

China Planet

Ecological Civilization and Global Climate Governance

Although China has seen some success in realizing its ambitious climate goals, the country's achievements have come at a social and political cost that few democracies could—or should—tolerate.

A growing number of Western environmentalists have speculated that China's quest for "ecological civilization" may yet save the planet from catastrophe. The ecological civilization formulation, endorsed by China's top leadership and enshrined since 2012 in the Communist Party Constitution, promises material prosperity, social harmony, and a new vision for a green, China-inspired future.

Indeed, as democracies have yet to counter climate change effectively, and the United States, Europe, and other industrialized countries have failed to lead, praise for China's approach has become mainstream. For example, in 2018, Erik Solheim, then head of the United Nations (UN) Environmental Programme, was quoted as saying, "It will be exciting to see how ecological civilization will be put into action not just in China, but in China's work abroad," adding that China could become "a powerful driver of positive global change."

At the same time, China's green policies are widely

criticized by those who blame the country—the world's largest national emitter of greenhouse gases—for not doing as much as it should. China is held responsible for landscapes ravaged through its Belt and Road Initiative, a massive effort to develop infrastructure in countries along the historic Silk Road between Europe and China and around the globe. The country is also criticized for myriad other ecological problems, including the construction of coal-fired power plants and even pollution related to the creation of the batteries, solar cells, electric cars, and wind turbines that are often characterized as "green" technologies.

Underlying these divergent readings of the Chinese state's environmental power are two common assumptions: first, that there is a monolithic state in China; and second, that China's influence in global environmental governance is both inevitable and indispensable in tackling climate change. The first assumption has been extensively critiqued in recent

scholarship that has advanced a nuanced understanding of the landscape of Chinese environmental politics. This scholarship contextualizes the complexity of regional variations, internal power struggles, urban-rural tensions, central-local relations, state-market dynamics, and the role of foreign expertise. As a result of this work, a richly multifaceted view of China's political authority has emerged, undercutting the myth that the Chinese state acts as one unit or that its top-down structure allows it to implement its environmental aspirations seamlessly.

The second assumption about the Chinese state's increasing dominance of global environmental governance, however, remains insufficiently examined. Much of it rests on the unassailable fact of China's status as a new global superpower, on its technological prowess, and on the attractive but ultimately vague formulation of ecological civilization as a guiding principle of the Party-state. Some of it may be sheer wishful thinking because proponents of climate action desperately need China to act decisively if global efforts are to be effective.

Perhaps because of this yearning, China has found that projecting environmental power is relatively easy compared to other geopolitical initiatives to expand its influence over land and sea. Through global institutions as well as bilateral financial arrangements, China has been remaking, and will likely continue to remake, international climate politics in a way that furthers the country's interests. The strategy has been effective—the UN Development Programme and UN Environment Programme have adopted the ecological civilization playbook, for example, featuring China's approach to sustainable development in key documents and heralding China's claims about the co-benefits of “win-win development.” China-sponsored banks and financial institutions provide attractive alternatives to the World Bank and International Monetary Fund for developing countries eager for investment, promising “win-win green development,” social harmony, infrastructure, and co-benefits for all.

While ecological civilization tends to be discussed as a set of aspirations, it also contains a template of prescribed “green” actions. As we will explain, China's officials and state-owned enterprise executives have developed an unmatched expertise in setting and meeting quantitative climate targets, enabling green technological solutions, and delivering sustainable infrastructural packages—all of which have become central to global climate efforts. Together, these three capabilities have carved out a configuration of actions that enable the Chinese state—the largest authoritarian regime on earth—to be a global environmental leader. But there has been little consideration of what such leadership could deliver in terms of global climate progress, and whether the social and political cost of adopting ecological civilization would be greater than many Western democracies would willingly bear.

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A brief history of ecological targets

The suite of governance institutions and norms that China has deployed to tackle climate change are modeled on domestic practices perfected by the state over the last seven decades. Since the mid-twentieth century, the Chinese state has adapted and refined a numbers-based national planning regime that it borrowed from the Soviet Union. Despite the integration of market economic principles since 1978, Chinese governance remains heavily dependent on national targets, with quantitative goals disaggregated to subnational units of the government and systemic evaluation of local officials based on their abilities to meet these goals. In effect, since the founding of the People's Republic of China in 1949, Chinese officials have been professionalized into a bureaucratic system that is built on overlapping matrices of targets, ranging from monthly steel output tonnage to per-capita green space.

This experience with targets has profoundly shaped China's response to environmental issues. Local officials have become increasingly savvy about manipulating numbers on the books without having to do the legwork of governance. Meanwhile, central government agencies seek to “rectify” local misuses of targets by rolling out ever more complex matrices and cross-validation mechanisms, often to little avail as officials continue to manipulate general directives to suit local interests. This creates a scenario for environmental governance that Chinese studies scholar Genia Kostka describes as “command without control.”

Nonetheless, Chinese representatives have now expanded their decades of experience with numbers-based targets to the world stage. This is most clearly evidenced by the country's wholesale embrace of the UN Sustainable Development Goals (SDGs). When the first-ever United Nations World Geospatial Information Congress in 2018 was held in Deqing in eastern China, state officials spared little effort to promote the results of a quantitative study that profiled nearly every aspect of local lives through numbers. The geospatial profile included such minute details as which floor each of the region's 320,000 people lived on mapped to 102 SDG indicators with “an average accuracy of 87.03%.” United Nations officials praised the Deqing case as “a flagship example on how countries can practically measure their progress using statistical and geospatial information.”

Under the direct orders of President Xi Jinping, the Chinese Academy of Sciences is now seeking to expand upon

this success by establishing a Big Data center to display the government's number-crunching prowess before the world. The center promises to provide worldwide "multi-scalar, objective, and accurate spatial data toward the realization of the SDGs." Featuring extensive cloud computing capabilities, state-of-the-art artificial intelligence algorithms, and real-time remote sensing data from Chinese satellites, the Big Data center is poised to become the global clearinghouse for the quantitative monitoring, verification, and evaluation of different countries' states of development. Although the SDGs were not created with China in mind, the Chinese state has managed to fold them neatly into its sprawling quantitative governing apparatus.

How the world embraced targets and technology

Internationally, the difficulty of building consensus around alternate approaches to climate has led to increasing support for the top-down, numbers-based, tech-driven model preferred by the Chinese state. Global environmental governance has increasingly emphasized the centrality of targets, whether the two-degree Celsius target for climate or the SDGs. In the case of the global temperature target, the original formulation in the late twentieth century was based on substantial scientific consensus, especially among European climatologists. However, as this target was incorporated into progressively higher levels of global governance, it became largely symbolic and increasingly disconnected from actual policy agendas, ultimately rendering the target a "disembedded object," in the words of Dutch scholars Piero Morseletto, Frank Biermann, and Philipp Pattberg. At the same time, goals requiring social and economic sacrifices came to seem ever more elusive.

In this atmosphere, China's tangible offerings of targets, technology, and infrastructure appear to offer a path forward. Technology, of course, has long been at the center of global climate conversations and negotiations. But earlier models of governance featured changes in incentives and institutional design in addition to technology. For example, carbon trading and feed-in tariffs were intended to promote new business models as well as technological innovations in renewable energy. Other initiatives focused on collaborative mechanisms such as demonstration projects to showcase new climate adaptation technologies. And carbon trading and the transfer of patents from developed to developing nations were projected to change global North-South relationships while restricting carbon emissions. Over time, however, these attempts at multilevel integration of technological and institutional change have given way to a narrower agenda centered around deploying climate-friendly technology.

This focus is tailor-made for China, where the technocratic government has had decades of experience deploying such technologies and has prepared extensively to offer its mix of solar, wind, and electric products in the international market.

Starting in the early 2000s, state subsidies enabled Chinese firms to monopolize the global solar cell supply chain. But the technocratic arm of the Chinese state reaches far beyond solar. In the wind sector, China has been leading the world in new installations of offshore wind capacity since 2018, according to the Global Wind Energy Council. As for the transportation sector, China is already home to the fastest-growing electric vehicle market in the world. Particularly telling is the government's willingness to support hydrogen through subsidies and favorable policies, which is stimulating Chinese vehicle manufacturers while simultaneously encouraging Japanese and Korean car companies to bring their latest technologies to China. Another salient aspect of China's decarbonized energy future is its hefty investments in nuclear power technologies, projected to reach \$440 billion by 2035. These investments contrast with other parts of the world, where nuclear development is held back by public opposition and court challenges.

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The Made in China 2025 program is perhaps the clearest articulation of the Chinese leadership's consensus view of the government's supreme role in shepherding technological advancement—not only for China, but also for the world. Released in 2015 as a ten-year development plan, Made in China 2025 is a bundle of policies that aim to transform the country from the world's factory into its innovative powerhouse. Chinese premier Li Keqiang has characterized the program as the start of a "new industrial revolution," intended to supersede the advances that were made in the "old" industrial revolution and also to circumvent its environmental woes. Admirers of the program include UN officials Richard Kozul-Wright and Daniel Poon, who wrote in 2017 that it should inspire the United States to "act now to revive its pragmatic industrial-policy tradition, put finance back to work for the real economy, and invest in new activities that can reinvigorate a struggling middle class."

While understandable, this wish for China-like solutions is misguided. Global as well as national climate policy discussions are contentious, unfocused, slow to progress, and full of uncertainty and rancor. The debates are frustrating

because they are entangled in real-world problems of markets, loss and compensation, equity, and social costs, all of which are fraught and difficult to navigate. By contrast, China's vision of concrete targets, achievable goals, and deployable technology represents a type of single-mindedness and decisiveness that is rarely found in democratic societies.

The infrastructure pivot

Recently, climate-resilient, nature-based, environment-adaptive infrastructure has become an essential ingredient of the global climate agenda. A UN proposal for financing climate action, for example, cites World Bank data in advocating for unprecedented investments in climate infrastructure totaling \$90 trillion by 2030. The proposal echoes the “win-win” language by positing that the money will be recouped because investing \$1 in the green economy purportedly yields \$4 in benefits. The salience of infrastructure in climate governance does not come as a surprise—powerful international organizations have long operated under the notion that developing countries are facing an “infrastructural deficit.” But under climate change, the idea of climate-resilient infrastructure for underdeveloped nations seems triply appealing because of its promise to

a cumulative total revenue of \$1.76 trillion by 2019 from its overseas infrastructure undertakings. These wildly different figures aside, China-funded infrastructure has without a doubt forever changed the landscapes of many countries on the Belt and Road, spanning Azerbaijan to Zambia and covering all continents except North America and Antarctica.

The world's response to this global infrastructure footprint has been to offer even more infrastructure in the hopes of outcompeting China. The Biden administration's plan to work with the wealthy Group of Seven nations on a Build Back Better World partnership and the European Commission's Global Gateway strategy to support infrastructure around the world constitute alternatives that would—unlike China's efforts—include high-quality global standards to promote human rights, transparency, and public participation in infrastructure development. At face value, these programs seek to challenge China's infrastructural dominance. But in actuality, they reinforce the view that the construction of state-backed infrastructure is the answer to the world's problems. This now-global push for more infrastructure benefits Chinese state-owned enterprises, whose excess of building materials, construction workers, and engineering expertise can find new outlets beyond China.

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simultaneously build infrastructure, mitigate climate, and create jobs.

This recent global pivot toward infrastructure gives Chinese state-owned enterprises an unusual edge in delivering such projects on a worldwide scale, not least because these firms have gained decades of experience through infrastructure-centric urbanization and modernization within China. Chinese state-owned enterprises market themselves as masters of infrastructure, and to their credit, they are highly skilled in hard infrastructure engineering, as seen in the emphasis on connectivity through highways, railroads, ports, dams, and power plants on the Belt and Road. Chinese state agencies have even adopted the term “infrastructure mania” (基建狂魔 or *jijian kuangmo*) as a playful boast to describe their overseas undertakings.

The scale of China's global infrastructure footprint is hard to pin down, mainly due to the lack of reliable data sources. The Belt and Road Initiative is estimated to have tapped into “at least \$400 billion in funding from government-run banks,” according to the *Wall Street Journal's* Stu Woo and Daniel Michaels. The Chinese Ministry of Commerce reports

China planet as cautionary tale

There is no denying that targets, technologies, and infrastructure all have the potential to tackle climate change and promote global cooperation. And China's ecological civilization model appears to offer quick, tangible fixes in an era where messier democratic processes seem to have failed.

But it's worth considering what successfully emulating this model would mean. We have studied China's approach to the environment for decades and observed the extensive human suffering that the authoritarian Chinese state has caused. We have also come to deeply appreciate the connections between environmental sustainability and social justice. Only when ordinary Chinese citizens share and support initiatives designed to reduce carbon, protect biodiversity, and promote good governance can China achieve Xi Jinping's dream of prosperity based on clear waterways and green mountains. In our view, this is true not only for China's domestic climate governance, but also for societies throughout the world.

To imagine how the “China planet” model might manifest, consider the 2022 Winter Olympic Games in Beijing. Officials promised to hold the “greenest and cleanest” games in history and described the mega-event as China's “test run”

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toward carbon neutrality. They compiled impressive statistics: Olympic buildings' energy efficiency rate exceeded 51% and new energy vehicles accounted for 85% of all transportation in the Olympic Village. While these and many other specific numeric targets mean little to anyone who is not a technical expert in green buildings or transportation, officials piled them up to substantiate their greenest and cleanest Olympics claim. Stadiums were outfitted with smart Big Data monitoring technologies. And the entire infrastructure was certified green, according to a dedicated building code known as "Evaluation Standards for Green Snow Sports Venues."

These green-sounding numbers and facts are likely accurate, but they represent only partial truth. They fail to acknowledge that a nature reserve had to be "rezoned" for the alpine ski site to be built in it, or that making artificial, Olympics-quality snow in parched Beijing was an energy- and water-intensive undertaking. Moreover, electricity is not in itself a clean energy source, especially in China, because it's produced by coal-fired power plants. And the government's air quality "guarantee" program for the Olympics empowered officials to shut down factories without due process. The burden fell primarily on China's most vulnerable and politically disenfranchised. Despite the very real appeal of China's approach, its speed and physicality came with high costs.

As the Chinese state continues to remake the world in its image, some of its quantitative climate goals seem within reach. Draconian interventions do indeed bring down carbon emissions when power can be cut for weeks without advance notice, as occurred in northeast China in late 2021 for reasons that may have included meeting emissions targets. The otherwise long-term task of electrifying vehicles can be accomplished expeditiously with the help of surprise bans and fines. Diversifying sources of energy seems easy when hydropower projects and nuclear power plants are built with little public input. The short-term climate benefits of these and many other examples are indisputable, but they come at a hefty price that few democracies could tolerate.

And even in China, there is recognition that these climate quick fixes that trample ordinary citizens' livelihoods, rights, and heritage cause people to become confused, angry, and even hostile to the climate cause. By contrast, as we have documented in numerous examples, including coastal cleanup and biodiversity protection, better outcomes are achieved when grassroots, citizen-driven environmental initiatives and

projects become trusted partners with the state. Such modes of public participation help close the "implementation gap" between state policy and practice. China's top-down approach thus misses out on a powerful driver of sustainability and social support for environmental goals. Global climate governance should pay attention to these voices and tensions within China.

Some observers would argue that given decades of failure to institute a global climate plan despite the increasingly dire consequences of a warming climate, a zero-carbon world is worth achieving at any cost. But climate advocates and policymakers should more deliberately weigh the risks inherent in China's program. When they do, they may start to appreciate the slow messiness of a more human-centered, transparent, and equitable approach. China's extensive experience in "green" governance offers an important cautionary tale for the world. These lessons are also important for the Chinese state, which has turned away from its most fruitful potential source of support for the environment: its own people. If they seek genuine global climate leadership, Chinese officials will do well to avoid repeating the same mistakes they have made domestically on a global scale. Even worse than the current climate impasse would be a series of China-inspired techniques that erode human rights while having little positive effect on the environment.

Many people question whether China can uphold its climate promises, but this question misses the mark. The right question to ask is whether the costs of achieving these promises would be worth it, and whether China's approach to its zero-carbon goal is ultimately sustainable. This is much harder to answer, in large part because answering would require transparency, accountability, and social equity—all of which are in short supply in the Middle Kingdom.

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