The United States And China, Competitors or Collaborators to Combat Climate Change?

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Abstract

China is the world's largest emitter of greenhouse gases, and the United States is the second largest.

The two countries once were at the forefront of environmental collaboration - as early as the 1980's. But their environmental partnership suffered a serious break when the Trump administration began setting tariffs and other trade barriers on China in January 2018, and the conflicts eventually turned into a full-blown U.S.-China trade war.

It should be of great interest for President Biden and President Xi to find common ground for the United States and China to work together - for their respective countries and to provide leadership to the world - and reinvigorated collaboration on the environmental front is a desirable notion.

This Paper examines what the United States and China are doing vis-à-vis their environmental commitments to the global community, potential areas of competition and collaboration.

A question is being brought to the foreground: "Will the world's two largest greenhouse-gas emitters work together in some ways to combat climate change?" The most recent development was that the two nations announced on November 11, 2021, at the UN's COP26 climate summit in Glasgow, Scotland, that they plan to work together to curb their emissions in an effort to fight climate change. We have yet to see the extent of this working relationship but it is certain that fighting climate change is a hard and long-term effort that demands determination and persistency.

The outlook, as I concluded this paper, is for the world to win the war - the war against climate change.

Climate Change Shocks - Right Here, Right Now

In 2021, just in the month of July alone, the disastrous wildfire destroyed the entire Lytton village in British Columbia, Canada. Over the border to Oregon and Washington in the U.S., a death toll of nearly 200 people was reported during the record-breaking heatwave. Across the Atlantic, flash floods hit Germany and Belgium with death toll rising to over 200. South to Africa, heavy rain flooded Lagos in Nigeria and paralyzed its entire economic activity. Some 5,700 miles away in Russia, flooding affected 99 settlements across its territory and had forced almost 4,000 people to evacuate their homes. South in Inner Mongolia, China, two reservoir dams failed after a period of heavy rainfall and thousands were affected by the resulting floods. Moving southeast to Henan province, flooding turned the streets in Zhengzhou to rivers, killed at least 57 with close-to-a-million people being removed from their homes. Heavy floods in India resulted in landslides which took away lives of some 125 people. Natural disasters also adversely affected people in Costa Rica, Saudi Arabia, Iran, Turkey, France, Italy, Austria, the Philippines, among others.

Climate change is right here impacting our normal life. We can see it and feel it.

Environmental Cooperation Led by U.S.-China Partnership

China is the world's largest emitter of greenhouse gases (GHG), the United States is the second largest.

The two countries once had been at the forefront of environmental collaboration. Their partnership on environmental protection started as early as the 1980's[1]. In 2014, the United States and China made a joint announcement on their intent to reduce emissions with their respective climate targets, which helped build international momentum. By December 2015, 180 countries responsible for nearly 95 percent of global emissions announced their climate targets. They signed the Paris Climate Accord (Paris Agreement) which replaced the 2005 Kyoto Protocol.

However, the Trump presidency moved the United States further away from its allies, from its alliances on climate and energy with China, and alienated it from ongoing multilateral climate negotiations. On November 4, 2020, the U.S. withdrew from the Paris Climate Accord. U.S. emissions declined more slowly during President Trump's term than President Obama's. Other advanced economies like the EU and Japan have reduced emissions faster[2].

The United States may see China as an adversary or a competitor on different fronts, but there is a glimmer of hope that the Biden administration may help the two nations again find common ground as collaborators to address climate change.

Deep Decarbonization is Needed to Tackle Climate Change

In a January 28, 2020, article published by the Yale School of the Environment, David G. Victor asserted the urgency of the need for a realistic blueprint to wean our economies off carbon emissions:[3]

"Emissions are now rising at about 1 to 2 percent annually, even though a new UN study shows they must tumble nearly 8 percent per year to be consistent with holding warming to 1.5°C.

"No major economy has ever cut emissions of warming gases that quickly; it's not practical to make such cuts globally on the time frame of industrial and agricultural systems that usually don't change quickly.

"The planet will blow through the 1.5°C goal and through 2°C as well. Even with a big effort, we may be on track for 3°C or more - levels of warming that scientists say will have ruinous consequences."

Though close to 200 countries are involved in the encouraging framework of the Paris Agreement, Victor pointed out that "Global diplomacy and global agreements will operate too slowly and too cautiously to address the climate crisis. Global agreements have a role to play, but they will largely be followers rather than leaders."
So, where does the world stand now on sustainability?

The 2020 Environment Performance Index (EPI) ranked Denmark on top. Other nations in the top tier included Luxembourg, Switzerland, the U.K., and France, while the U.S. is in the 24th spot, and China, 120th.[4]

"Accelerating the Low Carbon Transition," a report published by the Brookings Institution in November 2019, argued that getting serious about decarbonization requires a new approach to industrial policy - one that is organized sector-by-sector and coordinated internationally to create progressively larger markets and stronger incentives for decarbonized industries.[5]

China Puts its Climate Commitment on The Table

Despite COVID-19 pandemic-related slowdown, global emissions are still on the rise.

On September 23, 2020, Chinese President Xi Jinping told the UN General Assembly that China aims to have CO2 emission peaked before 2030 and to achieve carbon neutrality before 2060.

Beijing's commitment prompted neighboring countries to follow suit, with Japan committing to net-zero greenhouse-gas emissions and South Korea to carbon neutrality by 2050. According to Greenpeace, these three Asian economies together accounted for one-third of all global carbon emission in 2018.

Beijing is sending a clear and powerful message: it is playing by the rules of the Paris Agreement, which revolve around independent national commitments. It has not asked for a quid pro quo from other countries. It is simply taking the lead.

Though some observers question China's ability to quit its dependency on coal and its ability to quickly transition to renewable energy to meet its emission time-commitment, others are hopeful that China can make it happen, especially when the cost of renewables is coming down fast.

Christine Loh, chief development strategist at the Institute for the Environment at Hong Kong University of Science and Technology, believes that China's decarbonization target "did not come out of the blue." Given the scale of China's 2060 pledge, Loh believes that China has not only been planning for a decarbonization revolution, but is responding to fear about possible impact on China, including severe flooding.[7]

The U.S. Plan is about A Clean Energy Revolution

Combatting climate change was a part of the Biden presidential campaign. As soon as he took office in January 2021, President Biden unveiled his environmental plans - Green New Deal-like initiative aimed at putting climate change at the center of the country's domestic, national security and foreign policy - and the U.S. formally rejoined the Paris Agreement on February 19, 2021.

"Right now we have to act and act fast. We're late in the game here," President Biden said at the White House on June 30, 2021, during a meeting with governors from western states

facing a record-breaking heat wave. "The truth is we're playing catch up. This is an area that has been under resourced, but that's going to change if we have anything to do with it."[8]

The infrastructure plan Biden proposed will cost around US$2 trillion. This covers investments in infrastructure, an American-based energy-efficient automobile industry, increased public transportation options, a sustainable power sector, weatherized buildings and housing, scientific innovations, climate-smart agriculture and conservation, and efforts to promote environmental justice.[9]

<u>The U.S. Plan for Climate Change</u>

President Biden pledged to cut America's emissions in half by 2030, eliminate fossil-fuel emissions from power plants by 2035 and zero out all greenhouse-gas emissions by midcentury.[10]

The Biden administration addresses its climate-change plan in the following areas:[11]

1.Ensure the U.S. achieves a 100 percent clean-energy economy and reaches net-zero emissions no later than 2050
2.Build a stronger, more resilient nation
3.Rally the rest of the world to meet the threat of climate change
4.Stand up to the abuse of power by polluters who disproportionately harm communities of color and low-income communities
5.Fulfill the U.S.' obligation to workers and communities who powered the country's industrial revolution and subsequent decades of economic growth

Competition or Collaboration?

Underlying the confrontations on combatting climate change (between nations and within nations) was the assumption that tackling climate change would be costly, and negotiations were mostly about how these costs should be distributed. China and many developing countries argued that industrialized nations bore "historical responsibility" to lead on reducing the carbon emissions that had fueled their prosperity.[12]

Stephen Minas, in his May 2, 2021, article, pointed out that "these arguments persist, but the underlying cost-benefit analysis in many countries has shifted radically." He further noted that "for a growing number of countries, reducing emissions is now about transforming economies in order to prosper in the carbon-constrained future."[13]

For such a transformation, it involves education, regulation, innovation, execution, and transition. While there needs to be some adjustments in personal habits and possibly lifestyle, the bulk of the change would be to incorporate more energy-efficient hardware and software into our daily life, which has a lot to do with business enterprises.

To reach carbon neutrality, countries have to lower their greenhouse-gas emissions and find ways to capture carbon, or use carbon credits to get to carbon-neutral status. They cannot do it alone.

Competition

While China and the United States may work together in this environmental front, there are, however, areas for competition that their respective government have distinctively announced. I am raising here cases in transportation and electricity production.

Transportation

Whether it is movement of people or goods, and whether it is through ground, air, or ocean, we need to bring about energy efficiency in transportation.

Developing electric vehicles (EV) and putting them on the road can be high up on many countries' agenda.

China is ahead of the curve in EV for many reasons. As noted by Jack Perkowski, "China has no other choice." Perkowski offered his analysis on the three fundamental paths China may follow: "First, it can choose to live with a rapidly growing number of ICE (internal combustion engine) powered vehicles on its roads, with all that implies as far as air pollution and energy independence. Second, the government can restrict the transportation choices of its citizens in an effort to balance environmental concerns. Or third, the country can embrace EV technologies that enable its citizens to have their cars without jeopardizing air quality in its cities."[13]

The United States is not contented to be just another player in the big EV market. On May 18, 2021, President Biden said at Ford Motor's Rouge Electric Vehicle Center in Dearborn, Michigan:[14]
"Look, the future of the auto industry is electric. There's no turning back.

"The only question is whether we'll lead the race or fall behind.
"Right now, China is leading in this race, make no bones about it; they will not win this race. We can't let them."
Competition in the EV market to produce good or better-value EVs should be welcomed by consumers all over the world. As long as such competition is conducted in free market trade policy instead of protectionist trade policy, it should benefit all.

Electricity Production

In 2019, 63.3 percent of global electricity came from fossil fuels15. In the U.S., approximately 62 percent of electricity came from burning fossil fuels, mostly coal and natural gas16, and in China, 66.9 percent of electricity came from fossil fuels in which 62.2 percent was from coal[17].

Michael Standaert voiced his concerns on China's coal spree: "China is building large numbers of coal-fired power plants to drive its post-pandemic economy. The government has promised a CO2 emissions peak by 2030, but the new coal binge jeopardizes both China's decarbonization plans and global efforts to tackle climate change."[18]

Institute for Energy Research (IER) provided some insights in this area:[19]
"China is allowing coal power plants to be built until around 2030 when China will be richer and replacement technologies will have advanced and their costs will be lower.

"Five years ago, Chinese companies began upgrading their plants to trap more of the small particulates that generate smog, and to produce more electricity from every ton of coal they burn.

"Chinese companies also believe that technology breakthroughs in areas such as carbon capture and sequestration, which traps and stores the greenhouse gases emitted when coal is burned, will help to achieve carbon neutrality."

IER also pointed out that China is investing heavily in oil-refining capacity and is about to unseat the United States as the world leader in petroleum refining, a position the United States has held for over a century.

Collaboration

Besides lowering greenhouse-gas emissions, finding ways to capture carbon are also important to help our planet reach carbon neutrality.

These are areas where neither the U.S. nor China are clear leaders, and other countries in the world are in the race - which should open up avenues for collaboration and cooperation. Different forms of carbon sequestration: carbon capture and storage (geologic) and carbon farming (biologic), may fit into this area.

Carbon Capture and Storage

Carbon capture and storage (CCS) could potentially capture around 90 percent of the CO2 emitted when fossil fuels such as coal are used. The CO2 would then be transported and stored safely underground so it cannot contribute to climate change.[20]

CO2 capture technology has been in used since the 1920's for separating CO2 sometimes found in natural gas reservoirs from the saleable methane gas. This existing technology started being applied to CCS in the 1970's.[21]

ReportLinker profiled the leading companies operating within the carbon-capture-and-storage market. Of these top 20 companies named, 11 are located in North America, six in Europe, two in Asia, and one in the Middle East.[22]

Decades of research has made CCS technically feasible, but it is both incredibly complex and wildly expensive. Nevertheless, the fossil-fuel industry continues to chase after carbon capture. In February 2021, ExxonMobil said that it is investing US$3 billion over the next five years on projects to lower emissions, including 20 carbon-capture projects around the world.[23]

Molly Taft summarized the current situation: "On paper, CCS sounds like the solution to all our problems. If we could just suck the carbon dioxide emitted by burning fossil fuels and put it somewhere else, we could cut warming without shifting away from old methods of generating energy. In practice, though, the results have been less than promising and failed to scale at anywhere near the levels needed to avert catastrophic climate change."[24]

If the world is determined to use CCS as a way to help solve the climate problem under a definitive timeframe, it is wise and makes sense for the world to pull resources together to collaborate and cooperate on this complex and expensive front.

What's Next?

While countries work to reduce emissions to transform their respective economies, will the world's two largest emitters of greenhouse gases work together on this environmental front?

Aside from areas mentioned in this Paper, will the United States and China, and possibly other countries and regions in the world, collaborate on carbon farming as an avenue to save our environment?

For the United States and China, there are many battles. One wins some and loses some. The key is for the world to win the war - the war against climate change.

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