

CLIMATE GOVERNANCE AND PRACTICAL SOLUTIONS FOR GREEN RECOVERY

International Organisations Research Journal, 2022, vol. 17, no 2, pp. 110–134

Original article

doi:10.17323/1996-7845-2022-02-05

Governing Climate Change at the G20 Rome and UN Glasgow Summits and Beyond¹

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Abstract

How and why does the Group of 20 (G20) work, both alone and together with the United Nations (UN), to advance the effective global governance of climate change, especially in 2021 and beyond? G20 summit performance on climate change has increased since 2008 as measured by the six major dimensions of governance, but not by the results in net emissions reduced. G20 efforts to spur performance at subsequent UN climate summits has varied, from substantial at G20 Pittsburgh for UN Copenhagen in 2009, to limited at G20 Antalya for UN Paris in 2015, and to strong at G20 Rome for UN Glasgow in 2021. G20 efforts have been spurred by the physical climate shock-activated vulnerabilities experienced by G20 members in the lead-up to G20 and UN summits, especially from escalating extreme weather events, but have been constrained by diversionary shocks from finance in 2008–09, terrorism and migration in 2015, and COVID-19 in 2020–21. Also important were the personal commitments of, and domestic political support for, G20 and UN summit hosts, especially regarding the G20 and UN summits uniquely chaired by Group of 7 (G7) members Italy and the United Kingdom in 2021. Yet, the unprecedented combined G20–UN supply of global climate governance in 2021 fell even further behind the proliferating global demand to control climate change. To close the gap, the G20 should invite the heads of the major multilateral environmental organizations to participate in G20 summits, hold more environment ministers' meetings each year, and mount an annual climate-focused summit at the UN General Assembly.

Keywords: G20, UN, climate change, Rome, Bali, governance

For citation: Kirton J., Warren B. (2022) Governing Climate Change at the G20 Rome and UN Glasgow Summits and Beyond. *International Organisations Research Journal*, vol. 17, no 2, pp. 110–134 (in English). doi:10.17323/1996-7845-2022-02-05

¹ This article was submitted 18 January 2022.

Introduction

The Challenge

Group of 20 (G20) summits have governed climate change since their start in Washington DC in November 2008, in London in April 2009, and in Pittsburgh in September 2009. The leaders of the world's systemically significant states gathered there in person to control the American-turned-global financial crisis that left millions homeless, deepened poverty, and widened the wealth gap. In 2009, with the financial crisis still raging, 196 country leaders met in Copenhagen under the auspices of the United Nations (UN) Framework Convention on Climate Change (UNFCCC) to negotiate an agreement to prevent a brewing ecological crisis that would do far more damage than the ongoing financial one. In the lead-up, G20 leaders, whose countries accounted for nearly three quarters of all global greenhouse gas emissions (GHG), stated they would “spare no effort to reach agreement in Copenhagen” [G20, 2009]. They mobilized the World Bank to step up and agreed to phase out inefficient fossil fuel subsidies in about five years. They cited research from the Organisation for Economic Co-operation and Development (OECD) and the International Energy Agency (IEA) showing that eliminating fossil fuel subsidies by 2020 would reduce GHG by 10% in 2050.

Yet, this did not inspire constructive UN collaboration at Copenhagen due to resistance from the BRIC countries of Brazil, Russia, India, and China. At the next G20 summits, in Toronto in June 2010 and Seoul in November 2010, the G20 leaders' communiqués [G20, 2010a, 2010b] revealed the first climate-related fracture between their developed and developing members. The Toronto communiqué read: “*those of us* who have associated with the Copenhagen Accord reaffirm our support for it and its implementation and call on others to associate with it” [G20, 2010a] (*italics added*).

Sustainable development took an increasing share of G20 leaders' climate change conclusions, as their hosts moved from the Group of 7 (G7)—the U.S., the UK, Canada, and France—in 2011, through Korea in 2010 to Mexico in 2012, Russia in 2013, and Australia in 2014. Turkey declared at its Antalya summit that 2015 was a “critical year” for both sustainable development and climate change [G20, 2015]. It was indeed. Both the 2030 Agenda for Sustainable Development, with its 17 sustainable development goals (SDGs), and the UN Paris Agreement on Climate Change were agreed at UN summits that year. At China's G20 Hangzhou summit in 2016, all G20 members promised they would implement the 2015 Paris Agreement in a timely manner.

But less than one year later, Donald Trump arrived as U.S. president. On 1 June 2017, he renounced the Paris Agreement, promising to withdraw America from it. At the G20's Hamburg summit in July 2017, host Angela Merkel led the rest of the G20 to continue their full support for its implementation, even as America abandoned it and the climate crisis grew.

Three years later, the deadly COVID-19 pandemic arrived, producing the strongest diversionary shock to G20 governance yet. In 2020, COVID-19 overshadowed what proved to be a poorly performing G20 summit on climate change, hosted by a climate action-reticent Saudi Arabia. COVID-19 led to the cancellation of both the UN climate and UN biodiversity summits that year. Then, in January 2021, came an attack on the U.S. Congress by a White mob trying to prevent a legitimately elected moderate democrat, Joe Biden, from becoming president.

The overpowering anxiety and uncertainty about the decline in democracy and international cooperation was further fuelled by the ferocious heat, fires, and floods that destroyed land and lives across the G20 and the world. G20 leaders, at their Rome summit on 30–31 October, performed strongly on climate change, producing some momentum for the UN's COP26 summit in Glasgow from 31 October–12 November. But not enough. Glasgow's new agree-

ments would, if fully implemented, only lower the global average temperature from 3–4°C to 2.4°C, well over the Paris Agreement’s goal of a 2°C, and ideally 1.5°C, rise.

There is now little time left to stop the growth of greenhouse gas emissions and concentrations in the atmosphere and none to act on disaster preparedness and response. Climate-related shocks are proliferating. The world’s multilateral organizations from the 1940s have failed to stop the deadly spiral from spinning out of control. The G20 thus has an enormous global climate governance gap to fill.

The world now looks to the G20 summit in Bali, Indonesia on 15–16 November 2022 to do so. Indonesia chose a sustainable energy transition as the third of its three summit priorities but did not mention “climate change.” Amidst the new geopolitical conflicts erupting on the road to Bali, the outstanding question remains whether and how the G20 can provide the bold leadership required to reverse the climate crisis and equitably adapt to what is already here, given how and why it has worked in the past.

Schools of Thought

The course and causes of G20 summit governance of climate change have been the subject of rich and often theoretically grounded debate among many distinct schools of thought [Kirton, Kokotsis, 2015, pp. 4–8; Kirton, Kokotsis, Warren, 2022, Chapter 1]. New schools have recently emerged [Johnstone, 2021; Kirton, Wang, 2022; Nascimento et al., 2021; Skovgaard, 2021; Unger, Thielges, 2021] along with an ever-expanding array of climate science led by the Intergovernmental Panel on Climate Change [Pörtner et al., 2022].

These schools have been enriched by those focused on the G20’s Rome summit and its relationship with the UN’s COP26 Glasgow summit.

The first school sees hopes dashed. UN secretary-general António Guterres [2021] tweeted that his hopes for a successful Rome summit ahead of COP26 were left “unfulfilled.” Caitlyn Byrne [2021] saw a missed opportunity for G20 leadership. Simon Kofe, foreign minister of Tuvalu, expressed disappointment that COP26’s language on coal had been weakened, stating that the survival of countries like his was at stake [Singh, Sheldrick, Browning, 2021].

The second school sees weak results due to institutional design. Javier Blas [2021] agreed that the G20 did not perform well at Rome, but noted that this was due to the inclusion of language favoured by fossil fuel producers. Injy Johnstone [2021] argued the G20 lagged in ensuring a green recovery from COVID-19 due to the G20’s embedded foundational mission to boost economic growth and the commensurate influence of G20 finance ministers and central bank governors. On COP26, Murray Worthy also saw the influence of the fossil fuel industry, which had the largest delegation at COP26, as the most significant barrier to deep emissions cuts [McGrath, 2021]. He argued that fossil fuel lobbyists should be banned from the UN’s climate talks, as tobacco lobbyists were from those of the World Health Organization (WHO).

The third school sees reason to hope. Paola Subacchi [2021] emphasized that the G20 made some tangible advances on climate action. Luca Bergamaschi [2021] highlighted some of the agreements made, even if “wide delivery gaps remained.” In this vein, Jacob Davidson and Carla Monteleone [2021] deemed the Rome summit a success on climate change, due to the Italian prime minister’s extensive experience and widespread respect and also to the changed global context with the new Biden administration leading the United States. On the UN’s COP26, Sam Geall [2021] argued that the joint China-U.S. agreement announced at Glasgow offered “renewed hope for joint leadership at last.” John Kirton and Alissa Wang [2022] saw China’s new priority on climate change as a spur to Rome’s success. Guterres also recognized the China-U.S. agreement as “a step in the right direction” but added that “promises ring hol-

low” so long as the fossil fuel industry continues to be subsidized and when development continues without a price on carbon [UN, 2021].

Also notable was the reported division of opinions among G20 leaders after the Rome summit. Gavin Jones, Crispian Balmer, and Jeff Mason [2021] reported that Italian prime minister Mario Draghi hailed his summit as a success on climate change and German chancellor Angela Merkel said the communiqué was a positive signal for COP26. But Canadian prime minister Justin Trudeau said he wanted to see stronger commitments on climate change and expressed disappointment that Russia and China had slowed progress at Rome. Draghi, conversely, praised Russia and China for showing flexibility in the days leading up to the G20 summit. UK prime minister Boris Johnson said the G20 made reasonable progress but that it was not enough and represented only drops in the ocean [Hook, Miles, Katrina, 2021].

Puzzles

All these schools agree that not enough was done at Rome or Glasgow but point to different degrees of progress and to different causes. None conducted a systematic, theoretically grounded analysis of the G20’s climate performance at Rome, nor of the UN’s Glasgow summit, even though both were hosted or co-hosted by Italy (along with the UK as co-host at Glasgow [Kirton, 2013]). Nor was there an analysis of the many possible causes of the G20’s performance, including of its influence on the UN’s Glasgow summit. This article helps fill these gaps, as a foundation for suggesting what the G20 will and can do at its next summit in Bali, Indonesia in November 2022.

Argument

In this article it is argued that the G20 summit’s performance on climate change can be a salient cause of the UN COP’s summit performance and vice versa, especially as each produces stronger outcomes with surrounding summit support from the other. The G20 Rome summit produced a strong performance across most of the six dimensions of governance but did not do enough to reduce emissions on a Paris-aligned pathway. A key cause of its strong performance was its leaders’ and hosts’ desire to ensure a successful COP26 and the fear of another multi-lateral organizational failure from a COP summit, amidst the growing number and intensity of extreme weather events around the world. A key constraint was the absence at the Rome summit of participation from the head of UN Climate or other key UN climate, environmental, and energy organizations. This, and the over-representation of the fossil fuel industry at COP26, the limited domestic political cohesion within and among countries, and the stronger resistance by several countries constrained the ambitious climate action required to stop runaway climate change.

Outline

To develop this argument, the G20’s climate change performance at its 2021 Rome summit is analyzed by applying the systemic hub model of summit performance, with its six dimensions of performance and six causal candidates [Kirton 2013; Kirton, Kokotsis, 2015; Kirton, Kokotsis, Warren, 2022]. The key outcomes of the UN’s COP26 meeting are compared with those of the G20 Rome summit held just before. The climate prospects for the Bali summit in November 2022 are then discussed, followed by recommendations for further action from G20 leaders at Bali and for future scholarly research.

G20 2021 Rome Climate Change Performance

The G20's Rome summit climate performance was strong overall, and across almost all the six dimensions of governance (see Appendix A). Yet, this strong performance was not nearly ambitious enough to meet the goals of the Paris Agreement, nor to overcome some contentious issues and spur the stronger success needed at COP26.

Domestic Political Management

The first dimension of summit performance, domestic political management, shows how valuable world leaders view the G20 forum to be, as measured by their physical or, amidst COVID-19, virtual presence.

Performance here was strong. Fifteen leaders attended the meeting in person and five did so virtually. This created the first physical-digital hybrid G20 summit. Participating virtually were Chinese president Xi Jinping, Russian president Vladimir Putin, Japanese prime minister Fumio Kishida, Mexican president Andrés Manuel López Obrador and South African president Cyril Ramaphosa. They all sent an in-person representative.

Also attending were all six invited guest leaders, from the Netherlands, Spain, Singapore, the Democratic Republic of Congo (as chair of the African Union), and Rwanda (as chair of New Partnership for Africa's Development).

Crucially, the G20 did not invite the executive heads of any of the major multilateral climate and environment organizations: those overseeing the UNFCCC, the UN Convention on Biological Diversity (UNCBD), and the UN Environment Programme (UNEP). In sharp contrast, the heads of many economic multilateral organizations dominated: the International Monetary Fund (IMF) and World Bank as G20 members, and as invitees, the UN secretary-general, the G20's Financial Stability Board, the World Trade Organization, the WHO, the International Labour Organization, the Food and Agriculture Organization, and the OECD. Although these organizations are now acting on climate change, the economy still dominated the ecology in their core mission and expertise.

Another measure is the number, breadth, and subjects of compliments to individual G20 members in the summit documents for their work in advancing climate and environmental action. At Rome there were three acknowledgments. They went to Saudi Arabia for continuing to support and implement initiatives launched under its 2020 G20 presidency—the G20 Global Initiative on Reducing Land Degradation and Enhancing Conservation of Terrestrial Habitats, the G20 Dialogue on Water and the G20 Water Platform, and the Global Coral Reef R&D Accelerator Platform. There were none for work at Glasgow itself.

Deliberation

The second dimension of performance, deliberation, shows how much attention the leaders publicly gave to climate change. It is measured by the number of words and the portion of their communiqués dedicated to the subject. On climate change, Rome continued the rising trend of the previous four years, producing the second highest number of words and the highest portion of words by far, since the G20 summit's 2008 start. Rome gave 3,092 words to climate change, behind only 2017 Hamburg's 3,600. Rome devoted 31% of its communiqué to climate change, well above 2020 Riyadh's 12%. For the first time, attention to climate change surpassed, indeed doubled, that of the G20's core *raison d'être* of macroeconomic growth, which took only 1,405 words making up 15% of the communiqué.

Direction Setting

The third dimension, direction setting, measures affirmations in a climate change context of the G20's distinctive foundational missions of ensuring global financial stability and making globalization work for all. Rome made 11 such affirmations. Five were to financial stability and six to globalization for all. This was the highest total ever, as the summit average from 2008 to 2020 was only 0.2. There were also seven affirmations of the G7's two distinctive foundational missions of open democracy and human rights. Five were to democracy, all on climate finance transparency, including climate- and nature-related financial risk disclosure. Two were to human rights, both referencing a just transition.

Decision-making

On the fourth dimension, decision-making, Rome produced 21 collective, precise, future-oriented, politically binding commitments on climate change. This was the second highest number ever, and only one less than the 2017 Hamburg summit. It was well above the average of six per summit. Climate change commitments took 9% of Rome's 225 commitments on all subjects. It was the fourth highest subject, tied with the environment. Moreover, all eight energy commitments, for 4% of the total, were on clean energy access and the transition to clean energy, energy efficiency, or fossil fuel phase-out, including subsidies and international financing for new unabated coal plants by the end of 2021. Combining its climate, environment, and energy commitments, Rome put the planet first, with almost a quarter of the leaders' commitments.

The vast majority of Rome's 21 climate commitments had highly binding language, for a 15:6 high-to-low binding ratio. The highly binding commitments use stronger action- and future-oriented language. Rather than merely reiterating a past commitment, they commit the G20 to do more than it has before by scaling up actions or by doing something new. For the 21 environment commitments, the ratio was 7:14 high to low. For the eight energy ones, the ratio was equal, with 50% high and 50% low.

Delivery

The fifth dimension, delivery of these decisions through members' implementing compliance with these commitments before the next summit, is expected to be high. The G20's compliance with the 47 assessed climate change commitments, from 2008 to 2020, was only 67%. But it rose slightly over time and should again. Compliance was higher with those of the 47 G20 climate commitments assessed for compliance that used highly binding language, that had a short-term timetable, and that referenced the UNFCCC or its legal climate agreements. It was lower with the climate commitments that contained a multi-year timetable and that were made at summits producing a higher number of climate conclusions and commitments.

Most of the Rome climate commitments had highly binding language. Six of the 21, for 29%, had a UNFCCC or climate law reference. The key energy commitment, to phase out new international unabated coal financing by the end of 2021, had a short-term target of less than one year. This left just three of the 21 commitments, for 14%, with a multi-year timetable, with one of these using highly binding language. Rome did have a high number of commitments and high deliberation on climate change, suggesting lower compliance, but this is a weak cause of climate compliance.

Development of Global Governance

The sixth dimension of performance, the institutional development of global governance, is measured by references in the summit's conclusions on climate change to specific international institutions inside and outside the G20 and whether the G20 is leading, following, or neutrally acknowledging the relevant institution.

Rome's leaders made three references to inside institutions. Two were to the G20's Financial Stability Board and its work on climate-related financial risk disclosures. One was to the G20 finance ministers and central bank governors. All three were neutral references.

There were six references to outside institutions. Four referred to the core climate organization of the UNFCCC umbrella, comprising two to the Paris Agreement, one to the IPCC and one to COP26. Here, the G20 supportively followed the UN three out of four times and led once. It also led in its one reference to the IMF. It was neutral in its one acknowledgement of the OECD's Climate Finance Delivery Plan. G20 leaders thus did little here to lead the UN's Glasgow summit to succeed but did offer their general support.

Causes of G20 Performance

Rome's strong overall climate performance was pushed somewhat by rising physical climate shocks within and beyond G20 members. As noted above, the key cause was its host's and most leaders' desire to ensure a successful COP26 at Glasgow and fear of another multilateral organizational failure from a COP summit, amidst the growing number and intensity of extreme weather events. Somewhat salient was the growing global predominance G20 members and their internally equalizing relative capabilities. Members' converging democratic and climate policy characteristics had a reduced and mixed impact, as declining democracy in the critical countries of China and India was offset by its rise in Joe Biden's U.S., with the divergence limiting the degree of climate advances. A stronger constraint came from the domestic political cohesion behind the leaders, as it was stronger in China, Russia, India, and Saudi Arabia than in U.S., Germany, and Canada. A strong push came from the G20 summit's position as a valued club at the hub of a network of global summit climate governance, led by the well-connected, climate-committed host, Mario Draghi, who would then immediately afterward co-chair Glasgow's COP26.

Shock-Activated Vulnerability

The first cause of Rome's strong climate performance was the rise in physical climate shocks, which were not crowded out by the new diversionary health ones created by COVID-19. By 30 November 2021, one month into the Rome summit's compliance period, over five million people had died of COVID-19. But with eight billion vaccine doses administered, borders were reopening, and a sense of normalcy was returning. To be sure, the arrival of the Omicron variant by late November led some G20 countries to ban travel from their G20 developing country colleague, South Africa, where it had been detected first. However, in Rome at October's end, the pandemic seemed sufficiently under control that it did not divert the G20 leaders' attention from climate change nearly as much as it had at the Riyadh summit in November 2020.

Moreover, climate shocks arose more strongly in 2021. That summer, in Canada, a heat dome covered the western-most province of British Columbia, setting a record nearing 50°C, killing 569 people and burning down an entire town. Russia, Australia, California in the U.S., Italy, and Turkey also suffered from severe wildfires and heat that killed several people and

caused thousands to evacuate. Snowstorms struck Spain, sandstorms swarmed China, and cyclones and hurricanes hit the U.S. and Indonesia. Massive floods killed 170 people in Germany and Belgium.

In their Rome communiqué, G20 leaders only recognized the COVID-19 shocks and no specific extreme weather event. They did identify climate change as a threat and a risk.

Major mainstream media paid growing attention to climate change. In the days before the Rome summit, American headline news stories on climate change and extreme weather events outnumbered those on the pandemic. The Financial Times front page, on 26 October, gave climate change 25% of the stories and health none. On 27 and 28 October, climate change had 50% and health none. On 29 October, climate change had 50% and health 25%. And on 30 October, the day the Rome summit started, climate change had 50% and health none.

Multilateral Organizational Failure

The second cause was the G20 leaders' desire, in the face of these growing physical and media-highlighted climate shocks, to avoid the increasing multilateral organizational failure to prevent such shocks by fostering a successful outcome at the UN's COP26 Glasgow summit, which started the day that the Rome summit ended. The IMF, World Bank, and UN still did not have climate change as a core part of their constitutional charters, expertise, or operations, even if they increasingly addressed climate change. UN Climate, responsible for the UNFCCC but absent from the Rome summit, was the only multilateral organization with at least a semi-legally binding global climate agreement to build on.

Its pull, by itself, was not strong enough. Throughout 2021, the UK, co-host of COP26 and host of the 2021 G7 Cornwall summit, pushed for more ambition. Answering the call, the UK, the U.S., Canada, and China announced stronger climate targets. Turkey ratified the Paris Agreement, becoming the last G20 member to do so. But Australia and India kept their former climate targets, and Russia, Saudi Arabia, and Brazil kept their weaker ones.

Predominant Equalizing Capabilities

The third cause of Rome's strong climate performance was the growing global predominance and internally equalizing capabilities of G20 members. The IMF [2021] projected global economic growth in 2021 of 5.9%. However, due to uneven vaccine distribution and access, growth in Sub-Saharan Africa was projected at only 3.7%, with the Middle East and Central Asia predicted to grow 4.1%.

Within the G20, internal equality increased. China and India led with a projected 8% and 9.5%, respectively, compared to the U.S. at 6% and the European Union (EU) at 5%. Advanced economies and emerging and developing economies converged, with the latter's growth outpacing the former's by 1.2%.

But both groups had overall growth in real gross domestic product (GDP) and in the greenhouse gas emissions they brought. In 2020, global emissions declined along with GDP, while in 2021 they rose alongside it, as G20 members failed to decouple economic and emissions growth. The developed G20 countries' multibillion dollar COVID-19 recovery packages funded business-as-usual growth rather than a green recovery, while G20 countries and emerging economies gave \$345 billion in subsidies to the fossil fuel sector during the 2020 recession [OECD-IEA, 2021].

Converging Characteristics

Members' converging democratic characteristics and climate policy among G20 members had a smaller impact, as declining democracy in the critical countries of China and India was offset by its rise in Joe Biden's U.S., with the divergence limiting the degree of climate advances.

Democracy and climate action are positively correlated [Fiorino, 2018]. In 2020, the latest year with detailed data available, democracy declined globally for the 15th year in a row [Freedom House, 2021]. Among G20 members, it declined the most in India, China, and the United States.

In 2021, however, in the biggest change, a more democratic U.S. government arrived under Joe Biden as the new president. The U.S. re-joined the Paris Agreement, bringing consensus on this key component of climate change governance and the UN's Glasgow summit back to the G20.

Climate policies generally converged in an upward direction, but several key countries diverged. In the lead-up to Rome, Saudi Arabia set a target to reach net zero by 2060. China submitted an updated target, to peak its emissions by 2030, but kept its long-term net-zero deadline of 2060. Turkey set, for the first time, a climate target of net zero by 2060 and ratified the Paris Agreement. Coal-rich Australia, under Scott Morrison's majority government, announced it would not increase its ambition and would not submit an updated 2030 target. India also announced it would not submit an updated climate target.

Political Cohesion

The fifth cause, acting as a constraint, was the particular configuration of domestic political cohesion behind the leaders. It was strongest in China, Russia, India, and Saudi Arabia, and weaker in the U.S., Germany, and Canada. Thus, China, India and Russia continued to exert stronger political control in a non-democratic, climate-resistant way, while Saudi Arabia maintained its total authoritarian control.

Joe Biden, the new U.S. president at his first G20 summit, led a Democratic Party that had won a majority of seats in the House of Representatives, but had only 50 seats in the Senate, as did the Republican Party opposed to climate action. Biden did come to Rome with much experience, having served as vice-president for eight years in the Obama administration. By Biden's third day in office, the United States had rejoined the Paris Agreement and cancelled the Keystone XL pipeline. Biden's presence at Rome ensured that all G20 members would support the Paris Agreement and leave behind the 19+1 split the previous Trump administration had created. Turkish president Recep Tayyip Erdogan solidified this, as Turkey became the last G20 member to finally ratify the Paris Agreement.

German chancellor Angela Merkel, a veteran of all G20 summits since their 2008 start, was attending her last summit, now in a caretaker capacity. Merkel had hosted the most successful G20 and G7 summits on climate change [Kirton, Kokotsis, Warren, 2022]. Her G20 Hamburg summit in 2017 produced the highest number of climate commitments at a G20 summit, despite climate-denying Trump's presence there. Germany's climate target was necessarily aligned with the EU's target. In June 2021, the EU had set into law its ambitious target, in line with the science, to reduce emissions by 55% by 2030 compared to 1990 levels and to reach net-zero by 2050. Merkel's successor was likely to be a proponent of strong climate policies, since the Green Party of Germany held enough power in the country to influence climate action. Indeed, on 8 December 2021, the new coalition government took office, led by Olaf Scholz, with the Green Party's Robert Habeck leading a now combined economy and climate ministry,

and Annalena Baerbock as the foreign minister, with a promise to accelerate the transition to climate-friendly domestic and foreign policies.

Other countries, such as Canada, with its minority government, and Japan, announced more ambitious climate targets ahead of Rome, although ones still short of being compatible with the Paris Agreement.

The G20 members had varied targets, all of which did not put the world on a Paris Agreement-aligned path. The diversity of targets at the individual country level explains the inability of the G20 to agree to a specific, collective, hard, quantitative deadline of reaching net zero by 2050. Leaders instead committed at Rome to reach net zero “by or around mid-century.” While this was a step in the right direction, the climate does not recognize such slow movement, responding only to actual emissions into the atmosphere.

Club at the Hub

The sixth cause, providing a strong push, was the Rome summit’s position as a valued club at the hub of a network of global summit climate governance.

All G20 leaders attended the Rome summit, with five doing so in person. Xi and Putin did not physically attend due to COVID-19 and Kishida and Ramaphosa were absent due to an overlap with domestic elections. López Obrador rarely leaves home for foreign visits. The resulting hybrid configuration reduced the summit’s club-like dynamics and resulting performance only a little.

Most importantly, Rome’s summit was hosted by Mario Draghi, who is both well-connected and climate-committed, and who then immediately co-chaired Glasgow’s COP26. Italy, as G20 host and Glasgow co-host, connected the G20 to the summits of the G7, the North Atlantic Treaty Organization, the Asia-Europe Meeting, and the ministerial meetings of the Food and Agriculture Organization, the World Food Programme and the International Fund for Agricultural Development. Also connected were the African Union, the New Partnership for Africa’s Development, and the Association of Southeast Asian Nations.

A constraint came from the Rome summit’s de facto climate club’s exclusion of the heads of critical actors, above all UN Climate, UN Biodiversity, UNEP, the World Meteorological Organization, the IPCC, and the International Renewable Energy Agency. Also absent were the leaders of the small island developing states, which are most susceptible to sea-level rise, and Indigenous Peoples. There was thus no one to speak for the environment, amidst and against the economic claims of the IMF, World Bank, and the heads of other multilateral organizations present.

UN COP26 Performance

The UN’s COP26 in Glasgow produced a substantial performance on climate change, in part due to the push from the G20’s Rome summit [Espinosa 2022; Kirton, Kokotsis, Warren, 2022].

Glasgow’s Performance

For Glasgow, on the Paris Agreement’s first pillar of mitigation, 151 countries submitted updated climate targets, including most G20 members. These promises together represented an important decrease in total emissions [Brodjonegoro, Damuri, Riefky, 2022]. But they still represented a dangerous rise of 2.5°C of warming (compared to the previous trajectory of 3–4°C). Australia, China, Saudi Arabia, Brazil, and Russia submitted no targets, or weak ones that were

not aligned with net-zero by 2050 [Mountford et al., 2021]. India, with support from China, succeeded in weakening language on the energy transition, resulting in a commitment to “phase down” rather than “phase out” “unabated coal.” A coal commitment had first appeared at the G20’s Rome summit.

On the second pillar of adaptation, Glasgow recognized nature as a tool for building resilience. The G20 at Rome had defined nature-based solutions as ecosystem-based approaches and committed to scale up this approach in and around cities. This includes doing their fair share of planting one trillion trees globally. But there were no similarly strong outcomes at the G20 or COP26 on disaster preparedness.

On the third pillar of climate financing, amidst and at the Glasgow conference, new funding announcements came. They included \$40 billion for adaptation by 2025 from developed countries, \$365 million for the Adaptation Fund, and \$413 million for the Least Developed Countries Fund [Anbumozhi, 2022]. At Rome, the G20 leaders raised no new money. They simply reiterated their commitment, first made at the UN, to help mobilize \$100 billion per year by 2020. G20 leaders at Rome saved their new funding commitments for the more attractive Glasgow venue. But both the G20 and UN still fell far short of the trillions needed to stop climate change.

Glasgow’s Propellers

As with the G20’s Rome summit, Glasgow’s advances were spurred by the same climate shocks that emerged around the world, the return of a climate-supportive U.S. to the Paris Agreement, cooperation with China, and the configuration of relative capability, policy convergence, and domestic political cohesion among the G20 members and within the summit’s hosts. These spurred Glasgow to its substantial success. But from 30–31 October in Rome to 12 November in Glasgow, the only key causes that changed were multilateral organizational failure due to the distinctive membership and rules and the valued club-like hub status of each summit. Both changes empowered the climate-reluctant G20 members of China, India, Russia, and Saudi Arabia at Glasgow to produce only a substantial performance on climate change there rather than a strong one, as at Rome.

On mitigation, on the key component of coal, at Glasgow coal finally made it into UN negotiations. At Rome, the G20 had made some progress against fossil fuels with their commitment to end international financing for new unabated coal plants. But, at Glasgow, as at Rome, pushback from India and China prevented stronger language. The draft text in the COP26 outcome document saw the proposed commitment to phase “out” coal changed to one to merely phase “down” coal, due to an Indian demand backed by China behind the scenes. COP26 made some advance on the rules for carbon markets, but no breakthroughs on loss and damage.

On adaptation, at COP26 a little money was raised.

On climate financing, at Glasgow G20 countries again split into separate negotiating blocs. Glasgow thus reiterated its and Rome’s unambitious, unfulfilled, and overdue commitment to raise \$100 billion per year by 2020. But several different climate clubs raised new money for specific causes outside the formal Glasgow Climate Pact.

More broadly, Glasgow helped pull a high level of conclusions and commitments on climate change at Rome. The outcomes of COP26 mostly mirrored those at the G20. This suggests that the progress made at the G20 summit helped cause the progress made at the UN.

Thus, overall and on each of the three Paris pillars, there was some G20 precursor as a foundation for action at Glasgow. It therefore matters that the G20 improves its climate performance, compliance, and cooperation with the UN at the forthcoming G20 summit in Bali, Indonesia on 15–16 November 2022.

Prospects for Bali, 2022

Indonesia, as host, set the Bali summit's theme as "Recover Together, Recover Stronger." On 27 May 2021, Indonesia's possible priorities were development, inclusive growth, social inclusion, and achieving the SDGs. By June, these had expanded to productivity for youth, the agriculture sector, the digital economy, small and medium-sized enterprises, and women; resilience and stability for food security, poverty reduction, public health, environmental protection, energy security and social protection; sustainability and inclusivity for labour, gender inequality, climate change adaptation, the blue economy and sustainable tourism; and partnership through advancing multistakeholder partnerships, global value chains, SDG financing, good governance and anti-corruption, and stronger multilateral trading systems, especially for vaccine distribution.

Finally, by 1 December 2021, Indonesia had settled on the three core priorities of the global health architecture, digital transformation, and the sustainable energy transition. The one-paragraph description of its sustainable energy transition priority on Indonesia's official G20 website proclaimed the centrality of energy security but did not mention climate change. The website announced an Energy Transition Ministerial Meeting to be held on 2 September and a Joint Environment and Climate Ministerial Meeting to be held on the same date. Of the 10 working groups listed, only the description of the Environment and Climate Sustainability Working Group mentioned climate change. This group would work on advancing nature-based solutions for climate adaptation and biodiversity, aligning financial flows to the Paris Agreement, and improving air quality and enhancing energy efficiency in buildings for health and well-being.

The Energy Transition Working Group's description is focused on energy security and energy demand, avoiding language on the supply of greenhouse gas emissions. Its priorities include transitioning to lower carbon energy systems through increased investments in innovation and clean and efficient technologies, along with energy access. The accompanying visualizations show images of oil wells and gas pumps alongside windmills and solar panels. This imagery raised questions about how quickly the Bali host would push the energy transition. The science is clear, the world must move away from *all* fossil fuels and do so quickly [IEA, 2021].

Conclusion

The G20's Rome summit made several important advances on climate change. It promised to end international public financing for unabated coal power generation by the end of 2021, broadening the commitments from the Cornwall summit's G7 members to include all G20 members. It promised to strengthen carbon sinks in low-cost, jobs-rich ways, committed to plant 1 trillion trees by 2030, and to urge non-G20 countries to join. More broadly, the summit gave more attention to natural sinks, devoting four paragraphs to them.

However, it did little else. Leaders committed to try to reach the more ambitious 1.5°C goal of the Paris Agreement. Physically, the climate had changed a great deal for the worse since 2015, but politically the G20's targets did not change much. The leaders reaffirmed their commitment to jointly mobilize \$100 billion per year for developing countries by 2020 and annually through 2025. To this unfulfilled promise, they merely added that the goal was expected to be met by 2023. They promised no new action on phasing out fossil fuel subsidies, a 12-year-old promise still not kept.

More generally, across the six dimensions of summit performance the G20 Rome summit was strong on climate change. This performance was largely spurred by increasing climate

shocks in G20 members, the presence of a major UN climate summit in the same year, and the commitment of the G20 host. Yet, Rome helped spur the UN's Glasgow summit only to a substantial, rather than strong, success as the UN's distinctive rules and procedures enabled the climate resistant powers, led by India and China, to prevent agreement on the needed climate action there.

Since G20 summitry started in 2008, there have only been three years in which a high-level UN climate COP summit was held at years' end: 2009 in Copenhagen, 2015 in Paris, and 2021 in Glasgow. Of these, only 2021 saw high performance from both the G20 and UN summits: strong at G20 Rome and substantial at UN Glasgow in 2021, compared to small at G20 Antalya and solid at UN Paris in 2015, and small at G20 London and substantial at G20 Pittsburgh while a failure at UN Copenhagen in 2009.

This was also the only year in which both the G20 and UN summits were hosted by G7 countries: Italy at Rome, and Italy and the UK at Glasgow in 2021, with Italy hosting both the G20 and UN ones. It was also the only year in which there was no time gap between the G20 and UN summits, while in 2015 there was a gap of many days and in 2009 of at least two months.

While only three cases do not permit a strong causal claim, they suggest the value of detailed process tracing to see how G7 members' hosting of both G20 and UN summits and no temporal spacing between them may foster a stronger, synergistic relationship between them and a high performance from each.

Recommendations for G20 Action and Scholarly Analysis

Based on this analysis, the G20 can and should do the following things to improve its performance at Bali and beyond.

In the summit process, they should:

1. Invite to the Bali summit the executive heads of UN Climate, UN Biodiversity and UN Environment, to participate in all summit sessions on the climate and environment, on finance and the economy, and the closely connected subject of health.
2. Hold more environment ministers' meetings before the Bali summit, with some held jointly with ministers responsible for energy, oceans, agriculture, health, and finance.
3. Hold a summit in New York City at the time of the opening of the UN General Assembly in September to advance action of the 2030 Agenda's SDGs in a synergistic way, starting with the co-benefits among those for the environment (SDGs 12–14) and on health (SDG 3).

On policy, they should credibly commit to:

4. End all fossil fuel subsidies, for the most damaging ones this year and for all by 2025.
5. Provide developing countries with climate finance of at least \$100 billion per year this year, providing their own public money to fill the gap.
6. Grow at least one trillion trees, by adding 100 billion every year starting in 2023, preserve peat in all countries starting now, and make at least 30% of their own land and oceans naturally protected areas within the next few years.

Recommendations for Further Research

Further research should advance this preliminary work on the G20-UN connection, including on how the G20 can act as a more cohesive climate club and how the G20 can raise its ambition and its compliance with its climate commitments.

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Appendix A: G20 Climate Change Performance 2008–2021

Summit	Domestic political management		Deliberation		Direction setting					Decision making		Delivery		Development of global governance						
	#	%	Words		Financial stability	Globalization for all	Priority placement	Democracy	Human rights	# commitments	Score	% assessed	Min-isterial created	Official level body created	# refer-ences inside	#bodies inside	# refer-ences	#bodies	# refer-ences	#bodies
			#	%																
2008 Washington	0	0	47	1.3	0	0	0	0	1	0	–	–	0	0	0	0	0	0	0	0
2009 London	0	0	45	1	0	0	1	0	0	3	–0.10 (45)	33 (1)	0	0	0	0	0	0	1	1
2009 Pittsburgh	1	5	762	8.2	0	0	4	0	0	3	+0.86 (93)	33 (1)	4	0	2	2	10	5	5	5
2010 Toronto	1	5	376	3.4	0	0	0	1	0	3	+0.42 (71)	100 (3)	0	0	0	0	3	3	3	3
2010 Seoul	2	10	351	2.2	0	0	2	1	0	8	+0.05 (53)	50 (4)	5	3	10	7	20	11	11	11
2011 Cannes	2	10	654	4.6	0	0	0	1	0	8	+0.38 (69)	37 (3)	2	0	4	2	11	7	7	7
2012 Los Cabos	0	0	410	3.2	0	0	0	1	0	6	+0.59 (80)	50 (3)	1	5	8	3	6	5	5	5
2013 St. Petersburg	1	5	888	3.1	0	0	1	0	0	11	–0.17 (42)	27 (3)	0	3	6	5	10	7	7	7
2014 Brisbane	0	0	232	2.5	0	0	0	0	0	7	+0.51 (76)	71 (5)	0	0	0	0	4	2	2	2
2015 Antalya	0	0	597	4.3	0	0	0	0	0	3	+0.70 (85)	85 (1)	1	1	2	2	4	3	3	3
2016 Hangzhou*	0	0	787	2.5	0	1	0	1	0	2	+0.58 (79)	100 (2)	1	3	4	3	5	4	4	4
2017 Hamburg	0	0	3,600	10.4	0	0	1	1	1	22	+0.28 (64)	40 (9)	0	11	11	5	26	9	9	9

Summit	Domestic political management		Deliberation		Direction setting				Decision making		Delivery		Development of global governance					
	Compliments		Words		Financial stability	Globalization for all	Priority placement	Democracy	Human rights	# commitments	Commitments		Inside			Outside		
	#	%	#	%							Score	% assessed	Official level body created	# refer- ences inside	#bodies	# refer- ences	#bodies	
2018 Buenos Aires	0	0	398	4.7	0	0	0	0	0	3	+0.57 (79)	100 (3)	0	0	0	0	3	3
2019 Osaka	0	0	655	9.9	1	1	0	0	0	13	+0.44 (72)	38 (5)	1	1	3	3	10	9
2020 Riyadh	0	0	681	12	2	1	0	0	0	3	+0.75 (88)	66 (2)	0	0	2	2	4	2
2021 Rome	3	5	3,092	31	5	6	1	5	2	21	NA	NA			2	2	6	5
Total	10	—	22,717	—	8	9	10	11	4	116	—	44	15	27	54	36	124	76
Average	0.6	0.0	1,419.8	8.4	0.5	0.6	0.6	0.7	0.3	7.3	0.38 (69)	2.2	1.0	1.8	3.4	2.3	7.8	4.8

Notes

Domestic Political Management includes all explicit references by name to the full members of the Summit that specifically express the gratitude within the context of climate change of the institution to that member. The % of members complimented indicates how many of the 20 full members received compliments within the official documents, depending on how many full members there were that year.

Deliberation to number of times climate change is referenced in the G20 leaders' documents for the year in question. The unit is the paragraph. % refers to the percentage of the overall number of words in each document that relate to the climate change.

Direction Setting, as Priority Placement refers to the number of times climate change is referenced in the chapeau or chair's summary for the year in question. The unit of analysis is the sentence. The number in parenthesis refers to environment references. Democracy refers to the number of times there was a reference to democracy in relation to climate change. Human rights refers to the number of times there was a reference to human rights in relation to climate change. The unit of analysis is the paragraph.

Decision Making refers to the number of climate change commitments. Delivery refers the overall compliance score for climate change commitments measured for that year. % Assessed represents percentage of commitments measured. The numbers in parenthesis refer to energy commitments.

Development of Global Governance. Inside refers to the number of references to institutions inside the G20 made in relation to climate change. Ministerial refers to ministerial groups. Official Level refers to official level groups. Outside refers to the number of external multilateral organizations related to climate change. The unit of analysis is the sentence.