentally friendly and, as a consequence, more expensive.

Based on their respective pre-existing power generation capabilities, per capita electrification, and their goal of attaining electrification of 6,000 kWh on a per capita basis (except for Singapore and Brunei, which are already electrified beyond this), these Southeast Asian countries (Malaysia, Thailand, Vietnam, Indonesia, Philippines, Laos, Cambodia, and Myanmar) will need to build more than 900,000 MW of additional power generation capabilities (for example, at 1,028 kWh per capita, Indonesia will need to increase its power generation capability from 74,533 MW to around 435,000 MW in order to attain electrification of 6,000 kWh per capita). At a cost of around $2,000 per kW, these Southeast Asian countries will need more than $1.8 trillion for purposes of building out the remaining 900,000 MW of power generation capabilities using renewable energy.

This is a Herculean task for several reasons. First, as shown in table 2, the relevant Southeast Asian countries do not have robust fiscal spaces due to their relatively low tax ratios (ratio of tax revenues to GDP); these range from the lowest level, Brunei, at 2.1 percent, to the highest level, Cambodia, at 16.3 percent (World Bank 2022c). These tax ratios compare unfavorably to the typical Organization for Economic Cooperation and Development (OECD) country, with a tax ratio of 33 percent.

Second, the availability of the monetary supply, or liquidity, is essential to any economy and its development initiatives. The degree of monetary supply availability is attributable to various factors, including how much the country borrows, how well the country attracts FDI, and the extent to which the government undertakes quantitative easing (simply put, money printing). The money supply to GDP ratios of these Southeast Asian countries, shown in table 2, are below 150% (Indonesia at 46%, Myanmar at 66%, Laos at 67%, Philippines a 91%, Thailand at 123%, Cambodia at 129%, Malaysia at 140%, and Vietnam at 148%) and still

compare unfavorably to that of a typical developed economy at more than 200% (Trading Economics 2023).

Third, the ability of all Southeast Asian countries, except for Singapore, to attract foreign direct investment (FDI) has been at a rate of around US $100 billion per year, or at a per capita per year rate of between $90 (Philippines) and $409 (Malaysia) (World Bank 2022a). This compares unfavorably to Singapore, which has been able to attract FDI of more than $100 billion per year (or more than $19,000 per capita per year) (Statista 2022). Because only a small fraction of FDI inflows is deployed for the purpose of developing power generation capabilities, renewable energy development initiatives in these Southeast Asian countries are inevitably very difficult to achieve. Fourth, the purchasing power in many Southeast Asian countries is still limited to the extent of being able to purchase electricity at a rate of around $0.05 to $0.07 per kWh. It will still take many years for this purchasing power level to increase to around $0.15 per kWh, which is likely to be the point of economic efficiency for purposes of developing these additional power generation capabilities using renewable energy.

TABLE 2 Tax ratios, money supply, and foreign direct investment, Southeast Asia and China

Country	Tax Ratios (% of GDP)	2021 M2 to GDP (%)	FDI (US$bn)	FDI per Capita (US$)
China	12.3%	212%	181.0	128
Singapore	15.4%	211%	105.5	19,338
Indonesia	9.1%	46%	31.6	116
Vietnam	12.9%	148%	19.7	203
Thailand	13.3%	123%	19.4	278
Malaysia	11.4%	140%	13.3	409
Philippines	14.0%	91%	9.9	90
Cambodia	16.3%	129%	4.4	260
Laos	10.0%	67%	1.1	147
Brunei	2.1%	85%	0.2	468
Myanmar	4.5%	66%	—	—

Note: M2 is a measure of the money supply that includes currency in circulation, checking accounts, savings accounts, and more.

Source: World Bank 2022b; CEIC 2023a, 2023b (aggregated).

The Way Forward: The Role of Developed Countries

Clearly, developed countries like the United States of America, other G-7 countries, and China possess the technological capabilities and tremendous economic wherewithal (by way of much more robust fiscal and monetary spaces) to not only fulfill renewable energy development objectives for themselves but even for other regions, like Southeast Asia. Long periods of economic prosperity and quantitative easing among many of these developed economies have helped in creating more than $100 trillion of liquidity, a commodity needed to make dreams come true in many developing and underdeveloped economies.

New pathways need to be explored and developed to help incentivize developed economies to channel these funds into accelerating the clean energy transition in developing economies. One reason for encouraging increased funding need and utility from developed economies to developing economies for such a purpose, as per studies by the International Energy Agency, is that 35 percent of the emissions reductions that will occur in emerging markets and developing economies over the next decade would have negative abatement costs. Simply put, that means emissions will be reduced while at the same time saving money. These negative abatement costs, or higher emissions reduction for every dollar spent in developing economies than in developed economies, are usually attributable to the use of many new efficient technologies that replace highly inefficient pre-existing technologies in developing economies (IEA 2021).

Nonetheless, developed economies remain reluctant to pursue clean energy investment opportunities in developing economies despite their public commitments to funding and technologically supporting emission-reduction and energy transition goals for these economies. For example, at COP28 in Dubai, the UN took stock of its progress in meeting the objectives of the Paris Climate Agreement. This review highlighted a massive gap between the funding currently provided by donor countries (around $100 billion annually) and the more than $2.4 trillion that would be required annually to meet current climate transition goals by 2030 (Kaplan 2023).

One thing is very clear from this discussion: the developed economies must accept that it is nearly impossible for the majority of developing economies—such as those in Southeast Asia—to achieve the target of carbon neutrality by 2050. Given their enormous resources, the developed economies are in every position to continue innovating both technologically and economically to help lower the cost of the development of renewable energy capability; they also need to improve more judicious means of funneling funds to developing econo-

mies that can show measurability, transparency, and accountability, along with demonstrating that the investments have had an impact in the quest for carbon neutrality.

The Way Forward: The Role of Developing Countries

Given the role played by the developed economies in getting the world into this environmental predicament, compounded by their apparent lack of technological and economic support for the developing economies thus far, it would be understandable if the developing economies did not do much more than to point the finger at the culprit. But this would not be a constructive approach.

Instead, a better framing of the future for developing economies such as those in Southeast Asia would be to consider undertaking a number of key building blocks. The first is education. As clearly evidenced at both the tertiary (global university ranking) and non-tertiary (PISA ranking, a measurement of lingual and STEM proficiencies for 15-year-olds) levels, most countries in Southeast Asia (except for Singapore and Vietnam) are lagging behind others in the Asia-Pacific in literacy and numeracy skills, much less the developed economies. Underinvestment in education has been one of the key reasons why Southeast Asia's economies have underperformed with respect to China's in the last 30 years. A proactively higher and targeted investment in education would not only assist the economic performance of these economies, but also mean the citizens of these nations would become better informed about the unintended consequences of detrimental environmental practices.

Southeast Asia also requires a more robust political culture that promotes a more optimal intersection between talent and power. Southeast Asia's varying political systems, ethnicities, cultures, historical legacies, and languages may have made the region seemingly less cohesive than it could be. Yet, notwithstanding these differences, the argument can be made that Southeast Asia has been and is likely to be one of the most peaceful and stable regions in the world. However, in recent years, we have witnessed the global trend of governance and leadership positions being filled based on loyalty, patronage, or around sensationalized narratives of particular issues, rather than choosing individuals based on common sense and meritocracy. This widespread practice has eroded capacity and institutional building, and prospects for meaningful regional and global collaboration. The challenge for developing countries in Southeast Asia is to not only take stock of how the post-truth era is filled with all kinds of information asymmetry but also to infuse a political culture in their households and their professional, social, public, and political institutions so that society will

better follow a trajectory filled with a more optimal intersection between talent and power. Such intersection will likely help the developing countries in Southeast Asia in emulating a robust economic trajectory as that of Singapore, which has consistently and doggedly proven to herself and the world that competence, integrity, and accountability matter for sustained economic prosperity.

Aside from a proactive investment in education that will help in increasing awareness and comprehension about what to do with climate change and a more robust meritocratic culture that promotes a more optimal intersection between talent and power, the developing countries in Southeast Asia must seriously assess ways to increase their funding capabilities (fiscal space, monetary space, and ability to attract capital formation or FDI from the global community) in order to accelerate the execution of their renewable energy development objectives. Governance, leadership, collaboration, bilateralization, plurilateralization, and multilateralization will be essential to ensuring that developing countries in Southeast Asia receive the necessary funding to increase their electrification using renewable energy by 929,721 MW (at approximately a cost of US $1.8 trillion, or $2,000 per kW for development purposes). On a greater scale, the planet will need to replenish the pre-existing hydrocarbon capability and increase the current electrification of around 7 terawatts to around 16 to 20 terawatts—this would require, at a cost of $2,000 per kW for development purposes, additional funding of $18 to $26 trillion. While this might appear to be a near-impossible task for both Southeast Asia and the world, the funding requirement is doable given that the global community is flushed with a liquidity of more than $100 trillion that has, to some extent, been invested in asset classes that are not productive and do not fully correlate with the long-term interests of the planet.

With a higher ability to cultivate, promote, and project competence, integrity, and accountability, developing countries around the world are likely to more effectively position themselves on the global stage to bridge or fulfill the funding gap for the successful development of their renewable energy initiatives. As challenging and paradoxical as the narrative of sustainability may seem, it is imperative that we try to change from a high to low time preference (from instant to deferred gratification), from linear toward circular economies, from individual to the common good, and move beyond defeatism toward optimism.

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