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COP28 and the global stocktake: a weak attempt to address climate change

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The seminal outcome of COP28 was the Global Stocktake (GST), which referenced transitioning for the first time among all the United Nations' climate agreements. While the GST's attempt at energy transition is welcomed, it is deficient. In this paper, the historical challenges of international climate policymaking and implementation has been explored. The challenges that undermined previous UN agreements will likely hinder the global stocktake. Moreover, the GST's failure to use more forceful language could be a fatal flaw. Furthermore, the GST did not sufficiently define key terms like net zero and energy transition. Likewise, it did not give due consideration to energy justice. The GST missed the opportunity to take strategic advantage of state actors while creating an ecosystem for non-state actors to contribute to the fight against climate change. The GST should have taken advantage of the avalanche of scientific knowledge available on energy transition to mandate timely climate mitigation plans. Subsequent GSTs must proactively address the shortcomings of the first GST if the current generation, which is touted as the generation with the last chance to combat climate change, hopes to achieve the primary goal of the Paris Agreement.

KEYWORDS

climate change, conference of parties, climate action, global warming, international policy and implementation, global stocktake, energy transition

Introduction

Many people, from world leaders through local leaders to academics, consider climate change as the most pressing need of the 21st century (Lawson, 2016). Advocates for climate action point to the potential crises of climate change—the occurrence of extreme and erratic weather events due to the aggregation of greenhouse gases which warms the planet (Tol, 2009). The potential effects of climate change are undulating and interconnected (Tol, 2009; Bozoudis et al., 2022; Thomas et al., 2022). It jeopardizes global health, undermines food security, causes economic pain and distress, and of course, results in natural disasters (Walz and Schleich, 2009; Thomas et al., 2022; Kyriakopoulos et al., 2023). Consequently, climate change action has several co-benefits, including but not limited to, air quality, quality of life, economic growth, food security, and international peace and security (Walz and Schleich, 2009; Thomas et al., 2022; Progiou et al., 2023).

Due to the expansive nature and effects of climate change, governments have agreed to periodic meetings, the Conference of Parties, to set agendas and formulate climate policy (Lawson, 2016; Larrea et al., 2022). Climate change adaptation and mitigation, albeit not exclusive, have become the leading plans to combat climate change (Ayyoob, 2021; Kyriakopoulos et al., 2023). The former—adaptation—pertains to reducing the adverse effects

of the consequences of climate change while the latter—mitigation—focuses on averting the underlying cause of climate change, the emission of greenhouse gases (Kyriakopoulos et al., 2023). In other words, climate change adaptation attempts to cure the injuries caused by climate change whereas mitigation seeks to prevent the occurrence of climate change (Kyriakopoulos et al., 2023).

The impact of mitigation is typically felt at the international stage and the impact of adaptation at the local and national level (Kyriakopoulos et al., 2023). Nonetheless, mitigation and adaptation do not operate in isolation, instead, they go together (Klein et al., 2007; Kyriakopoulos et al., 2023). None of these two tools for countering and preventing climate change can work and deliver results alone (Ayyoob, 2021; Larrea et al., 2022). Without plans to limit or prevent the occurrence of climate change, the consequences of this phenomenon will be so grave that any strategy to deal with its aftermaths will likely be rendered meaningless (Ayyoob, 2021; Larrea et al., 2022).

Given the wide-ranging, and perhaps generation-defining effects of climate change, the importance of international efforts to address this canker cannot be overstated (Larrea et al., 2022). For this reason, the first COP was a piece of welcomed news (Larrea et al., 2022). Even though the COP has been around for almost three decades, the situation it seeks to address, climate change, has only gotten worse (Larrea et al., 2022). This publication provides a timely critique of the Global Stocktake (GST), the primary outcome of COP28, and provides recommendations that could improve future GSTs.

The global stocktake

The GST is essentially a tool for taking inventories (United Nations, 2023). It provides a checklist for governments to determine the state of climate action at the global level, the gaps within the implementation mechanisms, and the pressing climate actions that must be taken (United Nations, 2023). The GST is not country-specific; instead, it is a general framework for countries to consult. Even though the first GST was finalized in Dubai, it has been in the works since the Paris Agreement (2023). The cornerstone of the Paris Agreement was the nationally determined contributions (NDCs), which are mandatory plans that every Party to the Paris Agreement must make, showing measures that they plan to implement towards achieving the overall goal of the Agreement (United Nations Framework Convention on Climate Change, 2023). Accordingly, the GST drives the formation of NDCs which are fundamental to achieving climate goals.

Various reports went into forming the GST (Paris Agreement, 2023). First, an information collection process was started. These involved reports provided by individual countries, and United Nations organs such as the Intergovernmental Panel on Climate Change (Paris Agreement, 2023). Non-parties were not left out. These reports dovetailed into a technical assessment, which happened from 2022 to 2023. The technical assessment, a synthesis report, was framed according to the strategic cornerstones of the Paris Agreement. It focused on mitigation, adaptation, and financing. Some scholars consider international cooperation as a fourth and distinct focus of the report (Paris Agreement, 2023).

At the end of COP28 the parties agreed to do something about fossil fuels, and captured it in the GST (United Nations, 2023). The agreement does not create specific obligations for nations regarding fossil fuels. Instead, it encourages nations to participate in worldwide initiatives aimed at curbing greenhouse gas emissions as they deem appropriate (United Nations, 2023). To achieve this emission reduction goal, it provides various choices, including "transitioning away from fossil fuels in energy systems … accelerating action in this critical decade, so as to achieve net zero by 2050" (United Nations, 2023). While the agreement did not require nations to phase out fossil fuels, as had been hoped by some countries such as the United Kingdom and the United States, the GST is the first time in the history of the United Nations—and its climate initiatives—that parties referred to energy transition from fossils to cleaner sources of energy. In this light, COP28 was a significant moment.

The GST has been heralded as the beginning of global energy transition. In addition to the reference to moving away from fossil fuels, the GST called on countries to triple their renewable energy capacity and double energy efficiency (United Nations, 2023). The findings of this paper show that COP28 failed to deliver on the most pressing climate action: energy transition.

Overview of notable climate actions

COP28 was not the first time that a meeting of the world's elite raised hopes regarding climate action. In 1997, some countries gathered in Japan to discuss climate change. At the end of the discussions, the Kyoto Protocol was adopted, giving birth to the United Nations Framework Convention on Climate Change, and making climate change an international agenda (American Planning Association, 2005; Aichele and Felbermayr, 2013). The Kyoto Protocol called on nations across the world to reduce greenhouse gas emissions by 5% (American Planning Association, 2005). Specifically, the protocol asked some thirty-seven industrialized and developed countries to reduce their greenhouse gas emissions per agreed percentages (Aichele and Felbermayr, 2013).

The aftermath of the Kyoto Protocol brought light to challenges that have since plagued multinational climate action. To begin with, the agreement did not come into force until 2005—seven odd years after it was adopted (American Planning Association, 2005). World politics was on full display. The United States, which, at the time, accounted for more than one-third of global greenhouse gas emissions refused to ratify the agreement (Kumazawa and Callaghan, 2012). The obligation that the agreement placed on the US to reduce its emissions by 7% was inconsistent with the national energy and socio-economic goals of the country, America argued (Aichele and Felbermayr, 2013). For President Bush, energy independence and domestic economic success prevailed over climate action.

In addition to world politics, the drafters of the Kyoto Protocol did not seem to look far into the future. At the time of the agreement, China was not a first-world country, but by the time the initial expiration of the agreement was up, China had transformed into an economic giant, and consequently, a leading emitter of harmful climate gases (Aichele and Felbermayr, 2013). The fundamental flaw of the Kyoto Protocol was that it based its primary emission reduction goals on 1990s data (American

Planning Association, 2005; Aichele and Felbermayr, 2013). Countries that were not major emitters at the time did not have the same enumerated obligations as major emitters. This approach probably made sense. International climate action was very much a naïve conception at the time and the drafters of the protocol opted for a result-oriented approach, thereby targeting emission reduction in countries that would readily translate into lower levels of atmospheric greenhouse gases. When China became a leading emitter, countries like the US found another excuse to maintain their anti-Kyoto Protocol stance (Rosen, 2015). If China could emit as much as it wanted but not have any enumerated obligations under the Kyoto Protocol, then some developed countries did not see a reason to reduce emissions.

The Kyoto Protocol did make some impact in reducing emissions. According to one study, about 10% reduction in emissions was attributable to the protocol, and this represents a success given that the protocol had targeted an overall reduction of 5% in greenhouse gas emissions (Aichele and Felbermayr, 2013). While the emissions in many target countries were reduced, the overall global emissions increased however (Rosen, 2015). To stem increasing emissions, countries got to work in 2011. They started negotiating towards a new international framework on climate change.

In 2015, the Paris Agreement was adopted (Cordonier Segger, 2016; Seo, 2017; United Nations, 2019). The agreement has four main goals. First, it seeks to limit atmospheric temperature rises to 1.5°C above pre-industrial level and keep such rises well below the 2.0°C mark (United Nations, 2019). Second, the accord sought to achieve net zero by the end of the 21st century (United Nations, 2019). Third, every party was to establish its individual emission reduction goals, subject to review every five years, and fourth, richer countries were to provide the necessary financial support to smaller countries to fight climate change (United Nations, 2019).

The Paris Accord has 194 signatories, including the European Union (Seo, 2017). The ratification of the Paris Agreement is almost universal. Nevertheless, the near-unanimous appeal of the accord has not translated into proactive and effective climate action.

Like its predecessor, the Kyoto Protocol, the Paris Accord has been bedeviled by world politics. The United States, under President Trump, withdrew from the agreement (Seo, 2017). Even though the US rejoined the agreement under President Biden, such inconsistent national commitment was never going to aid the cause against climate change.

Another challenge of the Paris Accord has been misinformation, primarily rearing its head through climate denial. Despite scientific evidence to the contrary, some people, including leading political and scientific figures, doubt climate change (Bonds, 2016; Cann and Raymond, 2018). Some go to the extent of labeling climate change as a "hoax." Furthermore, the Paris Accord had no self-executing mechanisms (Seo, 2017; United Nations, 2019). Essentially, it was a combination of recommendations that signatories may not follow. The nature of the agreement is a symptom of international law and policy (Ben-Shahar and Bradford, 2012).

Between the Kyoto Protocol and the Paris Accord, developed countries promised, in 2009, to give $100bn yearly to developing countries to reduce emissions (Chowdhury and Jomo, 2022). For over 10 years, this pledge has not been fulfilled (OECD, 2021). Although progress was made last year regarding this pledge, the contributions of developed countries fell short of their pledge.

The challenges to decisive climate action have increased over the years

The same forces that undermined previous international climate progress are still at play. World politics is still a thing. So is climate denial. Additional developments have made matters worse. For example, energy reliability and affordability are common legitimate arguments against wholesale climate action (Zhao, 2019; Singh and Ru, 2022). For all its benefits to the planet, current forms of renewable energy are not as reliable and affordable as fossils (Singh and Ru, 2022). Reliability pertains to the ability of a generating unit to deliver uninterrupted energy. Renewable energies, such as solar and wind systems, are not always reliable as they depend on environmental conditions. There is a risk that the system will go offline, and blackouts will occur when environmental conditions do not permit (Singh and Ru, 2022). Due to the unreliability of renewables, they are not usually used as baseload power sources, instead, they typically serve as intermediaries.

Because renewable plants are not always operating, their actual energy as a fraction of their capacity is low, and this goes to the issue of affordability (Ordóñez et al., 2010; Singh and Ru, 2022). The result is higher financial costs. Fossil fuels tend to be cheaper than renewables because fossil fuel-powered plants are online most of the time than renewables.

Then there is also the little matter of the role of fossils in socio-economic transformation. Carbon dioxide, the predominant greenhouse gas, has long been the consequence of the economic transformation of countries (Dissanayake et al., 2023). Developed countries have grown their wealth and might at the expense of the planet for decades. These countries have been emitting greenhouse gases as a byproduct of their enormous industrial, agricultural, commercial, and residential activities (Onofrei et al., 2022). As these countries created wealth, built world-class infrastructure, provided quality healthcare and education, and ensured their territorial security, the planet suffered. It is no coincidence that eight out of the world's ten economies are part of the ten biggest, historical emitters of greenhouse gases.

The United States of America, China, Japan, Germany, the United Kingdom, India, France, and Canada are some of the biggest emitters of greenhouse gases in history (Han et al., 2018; Cail and Criqui, 2021; Zhao et al., 2022). These countries happen to be the ten biggest economies in the world today. Also, all the ten biggest economies, including South Korea and Italy, are part of the fifteen largest emitters of greenhouse gases. Even though these countries derive their wealth from varied sources, greenhouse gas emissions are a common denominator of their respective economies. The relationship between the emission of climate-damaging gases and the socio-economic fortunes of countries could provide a crucial explanation for the passive climate actions we have become accustomed to.

The fundamental truth is that countries have built their prosperity by destroying the earth (Onofrei et al., 2022; Dissanayake et al., 2023; Mitić et al., 2023; Zhang et al., 2023). The relative socio-economic success of non-traditional superpowers—Qatar, Kuwait, United Arab Emirates, Luxembourg, and Saudi Arabia—which occupy five of the top ten slots of carbon dioxide emissions *per capita*, tells a story on its own. Activities that emit greenhouse gases continue to be a gateway out of poverty for countries. Every country

has the right to socio-economic progress, but it must not do so at the expense of the environment and other countries.

Available evidence shows that renewable energy can be reliable and affordable (Dissanayake et al., 2023). Renewable energy can transform the socio-economic fortunes of a nation too, just like fossils did. Some schools of thought have held that the world has focused so much on fossils that it has failed to adequately harness its renewable energy potential (Dissanayake et al., 2023). The promise of hydrogen as a reliable and affordable form of renewable energy, for instance, has not been fully explored due to inadequate investment and research (Creutzig et al., 2015; Iqbal and Rahim, 2023).

Implementation of the NDCs

Under the Paris Agreement, each Party is required to design, submit, and update a Nationally Determined Contributions (NDCs), which are plans that each Party intends to implement towards climate change adaptation and mitigation (United Nations Framework Convention on Climate Change, 2023). Over the years, the NDCs have become the go-to barometer for evaluating a country's climate policy. It appears that the Parties to the Paris Accord have been taking the NDCs seriously (United Nations Framework Convention on Climate Change, 2023). The recent synthesis report by the United Nations Framework Convention on Climate Change showed that 95% of the signatories to the agreement provided the requisite information on their NDCs (United Nations Framework Convention on Climate Change, 2023). Furthermore, 94% of the parties included information on mitigation goals, out of which 96% provided quantifiable information on measuring their mitigation targets (United Nations Framework Convention on Climate Change, 2023). The overwhelming majority of the parties, 93%, stated that the implementation period for their NDC is until 2030 (United Nations Framework Convention on Climate Change, 2023). The remaining 7% intend to implement a period to run as far as 2050. All the parties reported that they have already started implementing their NDC, with over half starting the implementation in 2021 (United Nations Framework Convention on Climate Change, 2023).

Based on the updated NDCs, GHG emissions are predicted to be 53.2 Gt CO_2 eq and 51.6Gt CO_2 eq in 2025 and 2030, respectively (United Nations Framework Convention on Climate Change, 2023). This projection is almost identical to the level of emissions based on the 2022 NDCs (United Nations Framework Convention on Climate Change, 2023). The projections present a strong possibility that emissions will peak by 2030 (United Nations Framework Convention on Climate Change, 2023). This translates into a 50% likelihood that global warming will be limited to 1.5°C by the end of the century (United Nations Framework Convention on Climate Change, 2023). The likelihood that global warming will be limited to 2°C by the same period is increased to 67% (United Nations Framework Convention on Climate Change, 2023).

Even though these projections appear promising, they fall short of the estimations based on the Intended Nationally Determined Contributions, which were made in April 2016 (United Nations Framework Convention on Climate Change, 2023). There is a 15.1 Gt CO_2 eq gap required to maintain the 67% chance of limiting global warming to 2°C. The discrepancy is starker when it comes to the required targets to have a 50% chance of keeping global warming to 1.5°C (United Nations Framework Convention on Climate Change, 2023). The quantified gap is 22.9 Gt CO_2 eq (United Nations Framework Convention on Climate Change, 2023). This gap underscores the need for more pragmatic climate action. Based on the plans and projections of the Parties, there is a 50% chance that the primary goal of limiting global warming to 1.5°C by 2030 will fail (United Nations Framework Convention on Climate Change, 2023). Barely two months after COP28, news broke, from the European Union's Copernicus Climate Change Service (EUCCS), that for the first time in history, the Earth's temperature broke 1.5°C when it recorded 1.52°C in parts of 2023 (Osaka, 2024). While the Parties may be forgiven for not possessing the foresight to foretell the EUCCS' finding, it cannot be excused, as discussed in this paper, for making half-hearted decisions to address a problem that is widely recognized as generation-defining, especially when the Parties knew that their current plans—the NDCs—would likely not produce the desired results.

Mitigation models in literature vis-à-vis the NDCs

Central to mitigation is the provision in Article IV of the Agreement which admonishes parties to develop and turn in the long-term low greenhouse gas emission development strategies (LT-LEDS) to the UNFCCC. LT-LEDS, like many other mechanisms of the Accord, are country-specific models that inform plans for long-term mitigation (Akkermans et al., 2023). While the models can be themed in different ways, two—forecasting and back-casting—are sacrosanct. Forecasting pertains to extrapolating scenarios for limiting global warming based on current occurrence while back-casting relies on theoretical happenings to predict the same. There are two broad means of forecasting: macro-economic and technological (Akkermans et al., 2023). The macro-economic model takes an all-encompassing approach that assesses a broad array of economic variables, including but not limited to population, energy mix, and economic growth, to inform mitigation measures (Akkermans et al., 2023). The technological approach, on the other hand, takes a bottom-up approach. It tackles mitigation from the perspective of individual projects or initiatives (Akkermans et al., 2023). Carbon dioxide removal technology has been seen as an effective and reliable mitigation method. Some studies have established that carbon dioxide removal technologies have a high potential of achieving the IPCC's scenario which produces a 50% chance of keeping global warming below 2°C threshold (Akkermans et al., 2023).

Evidence exists regarding effective mitigation pathways. A study that analyzed alternative mitigation pathways to Tajikistan's LT-LEDS illustrates the shortcomings of the current international climate action regime (Akkermans et al., 2023). The study utilized back-casting to predict reductions in greenhouse gas emissions by 2050 through four pathways (Akkermans et al., 2023). The first pathway focused on the decarbonization of the country's energy mix. The second pertained to the enhancement of natural carbon removal means, and the third combined the first and second pathways. The fourth pathway inculcated carbon dioxide removal technologies (Akkermans et al., 2023).

Each of the pathways produced substantially better outcomes than the country's LT-LEDS. Pathway One reduced emissions by 60.3 to

79.4% compared to the 2016 national GHG inventory and the 2050 LT-LEDS, respectively (Akkermans et al., 2023). Even though Pathway Two was estimated to be less effective in terms of emissions reduction than Pathway One, it still produced better results than the two national plans. Pathway Three produced a near-perfect outcome: a 98.7% to 99.4% compared to the two national plans (Akkermans et al., 2023). The best outcome came from Pathway Four, which resulted in zero emissions by 2050, thus enabling the country to achieve a net zero status (Akkermans et al., 2023).

Scientific tools are also available to examine the cost-effectiveness of these measures. Marginal Abatement Costs (MAC), for instance, enables policymakers to determine the cost-effectiveness of energy transition technology (Akkermans et al., 2023). In furtherance, sector-specific measures, which can also be termed mini green energy portfolios, also have the potential for reducing emissions and, overall, protecting the environment (Bozoudis and Sebos, 2021; Bozoudis et al., 2022; Kyriakopoulos et al., 2023). Mitigation plans for hospitals, for example, can go a long way in a country's overall climate change fight, and consequently reduce global warming (Bozoudis et al., 2022). Transitioning a hospital's electrification to low-carbon sources is an effective mitigation measure (Bozoudis et al., 2022). Similarly, green behavioral change such as encouraging hospital staff and professionals to conserve energy whenever possible also boosts the fight against climate change (Bozoudis et al., 2022). So do energy efficiency actions like installing highly efficient equipment (Bozoudis et al., 2022). In the agricultural sector, proposals like green-oriented training and education of producers, rationalizing fertilizer use, sustainable waste management, and adoption of innovative farming practices such as precision farming can go a long way in reducing global warming (Kyriakopoulos et al., 2023).

The same applies to telemedicine, which contributes to a substantial reduction of greenhouse gases by eliminating the carbon footprint due to transportation to hospitals (NHS Midlands and Lancashire Commissioning Support Unit, 2018; Vidal-Alaball et al., 2019). A relatively new suggestion involves COVID-19-like interventions such as remote working, in the absence of the pandemic, reduced carbon footprint by about 40% (Papadogiannaki et al., 2023; Progiou et al., 2023). In some scenarios, carbon footprint due to COVID-19 measured reduced emissions by as much as 90% (Progiou et al., 2023). Even though a measure like lockdown is not universally accepted in the absence of a pandemic, remote working could serve as an important point of climate change mitigation (Papadogiannaki et al., 2023).

Meanwhile, evidence suggests that the *laissez-faire* nature of the current dispensation for international climate action is undermining progress. Armed with all this scientific information on the approaches to mitigation, only 58% of the Parties stated, in their recent NDCs, their willingness to transition to low-carbon economies (United Nations Framework Convention on Climate Change, 2023). Even though 90% of the parties recognized the need for renewable energy generation as a mitigating measure, only 14% provided benchmarks for determining the share of their electrical mix that will be composed of renewable sources by 2030 (United Nations Framework Convention on Climate Change, 2023). Furthermore, only 9% of the parties committed to "phasing down unbated coal power generation" and another 4% to removing "inefficient fossil fuel subsidies" (United Nations Framework Convention on Climate Change, 2023).

The GST and its weak attempt to resolve an urgent issue

To the extent that COP28 addressed energy transitions, it was a weak effort. The agreement did not mandate countries to phase out fossils. It gave vast liberties to countries to produce detailed climate adaptation plans by 2025 (United Nations, 2023). In essence, the GST is calling for information gathering. It is almost as if the COP did not have sufficient information to take decisive climate action. However, bullet point twenty-seven of the GST "recognizes that limiting global warming to 1.5°C with no or limited overshoot requires deep, rapid and sustained reductions in global greenhouse gas emissions of 43 per cent by 2030 and 60 per cent by 2035 relative to the 2019 level" (United Nations, 2023).

Having identified the precise remedy to global warming, the GST inexplicably "calls on" and "urges" parties to take actions that would "contribute" to the transitioning of fossils (United Nations, 2023). An analogy would be for a doctor to diagnose a fatal disease, and instead of recommending a treatment, the doctor asks the patient to return home, monitor the disease, and return in Five years with additional information. The patient's health would likely degenerate beyond healing by the time. Our planet may suffer the same fate. If recent studies are anything to go by, then a cataclysmic event may be staring us in the face by the time the COP is done with its information gathering (United Nations Environment Programme, 2023).

Almost twenty years after the first climate summit, the planet continues to get warmer. A recent report showed that atmospheric temperatures reached 1.8°C above pre-industrial levels in September, exceeding the safe threshold of global warming (United Nations Environment Programme, 2023). Ominous times possibly lie ahead. COP28, being aware of findings on recording breaking temperatures, and other studies which showed that, at the current rates, within the current policy framework, the world will warm by 2.4°C to 2.9°C above pre-industrial levels, one would have expected COP28 to treat this summit as a make-or-break moment (IPCC, 2023; Sanderson, 2023; United Nations Environment Programme, 2023). Instead, they waffled.

The best they could manage was a vague commitment. History has shown that the world does not have the time for another dodgy journey on climate action. It took over half a decade for the Kyoto Protocol to come into effect. For over ten years, the pledge to fund climate action in developing countries has been a mirage. Indeed, GST, the name of the COP28 agreement, originates from the Paris Agreement (United Nations, 2019). Under the Paris Agreement, countries must report their greenhouse gas emissions measures. Based on these data, a global inventory is created, serving as an indicator to prompt countries to intensify their climate actions. Yet, it took eight years for GST to become a reality—assuming it will be implemented as planned. If it takes an inventory system 8 years to happen, what is the guarantee that energy transitions will happen anytime soon? Transitioning from fossils to clean energy does not look promising.

Studies have established that about 75 to 90% of greenhouse gas emissions emanate from fossils (Jones et al., 2023; Lelieveld et al., 2023). The COP has all the information it needs to make the necessary decisions. The GST could have simply required countries to limit their energy mix to 25% fossils by 2030. This would have been a simple, measurable, attainable, realistic, and timely goal.

Loopholes in the enforcement of international agreements

Even if the GST had obliged the countries to transition from fossils, such an obligation would have been difficult to enforce. Almost every country has its internal legal process of passing laws, including ratifying international agreements. Oftentimes, the executive leaders of countries would commit to international agreements such as the GST only for their domestic legislatures to reject such agreements (Sands, 2001; Ben-Shahar and Bradford, 2012). The US is a prime example. International agreements are considered treaties under US law, and for such treaties to be binding on the nation, the Senate must approve them. The Senate did not approve the Paris Agreement, paving for a subsequent president to withdraw from it. Domestic legislative approval does not end the issue of enforcement. Unlike domestic courts, international courts have next to no mechanisms of enforcement (Roberts, 2011).

A stronger language on phasing out fossils in the GST would have been more beneficial regardless. It would have imposed a sense of obligation on the countries, making them more conscious about phasing out fossils. Moreover, the international naming and shaming that comes with violating a blatant agreement could have stimulated many governments to adhere.

The role of actors

Policies, like climate change adaptation and mitigation, are not only about their substantive content but also, they are about the people and institutions that influence the policies (Bernauer and Schaffer, 2012; Lawson, 2016). The COP highlights the critical role of actors in climate change adaptation and mitigation. Actors are active in the policy process, from agenda setting through formulation to implementation and evaluation. The complex nature of international agreement on a cross-cutting issue like climate change arguably makes the actors as important as the agreements these actors reach (Bernauer and Schaffer, 2012).

Awareness of climate change, its effects, and effective adaptation and mitigation measures to combat climate change is fundamental (Sebos, 2022). The case is even more so among stakeholders, a group of people who shape climate change policy (Sebos, 2022). Not all stakeholders understand comprehensive climate action, however. In Greece, a vast array of stakeholders recognized that climate change was a problem that required urgent attention. Most of these stakeholders wrongly considered adaptation measures as a sufficient means of combating climate change (Sebos, 2022).

At the global level, it does not appear, or so it seems, that the perception of stakeholders on the enormity of the imminent crises that climate change presents (Bernauer and Schaffer, 2012). To a large extent, governments and their organs, who serve as the center of policymaking during the COPs, routinely acknowledge the dangers associated with climate change (Bernauer and Schaffer, 2012). The problem, however, lies in the response of these stakeholders to climate change. Just like the stakeholders in Greece, the actors at the COP28 fell short of recognizing sufficient climate action. The battle against climate change, if it is won, must be through holistic and pragmatic policymaking (Bernauer and Schaffer, 2012; Creutzig et al., 2015; Bonds, 2016; Lawson, 2016; Chowdhury and Jomo, 2022).

COP28 failed to effectively harness the power of actors. The conference's lack of willingness to give clear direction will not help stakeholders. Governmental actors were given a breather by the GST. It sends them on a data collection exercise. Certainly, the COP's mantra on information collection regarding climate policy, to wit, "if you cannot measure it, you cannot improve it" is well taken (Vonortas and Papayannakos, 2014; Perugini et al., 2021). However, the current problem is not chiefly one of lack of information. The problem is the inadequacy of pragmatic action. By not outlining pragmatic adaptation and mitigation measures, the GST will likely fail to capitalize on the offering of non-state actors too. Given their relatively low influence on climate policy, non-state actors are the most effective in supportive roles (Hale, 2018). They will be in a better position to develop and implement adaptation mechanisms if they know the specific targets to pursue, which the GST failed to provide (Bäckstrand et al., 2017).

Stakeholder mapping and analysis, a method for estimating the differential clout that various categories of actors have and their influence on climate change adaptation, provides an insight into how COP28 could have utilized actors at both central and local levels in the various communities (Ioanna et al., 2022). All actors do not carry the same weight as it pertains to influencing climate policy. Actors in national ministries designated to address climate change and general energy issues typically have more influence than others such as those in non-governmental organizations and academia (Ioanna et al., 2022).

Other outcomes of COP28 do not go to the heart of the climate problem

Many commentators have praised the GST for encouraging countries to triple their renewable energy capacities by 2030 towards net zero. This clause looks good on its face, but it is porous beneath. Energy capacity does not necessarily translate into energy (Ordóñez et al., 2010). While energy is the actual output of a resource, capacity is the overall capability of the energy source that is available to a country at a particular time.

Capacity is merely the prospects of a generating unit. Generating units do not typically run all the time. Therefore, a country can triple its renewable energy capacity, but the same country can continue to generate electricity mainly through fossils because fossils typically operate as base units. In other words, rather than being the main source of energy, renewables may end up being a way for countries to supplement their energy mix. Countries may triple their renewable energy capacity for the sake of it. The superficial nature of the GST's call for parties to triple their renewable energy capacity is a fertile ground for greenwashing.

Another notable "achievement" of COP28 was asking countries to double their energy efficiency (United Nations, 2023). The role of energy efficiency in tackling climate action change is not disputed. With more efficient energy systems, countries would have a lower need to burn climate-harmful materials for energy. Accordingly, emissions will be reduced. However, doubling energy efficiency as a climate action is a footnote at best (Ordóñez et al., 2010). The role of energy inefficiency, as compared to fossils, in climate change is negligible. So, energy efficiency measures will not make the same impact as transitioning from fossils (Ordóñez et al., 2010). Moreover, the governments and heads of state of almost 200 countries did not leave their countries for almost two weeks

to go to Dubai for lessons on energy efficiency. They went for something bigger: energy transition. And they failed to deliver, returning only with consolation prizes.

In furtherance, the GST aim to attain net zero by the middle of the century. However, it failed to define net zero (United Nations, 2023). The definition of net zero was crucial because the term has evolved over the years. Traditionally, net zero involves a reduction in carbon emissions to the extent that natural means—such as forests, the soil, and oceans—would absorb the remaining carbon (Hu, 1970). In recent times, the concept has evolved. Net zero does not necessarily include a reduction in emissions, but it involves carbon capture technologies that are aimed at removing the amount of emissions that are attributable to an entity (Fankhauser et al., 2022; McKinsey & Company, 2022). The problem is many of these decarbonization technologies, including open-air carbon capture, are unproven (Fankhauser et al., 2022). By failing to define net zero, COP28 leaves a gap for nations to exploit. Crafty nations may produce countless emissions when they can point to anything resembling decarbonization initiatives, even if ineffective.

Meanwhile, the framers of the GST have sufficient information to provide clear-cut definitions and limitations on words such as "net zero" (Perugini et al., 2021) The message from the first GST high-level committee meeting described the transition to include "decarbonizing industry using all available technologies, decarbonizing transport, and halting deforestation" (United Nations, 2023). The communique quickly clarified that this message was not a consensus from the meeting (United Nations, 2023). Alluding to decarbonizing industry is by no means a worthy definition of net zero, but it is better than leaving the definition open, thus opening the floodgate for all manner of greenwashing. Additionally, it seems like the 2006 IPCC Guidelines and 2019 Refinement did a better job defining terms like net zero although their approach is limited. More robust criteria, including for estimating when biofuels lose their carbon-neutral status, have been developed since the IPCC's guidelines (Sebos, 2022).

Furthermore, although the GST alluded to energy equity and justice, the GST did not provide any measurable guidelines on energy justice. Involving indigenes of energy-producing communities is a cornerstone of energy justice (Losada-Puente et al., 2023). This involvement is important because communities that live around sources of fossil fuels build their local economies around these fossil fuels (Young et al., 2023). When the production of these resources is halted or reduced to make way for energy transitions, these communities suffer severe socioeconomic consequences (Young et al., 2023). Events in the Central Appalachia Region, which has been synonymous with coal production in the United States over the past century, serve as an example of fatal failures of just energy transition (Young et al., 2023). When coal production was reduced by almost 70% over the past two decades, the locals felt the effects (Young et al., 2023). Employment dropped drastically while unemployment soared (Young et al., 2023). People left their communities in droves in search of greener pastures (Redican et al., 2012). Furthermore, the sub-region became a hotbed for the opioid pandemic (Redican et al., 2012). The dire consequences that can be associated with energy transitions warrant that just energy transition was given greater attention than the cursory references that were made to this all-important consideration in the GST.

Conclusion

The first GST is not the planet's much-needed climate pill. Although this was the first time that an agreement of such nature referenced energy transitions, its results, if any, will likely underwhelm, just like previous international agreements. Unlike previous climate action failures, however, the consequences may be grave this time. The global nature of the climate problem means that international cooperation is important to climate policy and implementation, but at the same time, the failures of the COP highlight the critical role of individual nations.

The failures of the GST are, nonetheless, not a death sentence to climate action. This is the first GST, and COP can make amends in subsequent GST. Specifically, the COP should adopt mandatory standards, based on scientific models that address the root cause of climate change. Future GST should enumerate a broad array of energy transition measures including carbonization of the energy mix, natural measures of carbon removal, and a combination of both. It should also make room for innovative technology and provide guidelines on how the effectiveness of these technologies should be determined to prevent greenwashing. Also, future agreements must provide guidelines on energy justice measures. Likewise, any future agreement should create a conducive ecosystem for non-state actors while maximizing the influence of state actors. Overall, scientific evidence, but not the quest for PR wins, must be the guiding light of future agreements.

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Author contributions

KA: Writing – original draft, Writing – review & editing.

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Conflict of interest

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