

Climate

Most imp intl agreements

Montreal Protocol, 1987

- Though not intended to tackle climate change, the Montreal Protocol [PDF] was a historic environmental accord that became a model for future diplomacy on the issue. Every country in the world eventually ratified the treaty, which required them to stop producing substances that damage the ozone layer, such as chlorofluorocarbons (CFCs). The protocol has succeeded in eliminating nearly 99 percent of these ozone-depleting substances. In 2016, parties agreed via the Kigali Amendment to also reduce their production of hydrofluorocarbons (HFCs), powerful greenhouse gases that contribute to climate change.

UN Framework Convention on Climate Change (UNFCCC), 1992

- Ratified by 197 countries, including the United States, the landmark accord [PDF] was the first global treaty to explicitly address climate change. It established an annual forum, known as the Conference of the Parties, or COP, for international discussions aimed at stabilizing the concentration of greenhouse gases in the atmosphere. These meetings produced the Kyoto Protocol and the Paris Agreement.

Kyoto Protocol, 2005

- The Kyoto Protocol [PDF], adopted in 1997 and entered into force in 2005, was the first legally binding climate treaty. It required developed countries to reduce emissions by an average of 5 percent below 1990 levels, and established a system to monitor countries' progress. But the treaty did not compel developing countries, including major carbon emitters China and India, to take action. The United States signed the agreement in 1998 but never ratified it and later withdrew its signature.

Paris Agreement, 2015

- The most significant global climate agreement to date, the Paris Agreement requires all countries to set emissions-reduction pledges. Governments set targets, known as nationally determined contributions, with the goals of preventing the global average temperature from rising 2°C (3.6°F) above preindustrial levels and pursuing efforts to keep it below 1.5°C (2.7°F). It also aims to reach global net-zero emissions, where the amount of greenhouse gases emitted equals the amount removed from the atmosphere, in the second half of the century. (This is also known as being climate neutral or carbon neutral.)
- Every five years, countries are supposed to assess their progress toward implementing the agreement through a process known as the global stocktake; the first is planned for 2023. Countries set their own targets, and there are no enforcement mechanisms to ensure they meet them.
- The United States, the world's second-largest emitter, was the only country to withdraw from the accord, a move by former President Donald Trump that took effect in November 2020. However, President Joe Biden reentered the United States into the agreement during his first months in office. A few countries have not formally approved the agreement: Eritrea, Iran, Iraq, Libya, South Sudan, Turkey, and Yemen.

Multilateralism

- The scope and scale of multilateralism was first enlarged with the establishment of the United Nations after World War II. Naturally, the UN became the home of multilateralism by enabling

cooperation on development, trade, human rights, health, education and science etc. Environmental subjects, however, remained absent in this discourse until the UN Stockholm Conference in 1972 established the UN Environment Programme and laid the foundation of what is now an elaborate architecture of global environmental governance.

- Today, there are more than 500 recognised multilateral environmental agreements with legislative bodies on every dimension of the environment. The **UN Environment Assembly**, with universal representation, serves as the world parliament on environmental policies. The UN conventions on climate change, biodiversity, desertification and ozone depletion etc, are part of a mosaic that keeps expanding to address new challenges that transcend national boundaries.
- The most recent global treaty in the series is the **Minamata Convention on Mercury of 2017** that aims to protect human health and the environment from the adverse effects of mercury. A similar example is that of the **ozone treaties**, established in 1987, where governments and scientific and private sectors work in tandem to prevent further depletion of the ozone layer caused by certain gases used in refrigerators and air conditioners. As a result, the ozone layer that protects the earth from harmful ultraviolet rays of the sun is on its way to complete replenishment.
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- European Commission introduced the **European Green Deal** in December 2019. As Europe's new growth strategy, it aims to transform the EU into a fairer, more prosperous society by guiding the transition to a more resource-efficient, competitive economy. Ultimately, the goal is to achieve net-zero GHG emissions by 2050.
- The EU, however, represents less than 10% of global emissions, so European action alone will not be enough to slow global warming. To keep the increase in global temperature as close to 1.5°C as possible, we must support decarbonization efforts beyond our borders. That is why we need a **Global Green Deal**.
- To this end, we have set ourselves three investment priorities. First, we need to ensure that the most advanced clean technologies are embraced everywhere. Despite good progress on renewable-energy deployment, 40% of the world's electricity is still generated by coal, the dirtiest energy source.
- Our second priority is to invest in breakthrough green technologies like never before. Such research and development is both necessary and an enormous market opportunity.
- Finally, we need to embrace the idea of a "**circular economy**." As matters stand, we are taking more out of our planet than it can afford to give us. To do so, we need to invest in circular technologies that reuse resources, rather than constantly producing or importing new goods and extracting ever more raw materials. The circular economy has huge potential not only to reduce our dependency on scarce resources, but also to create jobs.
- Bill gates rightly noted how the world can benefit from China's efforts to make green energy more affordable. Without China's contributions, many of the key ingredients needed to address global emissions, such as rechargeable batteries and solar power panels, would not be affordable, especially for the cash-strapped poorer countries.
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US role

- *Reagan distanced himself from the Carter administration's environmentalist agenda.* In a symbolic gesture, the new president even removed the solar panels that his predecessor had installed on the White House.
- This is *not the first time America is re-entering such a collective effort*, but rather the second. Biden, as vice-president, watched in awe as his boss president Obama turned America back toward joining climate talks after his predecessor *George W Bush had rejected the Kyoto Protocol climate treaty of 1997*.
- ON April 22, world leaders from 40 countries, 17 of them responsible for four-fifths of the world's greenhouse gas emissions, held *a virtual summit convened by President Joe Biden*. This summit, explicitly designed to make up for the time lost by America's withdrawal from the Paris agreement, will help the administration relaunch the US in the global climate arena, and align global climate policy with his domestic economic agenda. The ultimate goal is to have a carbon-neutral economy by 2050 to limit global warming to 1.5 degrees Celsius, starting with a 50pc reduction in carbon emissions by 2030.
- The Biden administration has unfolded its **four-track climate strategy**: 1) the biggest-ever plan for investment in American infrastructure to make it climate smart; 2) create jobs as a byproduct of climate action (70 million Americans are out of a job because of Covid-19's impact); 3) phasing out coal by propelling renewable energy (RE) and Electric Vehicles (EVs) infrastructure, including making solar, wind and hydro-energy the backbone of the US economy; and 4) win back leadership in green technologies from China, EU and others.
- Earlier in April, John Kerry, the United States Special Presidential Envoy for Climate, visited Asia to pave the way for Biden's conference. While traveling to the UAE, Bangladesh, India and China, *Kerry flew over Pakistan* — the eighth most impacted country in the world from climate change. It has suffered economic losses worth \$3.8 billion and faced 173 extreme weather events from 2000 to 2019. Lives and livelihoods of millions of people have suffered in a country that is least responsible for causing this climate crisis.

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Effects

- **Air pollution** is causing the death of over eight million people globally which is about one in five deaths each year. it is the biggest public health issue according to WHO and World Economic Forum.
- The rainforest cover equal to a football field is lost every six seconds; two-thirds of the world's original rainforest cover has already been destroyed, with 34pc of old tropical forests having been cleared to make way for agricultural practices. Another 30pc have been degraded to a dangerous extent. the annual rate of **rainforest depletion** only in 2019, matched the level of destruction over the past 20 years. In fact, the total loss of rainforest cover between 2002 and 2019 was greater than the area of France. The biggest impact has been felt in Brazil, which has witnessed a sharp uptick in the depletion of its forested land as a result of the country's lax policies towards the environment. (Rainforest foundation Norway)
- It is comforting to imagine the **Arctic** as a snowy faraway place, populated by reindeer and polar bears. In fact, it is a cornerstone of the climate system that keeps our weather stable, our communities habitable, and our economies prosperous – and it is under immense pressure.

- In Sep 2020 an ice sheet the size of Paris broke off from Greenland's largest glacier shelf, and in July, Canada's intact ice shelf – 4,000 years old – fragmented. As Arctic ice melts, sea levels rise, threatening countries worldwide.
- For the first time since records began, sea ice in the Arctic's Eurasian sector had not yet begun freezing in October (**guardian**)
- As higher temperatures cause Arctic plants to grow taller, permafrost is thawing faster – a process that releases enormous amounts of carbon dioxide and methane (a far more potent greenhouse gas than CO₂), accelerating the temperature rise.
- Major Fuel Spill in Russia's North Spreads Toward Arctic Ocean, releasing about 150,000 barrels of diesel into a river (**NYTimes**).
- rising Arctic temperatures threaten to trigger a devastating domino effect that ends in global catastrophe. Arctic warming affects the rest of the world by disrupting the polar vortex, a low-pressure weather system that sits above each pole and keeps cold air there. As the Arctic warms, the cold air contained in the polar vortex is thought to be displaced and moved to the south, leading to extreme and unusual cold weather in faraway places. This winter, Italy, Japan, and Spain experienced extreme snowfall.
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- Over the next 30 years, more than 140 million people are expected to be displaced by climate change across South Asia, Sub-Saharan Africa, and Latin America, at a cost of some \$7.9 trillion. **World Bank**
- Compounding the injustice facing marginalized and vulnerable children who have done nothing to contribute to the problem, girls – especially adolescents – often are the first to be forced out of school when droughts, landslides, floods, and other disasters strike, and they are the last to return, if they return at all. Without access to education, these girls face increased risk of sexual exploitation, early marriage, unwanted pregnancy, and child labor.
- The **Malala Fund** estimates that in 2021, climate-related events will prevent at least four million girls in developing countries from completing their education. And this number could reach 12 million by 2025.
- Recent studies indicate that an additional year of primary school for girls can raise per capita income by 10-20%. **Brookings institute**
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- As we accelerate the transition from a hydrocarbon-based economy to a sustainable one based on renewable energy, we cannot be blind to these **geopolitical effects**.
- **READ ARCTIC FACTOR**
- In particular, the transition itself will drive power shifts away from those controlling and exporting fossil fuels, and toward those mastering the green technologies of the future. For example, phasing out fossil fuels will significantly improve the EU's strategic position, not least by reducing its reliance on energy imports. In 2019, 87% of our oil and 74% of our gas came from abroad, requiring us to import more than €320 billion (\$386 billion) worth of fossil-fuel products that year.
- Moreover, with the green transition, the old strategic choke points – starting with the **Strait of Hormuz** – will become less relevant, and thus less dangerous. These seaborne passages have preoccupied military strategists for decades. But as the oil age passes, they will be less subject to competition for access and control by regional and global powers.

- Phasing out energy imports will also help to reduce the income and geopolitical power of countries like **Russia**, which currently relies heavily on the EU market. Of course, the loss of this key source of Russian revenue could lead to instability in the near term, particularly if the Kremlin sees it as an invitation to adventurism.
- At the same time, however, [the green transition itself will require scarce raw materials](#), some of which are concentrated in countries that have already shown a willingness to use natural resources as foreign-policy tools. This growing vulnerability will need to be addressed in two ways: by recycling more of these key resources, and by forging broader alliances with exporting countries.
- Moreover, as long as other countries' climate commitments are not on par with our own, there will be a risk of "**carbon leakage**." That is why the EU is working on a carbon border adjustment mechanism (CBAM). We know that some countries, even among our allies, are concerned about this. But we want to be clear: [setting a price on imported carbon-intensive goods](#) is not meant to be punitive or protectionist.
- [The first well-informed assessment of how South Asia may be affected by global warming](#) was made by the **World Bank**. Included in the analysis was the [increased possibility of floods](#) that might result from the melting of the Himalayan glaciers that feed water to the rivers that flow into not only into South Asia but also into China and Afghanistan. That that might indeed happen was shown by the flood resulting from the "break of a glacier in the Himalayas causing a deadly flash flood that smashed through a hydroelectric power plant and destroyed homes in India," wrote Niha Masih in a report published in The Washington Post. "More than 125 people were reported missing. These developments did not receive much attention at the April 22 summit.

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Faults

- **CORRUPTION** is one of the biggest enemies of healthy ecosystems. The government's corrupt functionaries sell the banks of rivers, streams and nullahs to encroachers for building bastis, posh housing societies, plazas and even industrial installations and zones. They issue permits and licences for sand mining and direct outlets for water diversion for agricultural, commercial and industrial purposes. They allow industry to discharge its effluents into freshwater bodies. Weak governance emboldens them to dislodge communities and plan new cities on the beaches in Karachi and the riverfronts of the Ravi, Soan, Jhelum, Chenab and other waterways.
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- The fossil fuel industry has plagiarised some tactics of the American gun manufacturers. The gun industry spends a stupendous amount of money in public relations campaigns trying to convince the people that the [gun is not to be blamed for the gun violence](#) but rather the crazy-minded individuals who start shooting in public.
- **ExxonMobil** knew as early as the 1970s about the severe damage to the environment resulting from the use of fossil fuel. Yet, they went on to fund research, which denied such knowledge.
- For the umpteenth time, for [as long as fossil fuels are being burnt and more oil is being drilled for, there would be a relentless march toward our extinction resulting directly from climate change](#). No amount of tree growing and artificially grown meat would do the magic, if fossil fuel continues to be consumed. The main criminals of climate change are the mega fossil fuel corporations that are directly responsible for causing climate change and also responsible for the misconceptions

about this topic. They collectively own crude oil reserves underground, the market value of which is estimated to be close to \$3 trillion. They are not going to give up on that wealth.

- While the profit of the environmental degradation was privatised, since it ended up in the hands of a few, the cost of climate change is now being socialised, since everybody is paying the price and everybody is being asked to do something about it. Don't get me wrong; I truly believe everyone should be concerned and make their contribution toward saving this only planet we have. However, these nice sounding slogans can do more harm than good, in my humble view. Because such moves change the topic from the real culprits and moves it to where the responsibility is thrown at everyone on the planet, including unborn children. And in the meantime, the real culprits are working toward undoing any positive impact we might bring by changing our lifestyles.
- The external pressure on leaders of poorer governments who engage in reckless behaviour is often rendered invisible when the international press highlights their follies. Consider, for instance, the criticism heaped on the far-right Bolsonaro government in Brazil which has encouraged destruction of the Amazon forest to boost agriculture.
- A growing number of researchers have squarely blamed EU countries for promoting deforestation and greenhouse gas emissions in the Brazilian Amazon by importing agricultural products contaminated with illegal deforestation. Despite being so vocal in terms of criticising Brazil for deforestation of the rainforests, the EU remains Brazil's largest trading partner. The Bolsonaro government does rightly deserve criticism for aggressively dismantled, for defunding environmental protection agencies, and for enabling illegal loggers and miners. Yet, through its ongoing consumption of Brazil's deforestation-contaminated agri-products, the EU must also share the blame for promoting deforestation and greenhouse gas emissions in the Amazon.
- The deforestation in Southeast Asia to grow palm oil is a similarly problematic issue. The environmental havoc caused by mining for natural resources is another major concern. Extracting cobalt to make eco-friendly lithium batteries, for which there is growing global demand, is now a major problem. It is not only Europe but also other powerful countries like Australia, the US, and China which are fuelling supply-chain exploitation.
- While richer countries are quick to criticise governments and employers in poorer countries, this criticism is no more than hypocritical double-speak, especially when corporations based in these rich countries continue sourcing products and raw materials through blatantly exploitative supply chains.
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Solutions

- Unfortunately, nothing worthwhile has so far been done on this aspect of the grave issue. It is a strange situation where fish are dying by drowning and also of thirst.
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- Achieving a net-zero global economy by 2050 is technically and economically feasible with existing and emerging technologies, but it requires drastic shifts in behavior and massive policy interventions, including a degree of international cooperation that will be very difficult to attain.
- According to the United Nations Intergovernmental Panel on Climate Change, capping global warming at 1.5°C will require cutting carbon dioxide emissions by around 45% from 2010 levels by 2030, and to net zero by 2050. Doing so will require "rapid and far-reaching transitions in

energy, land, urban and infrastructure (including transport and buildings), and industrial systems,” as well as CO2 removal.

- Cutting CO2 emissions is only part of the task. Crucially, the world must also reduce drastically emissions of short-lived climate pollutants such as methane, in order to achieve a large reduction in Arctic warming and permafrost thawing, which threatens to cause the release of more nitrous oxide and methane.
- Although over 100 countries have pledged to become carbon neutral by mid-century, global emissions have continued to increase at a rapid clip, interrupted only by the pandemic-induced recession. [On pre-pandemic trends, the world is on track to exhaust its carbon budget by 2035.](#)
- the transition to net zero is both technically possible and fairly cheap in an increasing number of sectors. Renewable energy sources like solar and wind are already the lowest-cost power option in much of the world and will become even cheaper as their adoption scales up.
- [One reason for insufficient climate action to date is that switching to zero-carbon electricity and transportation entails up-front costs.](#) True, some of these replacement costs would have to be paid anyway as cars, coal plants, and gas-fired power stations wear out or become obsolete. More often, though, [decarbonization is profitable only on a longer-term horizon in a world characterized by short-termism.](#)
- Another reason for inaction is that green transformations will have major distributional implications both within and across countries. At the national level, millions of new jobs would be created, but millions would be lost. This problem is most acute in developing countries, which eventually will be better off with green technologies but typically lack the long-term finance and incentives to adopt them. The only viable solution is for rich countries to subsidize the transition in developing countries – including through multilateral development banks. However, “[g]iven that domestic fiscal solidarity is already wanting, cross-border fiscal solidarity seems like a non-starter.” With the current grossly insufficient Nationally Determined Contributions under the 2015 Paris climate agreement, the world would most likely be unable to keep global warming below 3°C by the end of this century, and would experience catastrophic climate events long before then.
- [Fortunately, although technological and political feasibility may operate on separate planes, the two are connected.](#) For example, cheaper green technologies lower the political cost for countries to deploy them, because it is now in their national interest to do so. That is why India is suddenly and voluntarily replacing its coal plants with renewables. The positive externalities from technological innovation at least partly offset the negative externalities posed by free-rider and coordination problems. This makes it all the more important for policymakers to ensure that poor countries have low-cost access to these technologies.
- Proving the pessimists wrong will require the climate-oriented transition to be part of a comprehensive policy package that includes far-reaching financial transformation and focuses on distributional issues.
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- [The world must protect at least 30% of the global ocean in order to restore marine life, increase seafood supply, and reduce greenhouse-gas emissions.](#) Meeting this goal would generate annual benefits – in terms of increased economic output and improved ecosystem services – that far exceed the investment required. **Overfishing:** A 2017 study by the World Bank suggested that

reducing fishing efforts by almost half would actually increase the global catch and the economic benefits that it generates.

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- It is time transnational corporations are held accountable for the environmental and labour exploitation their profit-driven modus operandi causes globally. Desperate for foreign investment, poor countries remain locked in a desperate 'race to the bottom of the barrel', as they try to outbid each other to lure transnational businesses by offers of low wages and lax environmental restrictions.
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- To address the multiplying risks facing children in developing countries – particularly in crisis contexts – we must take urgent, holistic, and collective action to link education and climate change. For donors, governments, and private-sector leaders, [this means that education should be earmarked in contributions to the Paris agreement, COVID-19 response packages, and overall strategies for low-carbon, climate-resilient development](#). World leaders must acknowledge the deepening links between the climate crisis and education.
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- [One efficient way to mitigate global warming would be to increase the price of carbon dioxide emissions by imposing carbon taxes](#) or limiting the supply of tradable emissions permits, while phasing out long-standing fossil-fuel subsidies. This will be much discussed in the run-up to the United Nations' COP26 climate summit in Glasgow in November.
- From a consumer perspective, CO2 emissions are an invisible enemy. [Direct consumer taxes](#) that are clearly linked to the harms related to the goods people are buying, using, and dumping would be more transparent and understandable.
- Relating **green taxes** to the weight and size of goods could draw a clearer link with non-renewable resource use and would help to shift social norms. People using bigger cars or living in bigger homes would thus pay more, making smaller options more attractive.
- According to a joint research report by **Oxfam** and **Stockholm Environment Institute**, in 2015 the richest 10% of the world's population were responsible for 52% of cumulative CO2 emissions, with the top 1% alone accounting for 15%. Heavily taxing the materials and energy they consume could be sold to the rich as a more palatable option than higher income or wealth taxes.
- An even more powerful way for governments to secure support for new consumer taxes would be to strike a "**Green Grand Bargain**" with the public to use the proceeds to accelerate the Build Back Better agenda. Revenue from such taxes could, for example, finance a decrease in taxes on labor, particularly for the lower paid. This would make the package doubly progressive.
- One option would be a "**carbon dividend**," whereby households would receive a flat-rate income financed by the green tax proceeds. This would disproportionately benefit poorer households.
- governments could use some of the tax proceeds to fund green investments, including by supporting households investing in electric vehicles (especially small ones) and home energy systems. Funding could also be directed to business and government investment in necessary infrastructure and research and development.
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- Some people say that [to avoid the threat of catastrophic harm to human welfare posed by global warming, we must radically change our behaviour](#) – cease flying, use bicycles, and give up red meat. Others believe that [new technologies can deliver carbon-free growth](#). So, who is right: Greta

Thunberg, who advocates the former course, or Bill Gates, who just wrote a book (**How to avoid a climate disaster**) advocating the latter?

- Gates writes in his book that in a normal year the world adds 51 billion tons of ghg to the atmosphere.
- A lot of human activities generate greenhouse gases: generating electricity, transportation, growing food, heating buildings, and making materials like steel and cement. If our goal was simply to emit ten percent less greenhouse gas, you could imagine trying to limit those activities. But because we need to get to zero emissions by 2050, we have to come up with an alternate way which isn't too much more expensive to perform those same activities without emitting any greenhouse gases. We can compare the cost per unit of the current way of doing it to the approach that creates no emissions. The actual extra cost, which we call the "green premium," for things like green jet fuel, is very high. Jet fuel is a good example because there's a significant premium. In the United States, a gallon of jet fuel averages about \$2.20. One way to go green is instead of taking that oil out of the ground that has carbon from millions of years ago coming up into the atmosphere we can take the oil by generating it from plant material or bio-waste or even algae. Biofuels cost \$5.35 per gallon. So that's quite a premium, \$5.35 versus \$2.20 so, \$3.15 premium. More than double the typical price. The green premium is a tool that gives us a way of looking at how far away we are from making it easy. And where this green premium is the highest, that's where we need to put resources behind solving that particular area. We need a lot of research and development, a lot of innovative companies, to help us get the green premium down. And if you can get it down close to zero, yes, that will get us to this 2050 goal of zero emissions.
- Gates wants govt to spend more on research and development for energy innovation. Gates himself had invested \$2b of his own money on companies working towards zero emissions (most-known among them are impossible foods and beyond meats both dealing with plant-based meats). His biggest bet is on Terra Power, a nuclear power company with a reactor that uses depleted uranium as fuel.
- In the long run, techno-optimism looks justified. As two new reports from the Energy Transitions Commission describe, zero-carbon electricity and hydrogen, which today account for only 20% of energy use, could account for 75% by mid-century, and clean energy will be cheaper by then than dirty energy is today. Solar electricity already costs less than coal power; battery costs have collapsed and will keep falling. The cost of producing hydrogen from electrolysis will plummet in the next ten years, too.
- But while rapid technological progress is our best long-term hope for mitigating climate change, [Thunberg is partly right today](#). Living standards in rich countries threaten both catastrophic climate change and local environmental destruction, so responsible consumer choice matters as well. We should fly less, get on our bikes, and eat less red meat. And we must ensure as rapidly as possible the massive flows of finance – from governments, companies, and individuals – needed to halt deforestation before it is too late.
- **Language of Tragedy**
- ["How terrible it is to know when, in the end, knowing gains you nothing," laments the blind prophet Tiresias in Sophocles' Oedipus the King. Oedipus had summoned him to reveal the source of the pestilence and ecological disaster ravaging Thebes. But Tiresias knew that the king would reject the truth. Today's climate scientists and epidemiologists can relate.](#)

- Like Tiresias, modern-day scientists know where the planet is headed and why. They found out not through prophecies, but through countless double-blind experiments, randomized trials, and rigorous peer review. Their evidence is unimpeachable, and the consensus among them is overwhelming. But their secular augury cannot seem to overcome the wilful indifference of politicians or the public. Knowing gains them nothing, because so few are listening.
- Thunberg and many of her fellow climate activists know that the **language of tragedy** is the only way to express the cataclysm we are facing. But, as Thunberg knows first-hand, young people can easily be dismissed as overly sensitive and melodramatic. That is why the adults – especially scientists and world leaders – must urgently join the chorus of young people and speak in the language of tragedy.
- Scientists may believe that anything other than qualified statements made in careful, measured tones would undermine the legitimacy of their findings. But humans are emotional beings confronting an existential crisis. The language of tragedy is our best – and possibly last – chance to open the world’s eyes before it is too late.
- **Adaptation** and **mitigation** are the **fundamental strategies** against the climate crisis. Adaptation is important to build resilience against the crisis while mitigation is essential to stop the crisis by ceasing the emission of GHGs. The latter is a major responsibility of countries with a large share of historic and current emissions.
- This was the foremost agenda of **Biden’s climate conference**. In the conference, the US committed to reduce emission by 50% and Canada by 40-45% until 2030. China offered to put strict limitation on coal consumption by 2025, phasing it down by 2030 along with net zero GHGs emissions by 2060. The UK committed to cut down emission by 68% and the EU by 55%, while India offered to expand renewable energy projects.
- The challenges, however, remain after Biden’s conference. The **crisis demands a shift from commitments to actually stopping emissions** and to deliver the promised support to countries facing the worst impact of climate crisis. The COP26 would be a decisive conference to save the future of the Earth. There is no other option. “There is no Plan B as there is no Planet B.”
- Mass involvement in policymaking over any issue works only when the masses constitute an **informed citizenry**. Climate change is no exception. **A huge portion of the global population doesn’t know much about climate change and how its lives and livelihoods are impacted by it, much less what policy and lifestyle changes are needed to tackle this threat.**
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Pakistan

- <https://www.dawn.com/news/1627628/environment-in-danger>
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- Pakistan as the country had the pleasure of hosting the World Environment Day 2021 on 5th June. Theme: ecosystem restoration
- <https://tribune.com.pk/story/2291963/climate-imperialism-is-coming>

Issues

- On Nov 12, 1970, around three weeks before Pakistan’s first democratic elections were scheduled, the Bay of Bengal was devastated by the **Bhola Cyclone**. More than 300,000 people were killed, and the terrain, livestock, and livelihoods of numerous districts destroyed. The

cyclone highlighted governance failings and poor infrastructure development in what was then East Pakistan, and the military government's sluggish response was widely criticised. Several academic studies conclude that its aftermath likely swelled the Awami League's poll results.

- There is growing recognition that climate change fuels political instability, but the discourse is securitised. A Stanford-led study in 2019 estimated that climate has influenced between three and 20 per cent of armed conflict risk over the past century, a trend that is expected to dramatically accelerate.
- It is by now well-known that a severe drought in Syria — the worst in modern times — and the resulting rural-urban migration fuelled that country's civil war. A UN report in 2018 pointed to the link between climate change and conflict in the Horn of Africa and called for urgent state-level climate risk management. In the Pakistani context, there is growing acknowledgement that climate change — particularly as it manifests as water scarcity — could be a key trigger for conflict with India, and climate security policies are evolving accordingly.
- There are reports that the dense forests of North and South Waziristan are being fast denuded of trees, most of which are hundreds of years old, by the avaricious timber mafia. These mafias are recklessly cutting trees for use as timber and also for charcoal, which are, reportedly, much in demand in neighbouring provinces of Afghanistan.
- In its bid to stop illegal logging in the scenic forests of Gilgit-Baltistan, the federal government has deployed Frontier Constabulary personnel to support the regional forest department that is said to lack the manpower, resources and training needed to protect wooded areas. They are deployed at checkpoints on forest exit routes to stop the smuggling of timber.
- According to the National Forest Policy, 2015, around 66,700 acres of forests are lost every year mostly in community-owned natural forests. This is mostly because rural communities depend on trees and plants for sustenance in the form of fuel and livelihood. In this instance, the deployment of FC men is a good stopgap arrangement, but not a long-term solution.
- Food security and water scarcity.

Steps taken

- **Adaptation to climate change** means taking action to prepare for and adjust to both the current effects of climate change and the predicted impacts in the future. Adaptation leads to resilience in the system, institution and the people. The Asian Development Bank highlights that Pakistan needs financial resources of \$7-14 billion per year for climate adaptation.
- Discuss adaptation and mitigation and then start giving solutions.
- The PPP government in Sindh has outdone the federal government after launching the country's first electric bus project in Karachi. While the initiative strongly indicates that officials are somewhat serious in moving towards a greener, more sustainable future, primarily because it is the new "in" thing, the project does not ameliorate the woes of commuters who have long been left to fend for themselves as "a result of a near-total absence of public transport in the biggest city of the country". Dilapidated infrastructure, broken roads and ramshackle vehicles continue to cause immense problems. One can also not ignore the traffic chaos in the city as main road corridors and arteries remain gridlocked for hours at a time.
- Amid all these wicked problems, a fleet of 100 electric buses might not even make a dent in front of the raging army of 3.6 million registered vehicles of Karachi. While the project may be a first

[step, what we need is a giant leap](#). The aim should be to replace all diesel buses with electric ones. The government can also invest heavily in solar buses as another suitable alternative. This will help save money which can be reinvested where it matters the most. Officials need to restructure and rebuild the transport system from the ground up in order for such initiatives to bear fruit.

- **Miyawaki forests** are popping up but there's no nationwide strategy of integrating urban forestation in the larger urban planning. This isolated focus means projects remain in limbo and ultimately crash. Projects are concluding points in an organic development web, preceded by a long-term vision, strategy, targets, enabled human resources and technical and financial architecture. For us, the 'project' is the beginning and the end.
- [Brick kiln owners in Punjab have done a commendable job by adopting the zig-zag technology at old-style hazardous kilns](#). The healthy effects of zig-zag technology are showing up in a variety of ways. One significant impact of it is on the environment, as it has helped preserve and increase biodiversity over a wide area. Butterflies, fireflies and dragonflies that were fast vanishing due to the thick smoke produced by the obsolete brick kilns are no longer threatened species. They are thriving in the relatively clean atmosphere. The success of modern technology at brick kilns should encourage other industries to adopt similar environment-friendly measures. The increasing use of modern technology will also contribute to mitigating the perilous impacts of climate change — the greatest danger that mankind faces. Like certain inalienable rights of man, nature too has its rights.
- the **Punjab government** [has decided to run all Basic Health Units on solar energy](#). At a signing ceremony in Lahore, the provincial government's health minister, Dr Yasmin Rashid, told reporters that BHUs in Sargodha, Jhelum and Mandi Bahauddin would be converted to solar to eventually be followed up by all other BHUs around the province.
- PRIME MINISTER Imran Khan has set the direction of Pakistan's pathway to decarbonising the country's economy. In his speech in December 2021 at the UN hosted Climate Ambition Summit, he declared that Pakistan will generate 60pc of its energy from renewable sources, ensure that 30pc of new vehicles will be electric vehicles and that Pakistan will no longer pursue coal power plants. These broad pronouncements can guide the country's roadmap for decarbonisation.
- The argument for decarbonisation is driven by the learning that higher economic growth rate can be achieved without proportionately increasing carbon emissions. In fact, the opposite has been witnessed in several countries: reducing carbon emissions accelerates economic growth, attracts private sector investments, promotes startups and entrepreneurs, and creates new jobs, particularly in the small and medium enterprises. The number of jobs created by renewable energy in China and India is mind-boggling and there is no reason to think that it cannot create green jobs in Pakistan as well. Post Covid-19 stimulus packages around the world are being designed to make recovery climate-smart and inclusive in order to ensure just transition.
- It's time to decide how the subsidies lavished on the fossil fuel industry can be shifted to renewable energy for a level-playing field and to spur a new climate economy.
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- China has made impressive gains in building up its electricity grid to use more renewable energy. [Electric buses are evidently becoming the norm in many Chinese cities](#). However, China needs to increase its commitment to use renewable energy in the Belt and Road Initiative (BRI), including its flagship **China-Pakistan Energy Corridor (CPEC)** initiative. Reportage of a couple of coal

powered CPEC projects being shelved, and the development of the **HydroChina Dawood Wind Power project** near Karachi, are good signs.

- **Sequestering** GHGs curtails the pace of the climate crisis. For ease of understanding, sequestration can be termed as the process of cleaning the GHGs such as carbon dioxide, methane and nitrous oxide emitted in the last 200 years.
- Of the total global carbon dioxide emission, Pakistan accounts for only 0.65%. [Its biodiversity on land and sea is a crucial source of carbon sequestration](#). The 4.5 million hectares of forest area of Pakistan is an important source of cleaning carbon dioxide along with the peatlands and marshy areas. Mangroves, seaweeds, seagrass and salt marshes sequester more carbon than terrestrial forests and the carbon stored through these sea-based ecosystems is known as blue carbon.
- In addition to the above natural sources of carbon storage, Imran Khan has added an impetus against climate change. His vision yielded the **Billion Tree Tsunami Program** in Khyber Pakhtunkhwa (K-P) that has attracted acclamation from the **World Economic Forum (WEF)** and the International Union for Conservation of Nature (IUCN), the NGO in charge of administering the Bonn Challenge, described it as “a true conservation success story.”
- After taking over as prime minister in 2018, Imran Khan amplified his vision towards the **10 Billion Tree Tsunami Program, Clean Green Cities Index, National Electric Vehicle Policy** and others.
- A mature tree cleans nearly 22 kilograms of carbon annually from the atmosphere. This figure would jump to almost 220 million tonnes after the completion of 10 Billion Tree Tsunami Program.
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Steps to be taken

- Even so, Pakistan needs to further various aspects of climate work such as; [diversification of trees in the tsunami programme, raising awareness in all walks of life, integration of climatic challenges and opportunities with all sectors of economy, building relevant capacities in the government and private sectors, climate adaptation plans that connects national and local levels considering poverty, food security, health, agriculture, livestock, disaster risk reduction and urban planning](#).
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- Wind, solar, and biogas are critical infrastructure required to wean Pakistan off its addiction to fossil fuels. At the moment, they make up 4pc of the country’s energy mix. Neither are cheap, but prices are falling, and they help meet the country’s goal of using 60pc clean energy by 2030.
- **transportation standards** have to be taken up from Euro 2 to Euro 6 as in other countries, and taxes could be considered as in The Netherlands that has a 68pc tax on unleaded petrol. Also, municipalities have imposed restrictions on certain vehicles to stimulate alternative forms of transport as Paris has, creating incentives and making it safer for travel over short distances.
- [Our climate challenge is an energy challenge](#). But solving our energy challenge requires action that goes well beyond power generation. Our energy challenge is also an energy demand problem. Achieving our collective climate ambitions requires rapid and deep transitions in each of the sectors that contribute to global energy demand, including not only power, but also transport, manufacturing, steel, and chemicals. Getting these transitions on track at the required pace implies the complete transformation of our energy infrastructure. To that end, three priorities in particular will be crucial.

- First, [we need to accelerate the pace of innovation](#). Recent analysis by the **International Energy Agency** shows that nearly half of the emission reductions needed to reach net zero by 2050 may have to come from technologies that aren't yet on the market.
- The second priority is [closer collaboration between government and industry](#). The private sector is an unparalleled engine of change. It's where the lion's share of inventors, entrepreneurs, and investors are, and their contributions will be crucial if the world is to devise and deploy green technologies at the rate required. At the same time, government action is essential to unleash the full power of business. Left to their own devices, markets won't bring about the rapid transformation of our global energy system that we need. In many sectors, businesses need strong government policy to enable lower-carbon technologies to flourish. They need government to support early innovation in new technologies, create niche markets that allow them to develop, and then implement effective policies that enable their diffusion – sector by sector.
- Lastly, we need [greatly enhanced international coordination](#). Multilateral institutions have a critical role to play in all these areas. The IEA facilitates collaboration on key energy transition technologies.
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- But regional states Bangladesh, China and India, in addition to Saudi Arabia from the Arab world, were invited by Biden. What do they bring to the table that **Pakistan** does not?
- [Bangladesh is presently heading a 48-nation grouping called the Climate Vulnerability Forum](#). Put together, they have a population of 1.2 billion and contribute 5pc of global CO2 emissions. Since CVF involves some of the most vulnerable countries, they have taken a position to stabilise global temperature rise at 1.5C and each member is committed to net-zero emissions economies before mid-century. No wonder they wield tremendous moral authority and enjoy support for many pioneering initiatives. And, this has been CVF's biggest weapon in global climate negotiations.
- [China and India are the world's highest and third highest carbon emitters respectively](#). Both countries have taken impressive strides in wind and solar energy, and have become the largest producers and users of these technologies. But both China and India are still addicted to coal power and wish to buy more time to phase out the fuel. China continues to be the biggest financier and user of fossil fuels as well as RE. [Any international process must engage both countries for a global consensus on the roadmap](#). Climate action has not become a mainstream domestic political agenda in India, unlike as in the US. China is presently leading in several technologies particularly EVs, energy storage, domestic carbon trading and carbon bonds, in addition to ecosystem-based approaches for carbon sequestration.
- The American effort is to regain some of the space it has lost by augmenting trade with India, particularly as the latter aspires to become a trade and investment destination and seeks \$170bn every year for its climate targets up to 2030. The three countries will have plenty to share and demand from each other in trade, technology and investments without always pointing fingers at one another. US climate envoy John Kerry's recent visits to China and India have already defined the contours of their future climate relations.
- **Saudi Arabia**, on the other hand, has obstructed, even blocked, international climate negotiations for decades to protect the interests of the fossil fuel industry. By inviting Saudi Arabia, the administration has taken the fault lines of American domestic politics to the Middle East. A transition to RE will deeply cut the world demand for fossil fuels and therefore it becomes

imperative to engage with the oil-producing world. The administration is taking the battle for American interest groups to the heart of the Middle East. While the tectonic plates have shifted elsewhere, the agenda with Pakistan continues to centre on cleaning up the mess created by 9/11.

- [Pakistan will need to take three specific actions to draw greater attention.](#)
- **First**, fill the ambition gap: Pakistan needs to align with global forces that seek rapid climate actions. Pakistan should therefore formally support 1) global temperature stabilising at 1.5C and not at 2C, 2) carbon neutrality by mid-century and near zero-emissions by 2030, and 3) phasing out coal power plants. A clear decision is essential, as is its communication of this national ambition to the world through Nationally Determined Contributions and the National Climate Change Policy, both presently under revision.
- **Second**, fill the credibility gap: Pakistan's announcements need to be fully credible, backed by roadmaps and measured actions. Fantastic declarations will lack in credibility unless supported by financial allocations and verifiable periodic reporting and disclosures. Historically, Pakistan's performance and data gaps have been bigger challenges to credibility than its research and scientific capacity gaps. Given frequent errors in our data and reporting, deliberate or otherwise, third-party validation will help overcome the perception gap. Elimination of lingering doubts will help lessen suspicions and unnecessary international isolation.
- **Third**, demonstrate clarity of purpose. For the world to engage with Pakistan in the global climate arena, Pakistan will need to show commitment to climate-smart development planning that i) leads to de-carbonisation of the economy and increasing competitiveness through RE and affordable energy, ii) integrates resilience across physical and human capital, and iii) strengthens macro-fiscal sustainability to protect against climate-induced shocks that might affect the economy. There is no better recipe for Pakistan to be part of the international climate change discourse than to have its own success stories, emerging from these actions, which it can share with the world.
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- [PAKISTAN has pledged to the world that it will drastically reduce its reliance on fossil fuels by shifting to cleaner energy sources and encouraging electric vehicles.](#) The SAPM on climate change assured the international community during a US-hosted virtual conference that [the country will shift to 60pc clean energy and convert 30pc of its overall vehicular fleet to electricity by 2030.](#) That is a tall order given that renewable sources, barring hydropower, constitute only a fraction of the nation's overall energy mix, and issues such as infrastructural impediments, higher upfront costs and range anxiety are likely to keep consumers from shifting to electric vehicles for many years. Besides, the government is yet to fully align its climate change goals with its power and automotive strategies even though it has separately drawn up EV and alternative energy policies. For example, the long-term plan prepared by the NTDC last year totally ignored the renewable energy option in favour of dirty fossil fuels without taking into account the cost of their impact on the environment.
- Countries like Pakistan, which are affected the most by the changing climate, need to go beyond measures aimed at slowing down environmental degradation and promote policies that target the reversal of damage already done. One of those measures would include helping farmers switch to modern irrigation and seed technologies for conserving depleting water resources for the future. In fact, unless the government formulates an umbrella policy that covers all sectors of

the economy and all segments of the population, it will not be able to win the climate war. The execution of different policies in silos will not work or produce the desired results.

- The ambitious targets spelled out at the conference will have no hope of being met without a comprehensive effort. There's no doubt that developing countries are also looking towards major economies responsible for global warming for financial assistance to tackle the problem. But they cannot sit still, waiting for the promised help to arrive. It is time they joined the race.
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Questions

- discuss evolution of climate issue in UN and its recent update.
- Explain Europe's green deal and idea of global green deal.
- How can China help in fighting climate change?
- Discuss roles of diff US presidents regarding global warming, namely Carter, Reagan, Bush, Obama, Trump and Biden.
- What are climate change's geopolitical effects especially elaborate arctic tussle?
- How CC affects education? Mention some of the environmental effects of CC.
- Major causes behind CC? fossil fuel industry or human routine?
- Give reason behind insufficient climate action until now?
- What is the concept of carbon taxes? Compare Thunberg and Gates methods to fight CC.
- Biden's climate summit agenda and outcomes? Why wasn't Pak invited to summit? Role citizens can play? Language of tragedy? Other solutions?
- How can CC fuel political instability in Pak? timber mafia and Pak's actions against them. Food insecurity and water scarcity issues.
- Elaborate steps taken by Pak in combating CC like Sindh's electrical buses initiative, Punjab's health sector innovations, PM's schemes like billion tree tsunami, Miyawaki forests, brick kilns, CPEC projects, etc.
- What steps Pak must take further? Improving transportation standards, energy challenge, economy challenge, etc.