Only public-private co-operation can accelerate decarbonisation

As countries around the world experienced record temperatures last year, UN Secretary-General Antonio Guterres declared: “We must turn a year of burning heat into a year of burning ambition.” But to move away from fossil fuels and unlock the green transition’s economic benefits, such as job creation and universal access to clean energy, industry leaders and policymakers must work together to translate the commitments made at the UN Climate Change Conference in Dubai (COP28) into actual renewable gigawatts.

COP28 marked a historic turning point in the battle against climate change. Rallying around the UAE Consensus, world leaders pledged to move away from fossil fuels, agreeing to triple renewable power capacity to at least 11,000 gigawatts and double energy efficiency by 2030.

But ambition alone is not enough to achieve these targets and limit global warming to 1.5C. Governments must invest in mature, cost-competitive renewable technologies that can be rapidly deployed at scale. When integrated with long-duration energy storage, green hydrogen, and system optimisation, these technologies represent the most reliable and flexible way to accelerate the energy transition.

Renewables will undoubtedly shape the global energy landscape in the coming years. Both solar and wind power are expected to grow significantly, with hydropower serving as the backbone of grid flexibility. Consequently, renewables are poised to become the twenty-first century’s dominant source of global electricity.

But as a joint report released by the International Renewable Energy Agency (IRENA) and the Global Renewables Alliance (GRA) ahead of COP28 noted, tripling renewable capacity will require cooperation between the private and public sectors. Partnerships should focus on initiatives that deliver immediate results, such as mobilising low-cost financing, accelerating permitting processes, clearing grid connection backlogs, reforming government auction mechanisms for renewable-energy projects, and diversifying global supply chains. A strong commitment to inclusivity and the active participation of developing economies must be at the heart of these efforts. IRENA and GRA are demonstrating this commitment by collaborating on the annual reports commissioned by the COP28 Presidency to monitor progress toward the global tripling target and facilitate the energy transition.

We must, however, move faster, especially if we aim to ensure that progress is equitably distributed around the world. While renewable power capacity rose by 473 gigawatts in 2023, the economic benefits of the energy transition did not reach every country. Remarkably, 83% of these increases were concentrated in China, the European Union, and the US, leaving many countries in the Global South behind.

In fact, the shift to renewables is alarmingly slow in many parts of the world. Opportunities to address development and access challenges in Sub-Saharan Africa, where more than 500mn people still lack access to electricity, are being squandered. This sluggish transition can be attributed largely to the lack of affordable financing, adequate planning, and the policy and market frameworks needed to support the adoption of renewable energy. Tellingly, public fossil-fuel subsidies reached $1.3tn in 2022 – roughly the annual investment needed to triple renewable capacity by 2030.

A critical first step toward fostering greater public-private co-operation in pursuit of COP28’s ambitious targets is to reform the global financial architecture. Africa, for example, accounts for 17% of the world’s population but has received less than 2% of global investments in renewable energy over the past two decades, underscoring the need to reduce capital costs and attract private investors. Developing industrial clusters and initiating grant programs could also help foster environments conducive to innovation and private-public partnerships.

Recent commitments by world leaders offer glimmers of hope. African leaders at the September 2023 Africa Climate Summit in Nairobi, for example, pledged to increase the continent’s renewable capacity to at least 300 gigawatts by 2030. This effort aims to reduce energy poverty and boost the global supply of cost-effective clean energy suitable for industrial use.

Kenyan President William Ruto, a key advocate of the Nairobi agreement, established the Accelerated Partnership for Renewables in Africa, an African-led international alliance of governments and stakeholders that aims to accelerate renewable-energy deployment, increase access, promote green industrialisation, and strengthen economic and societal resilience.

Governments and business leaders should harness the current political momentum to foster co-operation between policymakers and private investors. As governments develop appropriate policy and market frameworks to facilitate the transition to renewables, the private sector – historically responsible for 86% of global investments in renewable energy – is poised to lead the charge. Together, we can achieve a clean, secure, and just energy future. But to realise this vision, we must act fast. – Project Syndicate

- *Francesco La Camera is Director-General of the International Renewable Energy Agency. Bruce Douglas is CEO of the Global Renewables Alliance.*

Greece Spearheads a Dynamic Energy Transition

Countries have different energy priorities due to factors like the availability of energy resources, geopolitics, the population size, environmental considerations and excessive use of energy, the needs of industry, and the availability of technology.

The most representative energy priorities among countries, including Greece, revolve around energy security, reduction of greenhouse gas emissions, affordability, and avoidance of deforestation. Construction of additional energy infrastructure and charging energy consumers with more taxes for excessive energy use constitute additional energy priorities. According to a market survey conducted by IPSOS in late 2022 that engaged 24 thousand people in 28 countries, the top energy priority was that of energy security followed by the development of cleaner energy sources, like wind and solar, and the affordability of energy.

The war on Ukraine brought energy security to the forefront of concerns for many regions, particularly Europe. Directly impacted countries, like Germany, have had to reactivate coal production and extend the operational lives of nuclear power plants to ensure efficient supply of energy to consumers.

Electricity Generation from Renewables

Despite challenges associated with the war on Ukraine, Greece has emerged more resilient by enhancing reform of its energy market and accelerating deployment of renewables in accordance with the National Climate Law of 2022. The Climate Law signals concrete milestones for Greece's energy transition with most prevalent the reduction of greenhouse gas emissions by 55 percent by 2030 and, achievement of net zero emissions by 2050.

The Climate Law also foresees a total phase-out of lignite generated electricity by 2028. Notably, Greece ranks 2nd out of the 27 EU member states in the reduction of electricity generation from certain solid fossil fuels; lignite generated electricity decreased by 57,7 percent in the first 8 months of 2023 compared to the same period of 2019 according to the

Greek Independent Power Transmission Operator (IPTO).

The reduction of the use of solid fossil fuels has been offset by the accelerated development of renewable sources of energy, construction of critical energy infrastructure, and promotion of plans for Greece to position itself as key hydrogen hub in Europe. It is only in four years that Greece enhanced the installed capacity of renewable energy plants, accounting for 50 percent of electricity generation, with a clear target for electricity generation from renewables to reach 80 percent by 2030. The Greek solar photovoltaic market has gained most traction with 1.4 GW of new photovoltaic projects connected to the grid in 2022 and with anticipation of 10.9 GW to be added during the period of 2024-2027 according to the latest report by industry association Solar Power Europe.

The Offshore Wind Challenge

Wind energy in Greece has been surpassed by photovoltaics in new and total installations primarily due to delays in the licensing process. The largest onshore wind power plants include the 336 MW onshore Evia Wind Farm of Ellaktor located in Evia, Central Greece; the 330 MW Kafireas wind farm of Terna Energy on the island of Evia; and the 153MW Imathia Kozani Wind Farm under development by 547 Energy LLC, located in West Macedonia. Greece’s revised National Energy and Climate Plan (NECP) sets a clear target of 2 GW for onshore wind capacity and 2.7 GW for offshore wind capacity by 2030.

Greece swiftly moves forward to tap for the first time ever its offshore wind potential in pursuance of the national offshore wind farms development program that incorporates 25 eligible development areas in the Ionian, Aegean, and the East Mediterranean Seas.

An environmental impact assessment that has been completed by the Hellenic Hydrocarbons and Energy Resources Management Company includes maritime zones of over 2,712 square km where floating technology will be employed for the offshore wind farms in full compliance with environmental safeguards striking a balance between offshore wind energy, national security, and tourism.

Offshore wind energy falls under the creation and development of new markets along with carbon dioxide CO_2 capture and green hydrogen production.

Unlocking the CO_2 Storage Potential

Clean hydrogen can prove to be commercially viable due to the use of CO_2. CO_2 can be transported from where it is produced, via ship, truck or in a pipeline, and be used in commercial applications such as food and beverage production, metal fabrication, and cooling.

The majority of commercial applications center on the direct use of CO_2 by turning it into chemicals and construction materials. Liquid CO_2 can also be transported to an underground site where it can be permanently stored under strict environmental standards. The capture and storage of CO_2 contribute to the decarbonization of heavy industries and the development of clean hydrogen.

It is in this context that Greece swiftly moves to identify potential areas for CO_2 storage, with the most mature option being that of Prinos basin. Specifically, under Greek and European legal contexts, an exploration permit has been awarded to medium-sized Energean Oil & Gas for CO_2 storage in the depleted Prinos field evaluated as the best option because of its depth and structure.

Prinos is scheduled to be operational from the fourth Quarter of 2025 as small-scale project with capacity of up to 1 million tons (MT) of CO_2 annually and with plans to increase capacity from the fourth Quarter of 2027 up to 3 MT of CO_2 annually. Areas with saline aquifers, mafic rocks and oil and gas fields throughout Greek territory are evaluated as potential storage sites.

Prospects of a Hydrogen Hub for Europe

Green hydrogen production and transportation falls within the priorities of the Greek National Energy and Climate Plan. It is estimated that little investment is required, primarily in the form of developing compression stations, for the conversion of the existing national network to transport hydrogen. Extensive cross-border pipelines like Interconnector Greece-Bulgaria (IGB) and Trans Adriatic Pipeline (TAP) have the potential to transport hydrogen.

Proper energy infrastructure can guarantee that massive imports of hydrogen from the Middle East and North Africa are directed to Europe via Greece. The European Union has declared that as the Ukraine war goes on it will have to import 10 MT of renewable hydrogen annually until 2030.

The first major hydrogen project that meets demands of industrial production has been launched in the north-west of Saudi Arabia, in a region called NEOM, that has been declared an exclusive renewable and hydrogen zone. The Neom Green Hydrogen Company project constitutes an 8.4-billion-dollar green hydrogen and green ammonia production facility that will integrate 4 GW of wind and solar energy to produce 600 tons of carbon-free hydrogen per day. Large-scale production of renewable hydrogen from the NEOM region is expected to begin in 2026, and green hydrogen will be exported in the form of green ammonia.

Overall, Greece fosters an effective energy transition with a blend of renewable energy pathways and a match of CO2 storage and hydrogen transportation. It is with no doubt that important targets and deliverables are on the horizon.

Antonia Dimou

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Developing Countries Need Debt Relief to Act on Climate Change

While developed economies have pledged to increase climate financing sharply by 2030, developing-economy policymakers are struggling to cover the costs of action. With medium-term strategies being used to address a short-term threat, progress on the green transition will be undermined, with potentially catastrophic implications.

WASHINGTON, DC/PARIS – If developing economies found it hard to manage their debts in 2023, they are likely to face even more formidable challenges this year. Though most possess relatively small debt stocks and are not considered insolvent, many are in dire need of liquidity. As long as this remains true, they will struggle not only to manage their debts, but also to invest in the green transition.

Developing economies have faced a series of external shocks in recent years, including the COVID-19 pandemic, war-related disruptions of food and energy supply chains, and an uptick in global inflation. Moreover, their access to capital markets has been curtailed, preventing them from rolling over maturing loans, as they would do in normal times. As a result, countries have been forced to channel a large share of their tax and export revenues to service their debt, avoiding default at the cost of priorities like infrastructure investment, social-welfare programs, and climate action.

The outlook for these countries is likely to worsen in the next few years. According to estimates by the Finance for Development Lab (FDL), large debt payments are coming due in 2024 and 2026 for at least 20 low- and lower-middle-income countries. As countries hit this “debt wall,” their already fragile fiscal positions will deteriorate further. This does not bode well for climate action.

Climate change is not some distant menace; its effects are already being felt worldwide, especially in climate-vulnerable developing economies. But international summits on the topic last year sent a disappointing message: while developed economies pledged to increase climate financing by 2030, developing-economy policymakers are struggling against severe fiscal constraints. With medium-term strategies being used to address a short-term threat, developing and emerging economies have been expressing frustration, including at the Summit for a New Global Financing Pact that was held in Paris last June.

Multilateral development banks can provide an essential lifeline, but their capacity would have to be strengthened – and quickly. According to World Bank data, the new concessional loans the world’s poorest countries received from MDBs in 2022 were smaller than these countries’ debt-service payments, a large share of which went to private and bilateral creditors. Increasing capital flight from the developing world – driven not least by monetary tightening in advanced economies – will intensify the needs of illiquid lower-income countries.

But it is not only a matter of financial capacity. MDBs have so far been inconsistent, at best, when it comes to supporting countries struggling to repay their debts. For example, both Kenya and Ethiopia have been under pressure to repay their private and Chinese creditors, which are now collecting more in debt-service payments than they are providing in new loans. But only Kenya received enough support from the International Monetary Fund, the World Bank, and others to refinance its debt that is maturing this year.

By contrast, assistance to Ethiopia has declined in recent years. As a result, Ethiopia recently defaulted on its external debt, even though it amounts to just 25% of GDP. While the Kenya approach is not the solution – providing similar levels of support to all illiquid countries would require a tripling of MDB flows – this is clearly unacceptable.

A better approach would focus on closing the gap between short-term debt concerns and long-term investment needs, by unlocking net-positive inflows for countries facing liquidity constraints. As the FDL has proposed, an agreement among debtors, creditors, and MDBs to permit countries to reschedule debts coming due – delaying maturities by 5-10 years – would create fiscal space for climate-friendly investments, financed by MDBs.

For this liquidity bridge to work, MDBs would have to accelerate progress on implementing existing reform plans and increase funding substantially, while the IMF helps manage debt-rollover risks. Importantly, private and bilateral creditors would have to agree to the rescheduling. That is why, compared to the Debt Service Suspension Initiative that the G20 introduced in 2020, the proposal includes stronger incentives for private-sector creditors to participate, in addition to longer time horizons.

There are good reasons to believe that creditors can be convinced to join the program voluntarily. It is, after all, in their best interest to remain invested in solvent countries with strong growth prospects; no one benefits from debt crises like those that have ensnared Zambia and Sri Lanka. In any case, creditors would continue receiving interest payments, and as global interest rates fall and economic-growth prospects improve in the coming years, debtors may well be able to return to capital markets and resume repayment of the principal.

Shaping a workable blueprint along these lines is a task for upcoming international gatherings, such as the G20 summit in Brazil later this year. Logistical and financial coordination will be needed to ensure sufficient liquidity. Coordination among the IMF, the World Bank, and regional development banks will also be essential to ensure that participating debtor countries pursue investments that genuinely support green growth.

If nothing is done to help countries facing liquidity crises, the world will risk a wave of destabilizing debt defaults, and progress on the green transition will be severely undermined, with catastrophic implications for the entire world. Because promising solutions like the liquidity bridge can prevent such outcomes, they deserve broad global support.

UN climate chief calls for $2.4tn inclimate finance

The world needs to mobilise at least $2.4tn to keep global climate change goalswithin reach, the United Nations climate chief said in a speech yesterday.
Simon Stiell, executive secretary of the UN Framework Convention on ClimateChange (UNFCCC), addressed a group of students at the Azerbaijan DiplomaticAcademy in Baku, host of the COP29 climate summit in November, laying out thesteps that need to be taken this year to turn the commitments made at last year'ssummit in Dubai into reality.
This was Stiell's first major speech since the UN gathering in Dubai, where nearly200 countries agreed to begin a transition away from fossil fuels to avert the worstimpacts of climate change.
"It's clear that to achieve this transition, we need money, and lots of it – $2.4tn, ifnot more", excluding China, Stiell said in prepared remarks, citing a reportreleased in December from the High-Level Expert Group on Climate Finance.
"Whether on slashing emissions or building climate resilience, it's alreadyblazingly obvious that finance is the make-or-

break factor in the world’s climatefight – in quantity, quality, and innovation,” he said. “In fact, without far morefinance, 2023’s climate wins will quickly fizzle away into more empty promises.”
Climate finance will be the main focus of the Azerbaijan-hosted talks, wheregovernments will be tasked with setting a new target post-2025 for raising moneyto support developing country efforts to cut emissions and adapt to the worseningimpacts of climate change.
Setting a new financial goal will be challenging given that countries only met lastyear a goal set in 2009 to mobilise $100bn a year in climate finance by 2020.
“It’s already blazingly obvious that finance is the make-or-break factor in theworld’s climate fight,” he said, adding that without more finance, the winsachieved at the COP28 Dubai summit will fizzle out.
Stiell said that the year should be spent ensuring that the global financial systemand multilateral banks can meet the task of ramping up climate finance, and urgedbanks to triple the amount of climate grants and concessional finance by 2030and triple the rate of private capital they mobilise.
More broadly, he cautioned against taking “victory laps” after the UAE agreement,saying that the political agreement reached in Dubai enables countries to hidebehind “loopholes”.

“The action we take in the next two years will shape how much climate-drivendestruction we can avoid over the next two decades, and far beyond,” he said.
The world is currently far off track in delivering on its cornerstone climate deal,agreed in Paris in 2015.
Under the Paris Agreement, world leaders pledged to keep the rise in Earth’saverage temperature to “well below” 2.0° Celsius above the pre-industrial leveland preferably the much safer threshold of 1.5C.
The 2020s are critical for keeping that 1.5C target in view, with UN climate expertsestimating that planet-heating greenhouse gas emissions need to be slashed bysome 43% by

2030.
There is progress, with a surge in clean energy technologies like solar, wind andbatteries, as well as electric vehicles.
However, emissions continue to rise.
A key challenge that is likely to take centre stage at this year’s climate talks inBaku, as well as meetings of the World Bank and International Monetary Fund(IMF), is how to support emerging economies manage and pay for their transitionto clean energy.
Many of these nations are currently mired in debt and facing a raft of challenges,from inflation to growing climate impacts.
Meanwhile global warming continues, with 2023 confirmed as the hottest everrecorded and experts warning 2024 could be even hotter.
The Earth is now about 1.2C warmer than it was in the 1800s.
This is already having an accelerating impact on people and ecosystems acrossthe planet, from heatwaves and droughts, to devastating floods and storms.
A damning appraisal of countries’ decarbonisation efforts so far, released lastyear, showed the world heading for catastrophic planetary heating.
Stiell conceded it would take an “Olympian effort” to get the world on track.
One key task for countries will be to outline a new round of national climatetargets for 2035 ahead of a pivotal COP30 meeting, due to be held in Brazil in2025.
These pledges should be strengthened to align with the 1.5C goal, cover thewhole economy and all greenhouse gases, Stiell said.
“The action we take in the next two years will shape how much climate-drivendestruction we can avoid over the next two decades, and far beyond,” he added.

Cheap imports threaten US solar panel production boom

US companies have announced plans to build dozens of solar panel factories across the country since last year when President Joe Biden’s signature climate law unleashed billions of dollars of subsidies, raising hopes a clean energy boom can provide tens of thousands of good paying jobs.

But global solar panel prices have collapsed due to a wave of new Asian production capacity in recent months, leading many in the US solar industry to worry many of these proposed factories may be uneconomical. As many as half may soon be delayed or canceled, a figure not previously reported, according to Reuters interviews with industry analysts, solar companies, and trade groups.

Changing market forces have already derailed solar manufacturing operations in Europe. In recent days, the US race for a clean energy transition has already been hit by huge writedowns and project cancellations the offshore wind industry.

“The more prices decline in the global market, the more difficult it is to build US local manufacturing,” said Edurne Zoco, executive director for clean energy technology at S&P Global Commodity Insights. “If the cost gap between imported modules and locally manufactured modules is too big … many of these announcements might not happen.”

Solar shipments into the US more than doubled through August to $10bn from about $4bn a year earlier, according to the US International Trade Commission.

The domestic industry’s souring outlook could hurt Biden’s climate agenda and hinder reelection efforts for a president who has hailed solar project plans as proof his clean energy policies can create millions of good-paying jobs.

US solar manufacturers and trade groups have said they need more government help at the federal and state levels or those jobs may not materialise, and the US will keep relying on panels made with mainly Chinese components. US officials have repeatedly warned that over-reliance on Chinese clean energy technology could pose a security risk similar to Europe’s historical dependence on Russian natural gas.

A White House spokesperson did not respond to questions about recent market challenges facing domestic solar manufacturers, but said Biden’s policies had generated a huge wave of investment and were revitalising American manufacturing.

Companies have announced over three dozen solar factories since passage of the Inflation Reduction Act in August 2022 that collectively promised to create 17,000 jobs and bring in nearly $10bn in investment, according to projects tracked by the clean energy business advocacy group E2.

Of eight solar company representatives, trade groups and researchers who spoke to Reuters, all eight agreed the market has worsened. Energy research firm Wood Mackenzie shared its new forecast that just 52% of the 112 gigawatts of solar module capacity companies planned will be online by the target date of 2026, a projection it has not previously made public.

Mike Carr, executive director of the Solar Energy

Manufacturers for America trade group, said factories could be delayed, extending US dependence on China.

“A misunderstanding of the policy opportunity here could really undermine a signature initiative of this administration, which is to restore manufacturing competitiveness to the United States, and particularly in such a key industry,” Carr said.

Globally, the solar industry has already absorbed a 26% drop in panel prices this year to about 19 cents per watt, according to S&P Global Commodity Insights. US prices have been more resilient, but SEMA and analysts say spot prices are declining for those without long-term contracts.

The increase in solar imports stems partly from a temporary waiver of tariffs on Malaysia, Thailand, Cambodia and Vietnam, which expires in June, 2024. Imports are also up sharply from India, Mexico and other nations unaffected by that move.

The IRA provides a decade of tax incentives worth 30% of a project’s cost. But industry consultant Brian Lynch said that could be outweighed by the glut of cheap panels and worries about rising costs for labor, raw materials and financing.

“It’s almost like Dr Jekyll and Mr. Hyde. The incentives to site and open up a US factory are phenomenal,” Lynch said. “But if pricing is going to continue to go down, if the continued gamesmanship on the trade is going to continue, they can’t justify it.”

The US Commerce Department said imported panels and cells remained important to the clean energy transition.

“Commerce is committed to holding foreign producers accountable to playing by the same rules as US producers,” a Commerce spokesperson said.

The IRA also contains a 10% bonus credit for panel manufacturers using American-made components. This perk is critical for domestic panels that may command a 40% price premium to imported alternatives, according to Wood Mackenzie.

But so few components are produced domestically that much of the industry cannot secure that bonus. So far, solar module factory announcements have been more than double those for solar cells, the crucial components that transform sunlight into energy.

The industry needs more government help, including “the right tax and trade policies that build on the IRA and similar state laws that create the space for emerging US solar manufacturers to compete on a global scale,” said Danny O’Brien, president of corporate affairs at Hanwha Qcells, which is making one of the largest investments in the domestic solar supply chain.

Meyer Burger, which plans to build a factory in Colorado, said the government needs to help domestic manufacturers deal with “underpriced products that are coming from Asia”.

The Solar Energy Industries Association (SEIA), a large solar trade group that has long opposed tariffs, is also advocating for more support for manufacturers, warning it does not expect that every proposed factory will be built.

Convalt Energy plans next year to open 2 gigawatts of module capacity in New York and Maine followed by a facility for components in 2025. CEO Hari Achuthan said module production lines are already about four months behind schedule because the company’s financiers are waiting for the Treasury Department to issue crucial rules on how to secure the IRA tax credits.

“Our country has done a phenomenal job seeing through the IRA bill. But now it’s going to come down to the details of the IRA and how we execute it and the support that we need to get from the Commerce Department and anybody else with regard to tariffs on imports,” he said. — Reuters

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What can COP28 achieve?

COP season is almost here. For the climate-conscious, the annual Conference of the Parties of the UN Framework Convention on Climate Change (UNFCCC) is a fixture of the late-year calendar and an opportunity to take stock of our goals, needs, and achievements. We spend two weeks preoccupied with a distant event hoping that negotiators will make meaningful progress toward mitigating the climate threat. But to keep our expectations for COP28 realistic, we must understand what a COP can and cannot do.

We are steadily decarbonising our economies. Within a decade, wind and solar power will be the major sources of electricity, and sales of electric vehicles (EVs) are likely to overtake those with internal combustion engines. According to the International Energy Agency, the world's fossil-fuel consumption will start falling by 2030. Though this is probably too late to limit the global temperature increase to 2C, let alone 1.5C, above pre-industrial levels, it is sooner than one would have expected only a short time ago.

But little of this progress is directly attributable to COPs, including COP21 in 2015, from which the Paris climate agreement emerged. In fact, the Paris agreement specifies nothing about EVs or wind or solar power. Instead, it is Tesla that is responsible for the growth of EV sales: the commercial success of the company's Model S drove other high-end automakers to develop the competitive products which are now debuting.

Is there any connection between COPs and Tesla's success? If there is, it is not direct. During its early growth stages, Tesla benefited greatly from the United States' Corporate Average Fuel Economy (CAFE) regulations, which enabled it to sell zero-emissions credits to other manufacturers. The revenues from ZEC sales sometimes surpassed those of car sales.

The CAFE regulations date back to 1975, two decades before the first COP was held. They have, however, been tightened over time, a process that might partly reflect increased awareness, fostered by the COPs, of the climate challenge. Similarly, the COPs might have encouraged the subsidies, in both the US and the European Union, from which Tesla has benefited more recently, after it had already become a major force in the auto industry.

As for solar and wind, the sharp decline in costs has driven their dramatic growth. From 2009 to 2019, the cost of solar power fell from $0.36 per kilowatt-hour to $0.03. This decline is attributable to two main factors: economies of scale, which lowered the costs of producing each silicon wafer, and learning by doing, which led to more efficient – and thus cheaper – manufacturing processes. Both factors sustain a virtuous cycle: as the use of solar power increases, costs come down, further accelerating the adoption of solar power.

This process was kicked off by Germany's adoption of generous feed-in tariffs for solar power in 2000. The Chinese government subsequently began investing heavily in solar, which it identified as a strategically important industry. Again, these important policy moves could have been encouraged by the increased awareness of climate change that they generate at COP meetings.

For offshore wind, the decline in costs has been driven largely by Orsted and Equinor, two Scandinavian companies that leveraged their offshore oil and gas expertise to develop offshore wind farms, which use many of the same technologies. Government subsidies helped the nascent technology to become commercially viable.

In short, progress on decarbonisation has primarily reflected technological breakthroughs brought about by for-profit ventures with the help and guidance of supportive government policies. Those policies might have been crystallised by the discussions at, and publicity surrounding, the COPs, though they were not the result of specific directives from those meetings or contained in the Paris agreement.

So, what should we hope emerges from COP28? COPs can produce two types of positive outcomes. The first are “big picture” outcomes, such as maintaining pressure on governments and corporations to reduce emissions. Here, it is important not only to reiterate the importance of reaching zero emissions and highlight how far we have yet to go, but also to recognise the progress that has already been made.

The second type of outcome is more granular. This year’s COP must mark the beginning of a process that will clarify what constitutes a valid carbon offset. Many corporations are currently expecting to reduce, but not eliminate, their emissions, on the assumption that they can buy carbon offsets to take them to net-zero. But the world obviously cannot get to zero emissions – the ultimate goal – if anyone is still emitting.

Equally important, it has lately become clear that many voluntary carbon offsets are worthless, as they do not meet the standard of additionality (the guarantee that the relevant emissions reductions would not have occurred without support from carbon credit sales) or avoid leakage (the shifting of emissions elsewhere). An international body must set clear standards for the validity of offsets and impose limits on their use, and the UNFCCC is the obvious candidate.

COP28 has the potential to encourage further climate action, including the introduction or strengthening of policies that can lead to emissions-reducing technological breakthroughs, as well as to deliver a much-needed rulebook on important technical issues, such as the use of offsets. Whether it succeeds depends entirely on execution. — Project Syndicate

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Climate crisis won't solve on its own: need to walk the talk

We need all governments to step up and agree to phase out unabated fossil-fuel use. We need reforms to make our financial institutions and systems fit for purpose. And we need to take climate action seriously

Last year in Berlin, the great Kenyan long-distance runner Eliud Kipchoge broke the world marathon record, clocking 02:01:09 and beating his previous time by 30 seconds. His success has made him a legend not only in Kenya but globally. It offers a useful lesson for everyone involved in the fight against climate change. Kipchoge’s winning strategy is rooted in the science of running (as well as 120 miles of hard work every week), and our own approach to the climate crisis must involve the same level of commitment and focus.

As temperatures keep rising and emissions soar, the planet, too, continues to break (dangerous) new records. But with determination and follow-through, we – together with institutional partners and other governments – can start to run faster to get ahead of the climate crisis. Success will depend on following the latest science and mobilising a joint, broad-based effort of governments and citizens.

In March, the world’s top climate experts and governments signed off on the latest Intergovernmental Panel on Climate Change synthesis report. Once again, the IPCC’s message was stark: Humans have permanently changed the planet, and global warming is already killing people, destroying nature, and making the world poorer. Though African countries have contributed the least to the problem, they are bearing the brunt of the damage.

According to the International Energy Agency (IEA), Africa accounts for less than 3% of the world’s energy-related carbon dioxide emissions, and 600mn Africans – an outrageous figure – still do not have access to electricity.

Climate change is a shared problem that the global community must solve by working together, especially given the disproportionate burden being placed on those who are least responsible. During his recent visit to Kenya, German Chancellor Olaf Scholz and I held talks on ways to address the climate crisis. Through the Germany-Kenya Climate and

Development Partnership, our two countries have committed to deepen our collaboration on climate-resilient development and renewable energy, including by supporting green-hydrogen production and sustainable agriculture.
We are currently a long way from limiting global warming to 1.5C or even 2C, as envisaged by the Paris climate agreement. The climate crisis will not solve itself. On the contrary, we must ensure that global greenhouse-gas (GHG) emissions peak before 2025 at the latest, and then fall by at least 43% by 2030.
This is the year to drive that transformation. The United Nations Climate Change Conference this November-December (COP28) offers an opportunity to accelerate the energy transition, supercharge the growth of renewables, and commit to phase out all fossil fuels – starting with coal.
Kenya is on track to meet these goals. We already generate 92% of our power from clean sources and we have committed to achieving a 100% clean electricity network by 2030. Similarly, renewables generated 46% of Germany's electricity in 2022 and the government has committed to increase that to 80% by 2030. Critically, these commitments will not only ensure clean power and a safer environment; they will also create jobs, attract investment, and make our economies more secure and resilient in the face of volatile oil and gas prices.
But it is important that we run this race as a team. According to the IEA, the global ratio of clean-energy investments to dirty-energy investments must increase sixfold by 2030 (from 1.5:1 to 9:1).
With a strong partnership between Africa, Europe, and the rest of the international community, Kenya, with its abundant resources, can make significant contributions to decarbonisation and the global transition to a net-zero economy. We must unlock climate finance and investment, so that we can harness our potential for green economic growth. But to do that, we will need to fix the current international financial system, which has proven inadequate for dealing fairly with multifaceted global crises, from the Covid-19

pandemic and the climate emergency to debt distress across the Global South.

Next month's Summit for a New Global Financial Pact, in Paris, provides an opportunity for Europe to galvanise support for reforming the international financial system. The international community must recognise our potential to help solve global problems and take steps to ensure win-win outcomes. That means providing access to affordable, adequate, and sustainable financing that is delivered in a timely manner.

As we reduce emissions, we also need to prepare our people and our housing, agriculture, and food systems for rising temperatures and extreme weather events. Meeting the 2021 COP26 commitment to double global climate-adaptation financing by 2025 remains crucial for protecting people and nature. The latest IPCC report is clear: climate change and insufficient adaptation and mitigation efforts are reversing development gains and undermining economic stability.

But we also must remember that adaptation has limits, and that climate change is already threatening millions of peoples' lives today. As the IPCC shows, reducing GHG emissions by 43% this decade and stabilising global warming at or below 1.5C is still our best chance to keep the problem at a manageable scale. Kenya's climate summit in September will provide a key opportunity to showcase the continent's commitment, potential, and opportunities to deal with the climate crisis. We need all governments to step up and agree to phase out unabated fossil-fuel use. We need reforms to make our financial institutions and systems fit for purpose. And we need to take climate action seriously. In the words of Eliud Kipchoge, the key to success is to "walk your talk." – Project Syndicate

- *William Ruto is President of Kenya.*

The Climate Elephants in the Room

May 19, 2023PINELOPI KOUJIANOU GOLDBERG

As tempting as it is to rely on multilateralism to solve a shared global problem like climate change, the world simply does not have the time for such an approach. A far more pragmatic and effective strategy is to focus on the biggest polluters that contribute disproportionately to total greenhouse-gas emissions.

NEW HAVEN – Now that the falsehoods and obfuscation of climate denialism have finally been silenced, addressing climate change has become the world’s top priority. But time is running out, and the International Monetary Fund warns that any further delays on implementing policies to mitigate global warming will only add to the economic cost of the transition to a low-emissions economy. Worse, we still lack a concrete, pragmatic strategy for tackling the problem. Although economists have made a robust case for why carbon taxes are the best solution, this option has proven politically infeasible, at least in those countries that account for some of the highest emissions (namely, the United States).

Commentators have also stressed that climate change is a shared problem involving important cross-border externalities that must be addressed through a multilateral approach to global coordination. But, as with carbon taxes, this argument has fallen on deaf ears. And, given the current geopolitical climate and the increasing fragmentation of the global economy, there is little hope that the message will get through anytime soon.

Having committed to assisting developing economies as they confront climate change, the World Bank finds itself limited by the country-based model underlying its financing operations. It is earnestly weighing its options and considering how it could coordinate climate-related financing across borders. But while such efforts are well meaning and consistent with the spirit of multilateralism, they inevitably will delay concrete action. World Bank financing would have to be completely restructured, and coordinating action across multiple countries that have limited financial resources and often conflicting interests seems an impossible task. For example, while some developing economies are rich in fossil fuels, others are starved for energy sources.

Given these limitations, pragmatism dictates focusing on the biggest polluters. Global carbon dioxide emissions are concentrated among only a handful of countries and regions. China, the US, the European Union, Japan, and Russia collectively account for 63% of the total, and none of these top polluters is a low-income country anymore. China, the poorest of the group, represents around 30% of all emissions, making it by far the world's largest current polluter in absolute terms. But its government is taking steps to accelerate the transition to green energy – a winning strategy, given the country's abundance of rare earth metals.

India, the third-largest emitter, currently accounts for approximately 7% of global CO_2 emissions, and its size and growth trajectory imply that it could easily surpass China as the leading polluter, barring stronger climate policies. In fact, when it comes to helping developing countries decarbonize, considerable progress could be made simply by targeting India alone. The big advantage of this strategy is that it would avoid the paralysis associated with attempts to adopt a multilateral approach in an increasingly fragmented world.

This does not mean that we should eschew projects aimed at climate mitigation or adaptation in other countries. But we would not need to wait until everyone is on board before doing anything. Those insisting on a multilateral approach should learn from the experience of the ultimate multilateral institution: the World Trade Organization. Its requirement that every single provision in every multilateral agreement gain unanimous support has left it increasingly paralyzed, prompting demands for institutional reform.

Of course, India is not low-hanging fruit. It is rich in coal and has little incentive (beyond the health of its citizens) to hasten the transition to green energy. In focusing on India, we would need to employ the carrot, not the stick.

Since the stick generally takes the form of pressure to implement carbon taxation, it is a non-starter. A tax would be ineffective, because it would incite massive domestic opposition (as has been the case in the US). It would also be morally objectionable, because it is unfair to ask a lower-middle-income country to bear the burden of reducing CO_2 emissions when rich countries (like the US) have failed to do the same. Moreover, even if China and India are now two of the world's biggest polluters, they bear little responsibility for the past, cumulative emissions that led to the current climate crisis.

That leaves the carrot, which would come in the form of tax incentives or subsidies to support green energy. When paired with other policies, these can ease firms into adapting to higher environmental standards (such as those associated with a cap-and-trade program). But such policies are expensive, which means that tackling climate change will require richer countries to help finance them. Whether or not India becomes the new China, it is still in our power to ensure that it does not become the new outsize polluter.

https://www.project-syndicate.org/commentary/climate-change-prioritize-top-emitters-over-multilateralism-by-pinelopi-koujianou-goldberg-2023-05

Climate change continues to causeuncertainties for commodity prices

It can alter rainfall patterns, increase temperatures, and cause extremClimate played a major role in commodity prices last year and looks like doing so again in 2023.
Scorching heatwaves in the northern hemisphere hit production of wheat in the US and Europe in 2022, and climate change means that catastrophic weather events are becoming more frequent.
These include La Niña, which is stretching into an unprecedented third consecutive year and will be detrimental to maize and soybean production in the first half of 2023, in addition to other crops like sugar and coffee, according to Economist Intelligence Unit (EIU).
Wheat, which was heavily affected by war-related supply disruptions in 2022, faces significant climate risks. In the US large swathes of the southern plains remain under drought conditions, and crops are in unusually poor condition heading into winter dormancy. Extremely dry, occasionally frosty weather in Argentina is causing damage across major producing provinces there, but Russia and Australia are on course for a second consecutive year of bumper crops, which, for the moment, is alleviating concerns about production in the

western hemisphere.

Weather will loom large in energy markets as well, EIU noted. Europe’s heatwave drove up demand last summer, causing gas and electricity prices to spike, especially as winds dropped to levels insufficient to generate enough power to meet Europe’s electricity needs while drought affected hydropower generation in many countries.

These dry conditions, together with rising water temperatures, also hit nuclear power generation.

In addition, the severity of Europe’s current energy crunch depends largely on how cold temperatures fall over the winter, not just in 2022/23 but in 2023/24 as well.

“The colder the winter, the more countries will have to draw down stockpiles built up over 2022. Below-normal temperatures will not only raise the spectre of energy rationing, but also put upward pressure on prices over the summer as Europe scrambles to refill reserves—this time without Russian supplies,” EIU said.

Obviously, climate change can have significant impacts on commodity prices by affecting their production, transportation, and demand for various goods.

Climate change can impact commodity prices by affecting crop yields, energy prices, water availability, and transportation costs.

It can alter rainfall patterns, increase temperatures, and cause extreme weather events like droughts and floods, which can reduce crop yields.

This can lead to lower supply and higher prices for commodities like wheat, corn, soybeans, and other agricultural products.

Climate change can also impact energy prices by affecting the production and transportation of oil, natural gas, and other energy resources.

For example, extreme weather events can disrupt oil and gas production and transportation infrastructure, leading to supply disruptions and higher prices.

Changes in rainfall patterns and increased water scarcity due

to climate change can impact the availability of water for agricultural production and energy generation. This can result in higher prices for water-intensive commodities like meat, dairy, and processed foods.
Climate change can also affect transportation costs, particularly for goods that rely on sea or river transportation.
Rising sea levels and changes in ocean currents can disrupt shipping routes and increase shipping costs, which can lead to higher prices for imported goods.e weather events like droughts and floods, which can reduce crop yields

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The High Cost of Carbon Pricing

Amid the growing enthusiasm for carbon border taxes, Western policymakers have largely ignored the negative impact on the world’s poorest countries. For carbon-pricing policies to succeed, developed countries must show their commitment to shared prosperity by enabling knowledge-sharing and fostering equitable climate finance.

NEW DELHI – Carbon pricing is all the rage these days, at least in the developed world. But while global leaders and experts – most of them from rich countries – increasingly embrace the idea of putting the "right price" on carbon, the concept remains vague and ill-defined. Worse, its growing acceptance and increasingly protectionist bent may have the perverse effect of impeding efforts to decarbonize the global economy.

The idea of carbon pricing seems like a no-brainer. Meeting even the least ambitious climate goals requires decarbonizing developed and developing economies alike. Changing the relative prices of carbon-intensive activities would encourage investors to finance renewable sources of energy and the technological innovation needed to achieve net-zero emissions.

Fossil fuels account for most of the world's greenhouse-gas emissions, so hydrocarbons seem like a good place to start. But how? Should policymakers consider the relative price of fossil fuels, or production based on consuming them?

The two most commonly discussed forms of carbon pricing – cap-and-trade schemes and carbon taxes – are based on the carbon intensity of production. A cap-and-trade system is designed to limit greenhouse-gas emissions by dividing the total target amount into allowances that can be traded among high and low emitters. While this supposedly establishes a market price for carbon dioxide emissions, it does not consider their negative social and environmental externalities. A carbon tax, by contrast, sets a price on carbon by taxing emissions-heavy activities.

But these two models reflect a very narrow (and possibly even distorted) view of how carbon should be priced into the economic system. A 2017 report by the High-Level Commission on Carbon Prices, chaired by Joseph E. Stiglitz and Nicholas

Stern, provided a much more nuanced analysis. In addition to cap-and-trade and carbon taxes, the report recommended reducing or eliminating fossil-fuel subsidies and creating new financial incentives for low-carbon projects; offsetting the negative distributional impact of carbon pricing by using the proceeds to finance policies to protect poor and vulnerable populations; and complementary policies, such as investment in public transport and renewable power. Perhaps most important, the authors noted, countries must be able to choose instruments that fit their specific circumstances, resources, and needs.

Amid the growing enthusiasm for carbon pricing and border adjustment measures, policymakers and experts have largely ignored these points. The European Union's Carbon Border Adjustment Mechanism is a case in point. When the CBAM takes effect in October, it will impose a tax on carbon-intensive imports in order to "put a fair price on the carbon emitted during the production of carbon-intensive goods that are entering the EU" and to "encourage cleaner industrial production in non-EU countries" (emphasis added).

The CBAM will initially apply to imports of cement, iron and steel, aluminum, fertilizers, electricity, and hydrogen. At first, firms will simply have to report the (direct and indirect) emissions embedded in the goods they import. But, beginning in 2026, the EU will impose tariffs on these emissions based on the weekly average auction price of cap-and-trade allowances.

The stated purpose of this measure is to eliminate so-called "carbon leakage" and ensure that the EU's climate efforts are not undermined by production moving to countries with lower emission standards. Effectively, it protects European firms from competitors in such countries.

By taxing imports to the EU, the CBAM imposes on exporters in other countries the nearly impossible task of measuring emissions. Most developing countries (and many developed ones) lack granular data on firm-specific emissions, not to mention the ability to track the emissions of all the inputs used. Even if such data were available, the costs of collecting and analyzing it over time would be enormous. As the United Nations Conference on Trade and Development noted in 2021, the CBAM attempts "to impose on developing countries the environmental standards that developed countries are choosing."

The EU wants to be viewed as a global leader on climate change, but it is difficult to see the CBAM as anything but a protectionist device. While the CBAM purports to encourage countries outside the bloc to reduce emissions by imposing their own carbon taxes, the EU has done nothing to help exporting countries attract new green investment or gain access to new technologies. In fact, it has persistently reneged on its (paltry) promises on climate finance and the commitments European leaders made as part of the 1992 Rio Agreement, restricting access to green technologies controlled by EU-based companies.

For decades, advanced economies have exported their emissions to developing countries by offshoring carbon-intensive production and then importing those goods. Now that greener technologies are available to (and largely controlled by) Western companies, developed countries promote reshoring without sharing knowledge or finance, thereby undermining low- and middle-income countries' economic prospects and ability to achieve a green transition.

In February, Republican US Senator Bill Cassidy said he would unveil an emissions tariff bill in the coming months, following similar proposals by Senate Democrats. Meanwhile, lawmakers on both sides of the Atlantic have done little to limit fossil-fuel production and trade – by far the biggest sources of CO_2 emissions. The CBAM does not cover trade in fossil fuels, and neither would the proposed tariffs in the

United States. If decarbonization is the real goal, rather than protecting domestic industries, then regulation and reducing direct and indirect fossil-fuel subsidies are far more promising policies.

For carbon pricing to succeed, developed countries must demonstrate their commitment to shared prosperity by enabling knowledge-sharing and fostering equitable climate finance. If they continue to focus on border taxes on goods produced (mostly) in developing countries, their carbon-pricing efforts will fail. Worse, they will exacerbate global inequality and reinforce the perception that all their lofty rhetoric about the need for international cooperation to fight climate change is merely a fig leaf for cynical and self-serving policies.