FUJITSU

How Asia is destined to play a key role in building a more sustainable world

Series 1

The global discussion to realize a fossil-fuel-free world keeps a watchful eye on Asian countries

In October 2021, Fujitsu unveiled a new global business brand called "Fujitsu Uvance." The new brand aims to leverage Fujitsu's technological capabilities and problem-solving expertise to offer greater value to customers, and to enable the company to achieve its ultimate purpose, which is to make the world more sustainable by building trust in society through innovation.
The word "Uvance" embodies a concept of making all (Universal) things move forward (Advance) in a sustainable direction. It demonstrates Fujitsu's determination of "building new possibilities by connecting people, technology and ideas, creating a more sustainable world where anyone can advance their dreams. "

Under the new brand, the company is coordinating its business strategies to mitigate and adapt to climate change on a global scale.
CO_2 emissions have the greatest impact on climate change, and about half of them currently originate in Asia. As such, the region is inevitably destined to play an important role in addressing the issue of climate change.
So how can Asian countries and companies work together to reduce CO_2 emissions? This article from The Economist Newspaper, a leading source of global political and economic news, takes an in-depth look at the issues involved.

The Economist

The Asian century's emissions

How Asia is crucial in the battle against climate change

Whether the climate can ever be stabilized depends largely on Asia

Mihir, a 25-year-old who lives near the Indian city of Durgapur, has big plans. They all depend on coal. Every day, he rides his bicycle around collieries and depots gathering sacks of coal slipped to him by conniving workers or security guards. Once he has stacked the bike with as much as it can carry he pedals off to a brickworks or a small forge and sells all ten or 11 sacks. After the necessary bribes and kickbacks have been paid, Mihir makes enough not only to keep him, his mother and sister clothed and

fed, but also to save for a motorbike. That will allow him to double the scale of his operation, which should provide enough money to build a second storey on the family's tiny house. When that is done he will be able to propose to his sweetheart.

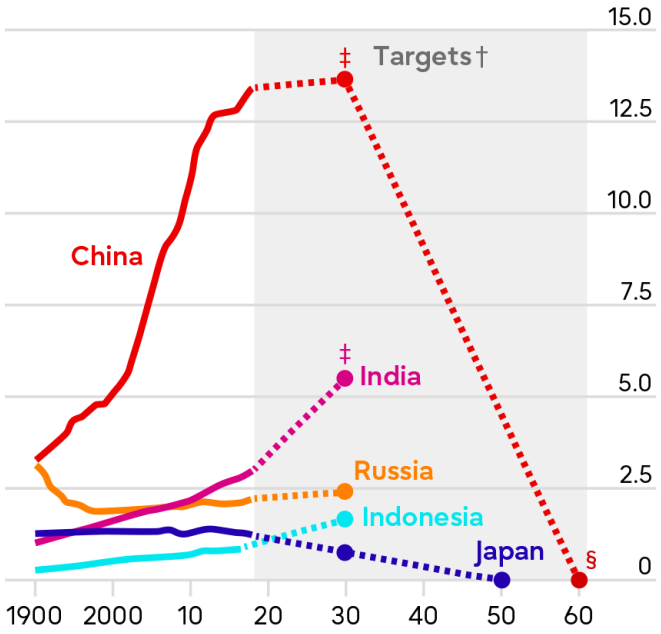
Durgapur's coal deposits first came to commercial attention in the 1770s, the decade in which James Watt revolutionised the steam engine. In the 19th century, developed in part by the grandfather of Rabindranath Tagore, India's most famous poet, they provided the fuel for the subcontinent's growing railway network and its steamships. After independence Jawaharlal Nehru, India's first prime minister, ordered a huge steel mill to be built in the city to make use of them.

Even now nobody in Durgapur can imagine life without coal. Few have heard of climate change. Those who have assume that it is someone else's problem. To Mihir, the very idea that the government might one day impose restrictions on coal is absurd. "Why on earth would they do that?" he asks. After all, the racket in which he plays the tiniest of parts is a big source of funds for political parties, he says. Very important people have a big stake in keeping it going. According to the Central Bureau of Investigation, a national law-enforcement agency, they include the government of West Bengal state. Bijan, a former maintenance worker at a mine in Durgapur who is now an environmental activist, sighs, "It is difficult to understand how coal-mining can be reduced, let alone stopped. You need a complete paradigm shift for that."

Asia (including Australia) produces and consumes three-quarters of the world's coal. Roughly half of China's electricity comes from it. For India the figure is three-quarters. Of the 1,002 coal-fired plants planned or under construction around the world, fully 865 are in Asia and the Pacific, according to Global Energy Monitor, a watchdog group. Asia also produces most of the world's cement and steel, activities which release copious quantities of greenhouse gases. And as its people get richer, they buy more cars and take more flights.

Heights to fear

Greenhouse-gas emissions* Gigatonnes of CO_2 equivalent



* Excluding forestry and other land use, except net-zero targets which include emissions removals from these sources

† When targets is a range, central estimate is shown

‡ Multiple targets

§ Unclear if this targets CO_2 or all greenhouse gases

Source : Climate Action Tracker

In 1990 the Asia-Pacific region's burning of fossil fuels produced six gigatonnes of CO_2, according to the iea, representing about a quarter of the world total. In 2020 Asia emitted 16.5Gt, or 49%. The iea reckons that under national governments' stated climate policies the total will grow by about 9% by 2030 before falling back to 95% of today's level in 2050. That is a larger climb than in the rest of the world bar Africa, and a smaller long-term cut.

Asian governments, like those elsewhere, have pledged to do better. In 2020, with the world watching, Xi Jinping, China's president, told the un general assembly that his country's ndc for Glasgow would commit it to net-zero emissions by 2060. Japan and South Korea, perhaps embarrassed to be beaten to the punch by China, both promised shortly afterwards to reach net-zero by 2050. Poorer countries are getting in on the act, too. Indonesia has matched China's pledge. The Maldives, a strong proponent of "one point five to stay alive", has offered to reach net-zero by 2030, which is quicker than most rich countries.

In theory such cuts are perfectly plausible for Asia, just as they are elsewhere. Chinese and Indian academics and activists have sketched out plans to bring emissions in those countries down to zero over 40 or 50 years. In late 2020, for example, 19 Chinese research institutes published a potential path to eliminating their country's net emissions completely by 2060. It foresees power generation being emission-free by 2050, with renewables and nuclear plants supplanting coal and gas. After that, negative emissions, provided in this case by power stations burning new-grown biomass and sequestering the CO_2 produced underground, as well as a reforestation scheme, would offset residual emissions.

Lauri Myllyvirta of the Centre for Research on Energy and Clean Air, an independent research group, calculates that, to stick to the Chinese academics' plan, China would need to build four times the 770 gigawatts (gw) of solar capacity that the world can muster today and three times the world's current 743gw of wind power. But that is not inconceivable; massive investment is something that China does. For renewables, what is needed is less than a doubling of the current rate of deployment, undertaken when costs are low and still falling. For nuclear it would be more than a doubling of what is already the world's fastest expansion, though the trend in costs is not so encouraging. But given how many other industries have ballooned in China, and that the country has assured access to many of the strategic minerals required, it is not so far-fetched.

Similar paths can be mapped for India, though the country has yet to set a net-zero target or commit to a point at which it expects emissions to peak. Earlier this year Montek Singh Ahluwalia, a retired Indian civil servant, published a plan to eliminate emissions by 2070. It concluded that a $15 per tonne carbon tax would be sufficient to stop the use of coal for power generation by 2060. Mr Myllyvirta argues that, although investment in renewables would have to expand dramatically, as in China, this is not impossible. India built six times more renewable generation capacity from 2016 to 2020 than from 2011 to 2015. If renewable installations grow as fast over the next five years, they will reach the sort of annual additions needed to displace coal, Mr Myllyvirta says.

There are two problems with this. One is that even these remarkable ambitions will not produce a trajectory which meets the Paris goals. In a global-net-zero-emissions-by-2070 scenario, which the iea says should keep warming below 2°C, Asian emissions in 2050 need to be a fifth of those now predicted on the basis of current policies, and a third of those predicted on the basis of announced pledges. Even with net-zero pledges from most big Asian economies bar India, a serious shortfall remains.

Between cup and lip

The second is that technical feasibility is not the same as political palatability. There is little popular

pressure on Asian governments to act, even when it seems in their clear interest. Earlier this year, when a ferocious storm struck Zhengzhou, a city in central China, causing severe flooding, there was almost no commentary among Chinese netizens about the link to global warming—this despite the city's much-ballyhooed retrofitting to absorb more rainwater on the assumption that climate change meant more severe storms. Whether the muted reaction was because censors deterred such talk or because people simply did not make the connection is hard to say. Either way, the government does not face a clamour to do more to cut emissions—though that could change.

In Asia's democracies, too, climate change is not so far a big part of political debate. Even though Bangladesh is one of the countries most obviously and dangerously exposed to rising sea levels and worse storms, ordinary Bangladeshis assume that averting catastrophic climate change is the responsibility of people far away, notes Saleemul Huq of the International Centre for Climate and Development, an ngo. Farmers and fishermen know that climate change is harmful, he says, and would like their government's help, but they are unlikely to see a link with the construction of new power plants.

The state of West Bengal, where Durgapur is to be found, lies just across the border with Bangladesh and is as vulnerable to storms and rising seas. Yet a fiercely fought election earlier this year barely featured climate change. Even more than in rich countries, elections in poorer ones hinge not on policy pledges, but on the size of the competing bungs that candidates promise to voters.

When Asian governments do promise policy change, they often lack the administrative capacity to enforce it. The conversion of virgin jungle and peat forest to palm-oil plantations, a big source of emissions in Indonesia, has been banned since 2011. In 2019 Greenpeace, an environmental group, claimed that deforestation had actually accelerated since the ban. In federal countries such as India, states are not even theoretically obliged to follow many edicts from the centre.

Resistance to change largely reflects vested interests. The miners of Durgapur are among 700,000 Indians whose job is wresting coal from the ground. But the seam of jobs and profits derived from coal goes far deeper. Many of the country's coal-fired power plants are privately owned. They sell power to the grid under lucrative take-or-pay contracts. The railways earn almost half their freight revenue by hauling coal around. That income, in turn, subsidises the 8bn or so passenger trips taken each year. The railways are state-owned, as are many mines. And the coal industry is concentrated in a few relatively poor states, which would suffer disproportionately from any attempts to stifle it. So legions of workers, investors, politicians, bureaucrats and even rail passengers can be counted on to lobby for coal. Similar stories can be told of logging in Indonesia, cement-making in China and other emissions-belching industries around Asia.

Yet there are also countervailing forces. In many cases, the most pressing reason for pushing back against polluting industries is not climate, but clean air. Although CO_2 is the most important product of fossil-fuel and biomass burning in climate terms, more tangible pollutants such as soot and sulphate particles do more immediate damage to health, costing millions of lives. Indonesia wants to stop deforestation partly because the fires that are used to clear land for palm plantations shroud the country in acrid smoke for half the year, upsetting urbanites and infuriating neighbouring countries. Air pollution riles city-dwellers in India, which has some of the dirtiest cities in the world, and China, where it has prompted the closure of a number of coal-fired power plants in urban areas.

Asian greens

Asian leaders are now vying to burnish their reputations with greenery. Sheikh Hasina, prime minister of Bangladesh, has become a

spokeswoman for poor countries at risk from climate change (a stateswomanlike stance helps deflect foreign criticism of her autocratic nature). Nor was it by chance that Mr Xi's ndc announcement at the un came when America had made no comparable commitment. Appearing resolute on climate change allows China to show up its rival and assert the superiority of its political and economic system.

Cutting domestic CO_2 emissions also fits with Chinese leaders' plans for their economy. For 15 years policymakers have been trying to reduce the country's dependence on massive, debt-fuelled investment in heavy industry, and the switch to cleaner energy will reinforce that shift. And encouraging emissions to fall elsewhere also provides an economic fillip. China is already the world's biggest producer of solar panels and electric vehicles. It aspires to dominate other green technologies, too, including nuclear power.

Another point is that big Western development agencies have stopped lending to coal plants, as have many rich-world banks. At this year's un general assembly Mr Xi announced that China would follow suit, removing all new coal projects from its Belt and Road Initiative. Scarcer finance is driving up the cost of building coal-fired plants. At an auction in India in November 2020, developers offered to sell output from as-yet-unbuilt solar farms for two rupees ($0.03) a kilowatt-hour, not just cheaper than new coal but less than the cost of electricity from many already built and debt-free coal plants. Such arithmetic is altering

planners' ideas about the future even in the absence of ambitious emissions targets. The Vietnamese government's latest long-term outlook for power generation cuts the expected power needed from new coal plants this decade by half. And those projections were made before the recent global spike in coal prices.

The direction of change seems clear, but vested interests (which include those of millions like Mihir whose lives are mixed up in fossil fuels purely through force of circumstance) look likely to slow it down. To fight that slowing effect will take money that many countries do not have. India's state-owned power-distribution firms, for example, which need to invest heavily in improved transmission and storage if the renewables boom is to go as far as it should, are already saddled with around $70bn in debt. State-owned banks, their biggest creditors, are mired in non-performing loans. Privatisation, which might be part of the solution, has never enjoyed broad political support.

The pandemic has pushed up public debt across Asia. It has also highlighted pressing needs in public health and education. That makes it a difficult time to steer a vastly bigger share of public investment towards climate stabilisation and an opportune moment to renew calls for outside help, often couched in terms of "climate justice". In Asia as elsewhere, those at greatest direct risk from climate change are mostly poor folk in the tropics and subtropics. These people have in the past been responsible for very few CO_2 emissions. What is more, their poverty can be attributed in part to the lack of development allowed their forebears compared with that enjoyed by the ancestors of people in economies which grew rapidly through exploiting fossil fuels.

This, the argument runs, imposes a moral burden on those living in countries which were first enriched by fossil fuels, and then imposed the power that development created on almost all the other countries, in Asia and elsewhere, now trying to develop.

The need to maintain a clear path for development has been central to the approach which poorer countries have taken to climate diplomacy since before Rio. So has the idea that rich countries bear particularly onerous obligations. It is enshrined in a phrase from the unfccc which is endlessly, and often angrily, cited at all cop summits: that countries of the world should participate in the effort to stabilise the climate "on the basis of their

common but differentiated responsibilities and respective capabilities". And though the term climate justice does not appear in the main part of the Paris agreement (it is relegated to the preamble, which "[notes] the importance for some of the concept of 'climate justice' "), the phrase "common but differentiated responsibility" turns up repeatedly. The way developing countries interpret this is clear in Asian ndcs, which explicitly say that more cuts will be forthcoming if more assistance is given.

Thus Indonesia's government promises an emissions cut of 41% by 2030 if it gets enough outside support, but only 29% if it has to go it alone. The Philippines takes the logic to its furthest extreme, saying that it will cut emissions by 75% by 2030 if it is showered with cash. If it pays its own way the cut will be just 3%.

Rich countries will find lots of reasons to push back at what can seem, and to some extent is, straight extortion. Some of their citizens already chafe at expenditure on climate action at home; subsidising it abroad is even worse. And there are rarely if ever adequate mechanisms for ensuring that the help will actually produce the promised cuts.

For all but the biggest economies, however, cutting emissions at home makes no appreciable difference at all unless they fall elsewhere, too. The cuts that are necessary in Asia are enormous; according to the iea, the pledges announced in the region's ndcs foresee a fall in the region's annual CO_2 emissions of 9bn tonnes between 2030 and 2050, a 20-year change which outweighs the total emissions of North America and Europe combined. If such a cut does not happen, the best efforts of the rest of the world will not achieve anything like enough. Rich countries can do a lot by accelerating the rate at which new emission-cutting technologies are developed. But if they do not find some way to make the deployment of technologies both old and new more affordable far beyond their borders they will not see those technologies deployed as fast as they need to be.

One way to look at the problem, which has long been popular with Indian climate negotiators, is through carbon budgets. To a close approximation the level at which carbon dioxide will peak, and thus the amount of anthropogenic warming the world will undergo, depends on the total amount dumped in the atmosphere. According to the latest ipcc report, a 50% chance of keeping temperatures below 2°C requires keeping total emissions below 3.7trn tonnes. The report also reckons that, all told, 2.4trn of those tonnes have already been emitted through industrialisation and deforestation, mostly to the benefit of the 1bn or so people who live in the rich world. This means that only 1.3trn tonnes of emissions are left in the 2°C budget for more than 6bn other people, 4bn or so of them Asian, who might reasonably aspire to reach similar standards of living, or to want them for their children.

That is why many Asian governments insist they need help to deliver the development their citizens require but at the same time transform the energy systems and industrial landscapes powering their economies. The alternative is to abandon the climate target or to abandon growth—both of which would have dire consequences that would be felt soonest, and in their greatest severity, in poorer countries.

Negative emissions have been introduced into climate policy in large part to offer a way around that lose-lose choice. They can be used, in effect, to expand the total carbon budget. Before turning to that possibility, though, it is worth looking at the argument, increasingly heard in some circles, that if developed countries could only agree to slow or even abandon growth they would, at least, maximise the remnant of the global carbon budget available to poor- and middle-income countries. This is often accompanied by the belief that were such restraint to be deemed impossible, it would demonstrate that capitalism and climate stability cannot coexist.

Those arguments are not remotely convincing to this newspaper. But they raise questions about the

relationship between how an economy powers itself and the shape it takes. A principle of thermodynamics, the science of heat and work which 19th-century physicists developed to explain the steam engine among other things, was that all energy was fundamentally equivalent in its ability to do work. Investors in the 19th century knew that, in economic terms, the energy stored in coal was much more valuable than any other kind, and built their world accordingly.

High-level discussion of the energy transition that is needed for a fossil-fuel-free world tends to take the physicists' view: watt is a watt is a watt. Watts associated with carbon emissions simply need to be replaced by watts that are not. Looking at the 19th-century Industrial Revolution that this 21st-century transition seeks to reverse, though, suggests that things may be a bit more complicated than this.

FUJITSU LIMITED
E-mail : fj-asiamkt-info@dl.jp.fujitsu.com
URL : Fujitsu Uvance : Fujitsu Global