

BRIEFER

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Connecting Nuclear and Climate Policy in the Biden Administration

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Introduction

Over the past four years, the Council on Strategic Risks (CSR) has operated a working group to examine the convergence of two of the world's greatest challenges: nuclear threats and climate change. Whether countries significantly expand reliance on nuclear energy to help address the climate crisis---or whether they pivot away from nuclear energy---either pathway will have a profound impact on future nuclear safety, security, and nonproliferation trends. The strength and contours of international political will to aggressively address the climate crisis will in turn shape nuclear trends.

In addition to major changes among individual nations, the international order is being profoundly reshaped. Some relevant trends have been in progress for decades, such as the rise of China's influence and empowerment of substate actors (from terrorists on the negative side to the rising voices of youth advocates on the positive side). Others have accelerated in the past few years, including observed deterioration in multilateral engagement, especially across arms control, nuclear energy development, and climate change. Global pacts such as the Paris Agreement, the Joint Comprehensive Plan of Action (Iran nuclear agreement), and several bilateral U.S.-Russian nuclear treaties have been strained or completely terminated. The United States has become a powerful player in driving these trends, including via unprecedented actions such as threatening withdrawal from the World Health Organization during an historically devastating pandemic.

This evolving international order, and the strains in multilateral trust and cooperation confronting the next U.S. administration, shaped the most recent conversation of CSR's Working Group on Climate, Nuclear, and Security Affairs (hereafter referred to simply as the CSR Working Group). Many of these setbacks mounted just before the world needed to come together to address the devastating COVID-19 pandemic, which was ramping up in the United States just as this multidisciplinary group convened in Washington, D.C. in early March 2020. This brief presents a summary of the CSR Working Group's conversations and conclusions, and recommendations for the way ahead.

The summary captures a unique set of challenges facing the presidency of Joe Biden over the next four years. While his administration will likely take strong leadership positions on addressing both climate change and nuclear threats, their policies and decisions must account for the ways in which these issues converge and further link to a wide range of other security challenges.

This brief provides the major contours of these converging risks. Though the CSR Working Group convened well before the trajectory of the 2020 election was known, the group's members identified solutions for the next administration and Congress for whoever would be elected to lead the nation in the years ahead. It begins with a short overview of the ways in which nuclear and climate trends are together reshaping the international order, followed by examples of how these dynamics differ within specific, strategically-important countries. These details are followed by solutions offered by the CSR Working Group for creating and implementing nuclear and climate policies in ways that mutually advance U.S. interests.

Climate and Nuclear Trends are Reshaping International Order

The international order--institutions, norms, rules, and agreements that shape how nations behave and pursue their interests--is experiencing profound changes. This evolution and restructuring could be beneficial if shaped and leveraged properly, helping to drive toward a more secure and just world. It could also be calamitous, causing disarray, fueling threats like nuclear proliferation, worsening the climate crisis, and increasing the risk of conflict. The Biden administration should actively shape this path toward stabilizing measures, which will require addressing the diminished trust in government to mitigate the mounting climate and nuclear threats on its doorstep.

The international order as it pertains to nuclear weapons and other weapons of mass destruction (WMD) is at risk for greater, world-altering change than at any time since the Cold War. Attacks using chemical weapons have continued by Syria, Russia, and North Korea in recent years, driving a fear that the taboo against WMD use may be weakening. An extremely concerning trend is toward officials in countries like the United States speaking of nuclear weapons in ways that indicate a greater willingness to use them for warfighting--not just deterrence. The United States, Russia, and other countries are investing in misnamed "low-yield" nuclear weapons, and other weapons designed for a broader range of effects to make them more politically usable. This ties to a dangerous pivot in strategic thought in which some experts believe they can control nuclear escalation once that threshold is crossed.

It would be hard to underestimate how strongly the world order of past decades is being altered as the attitudes that WMD are acceptable spreads. Whether or not this trend can be reversed has a strong bearing on public acceptance of significant expansion of nuclear energy as a climate solution.

Trust among nations, and between publics and those governing them, is further strained by the perception of not addressing the climate crisis aggressively enough, just as the effects of climate change on security, stability, and state fragility are becoming ever-more apparent. This is likewise shaping nuclear trends in a few key ways. First, these issues will influence whether many countries pursue or expand civil nuclear energy programs, as publics must trust that their governments will have the long-term stability to safely manage nuclear energy programs. Second, a significant concern is how these effects play out in countries

that possess nuclear weapons. The risks of miscalculation related to nuclear weapons are rising due to the types of nuclear weapons gaining favor around the world, increased blurring of conventional and nuclear doctrine by many countries, rising tensions among many nuclear-armed countries, and other factors. Rising nuclear weapons threats will thereby also shape public and policy maker opinion regarding the desirability of expanding nuclear energy in the years ahead.

All the issues described here are influencing and are influenced by rising nationalism and authoritarianism across the world. Climate change effects may also continue to contribute to the [erosion of legitimacy](#) in democratic systems. Several populist governments are seeking to acquire nuclear technology---ostensibly for peaceful purposes but in some cases raising concerns of hedging toward weapons-relevant capabilities---in their quests for symbolic power. As such, many of CSR's Working Group members agreed that there is clearly a global demand for a new order and those filling the void tend to be nationalistic and/or authoritarian. These new leaders are creating significant unknowns in the strategic security space.

How Climate and Nuclear Trends are Converging in Specific Countries

Of course, understanding how climate and nuclear trends are converging to alter the global security environment requires a sense of what is occurring in specific countries. Notably, nuclear and climate trends combine in different, unique ways in different countries, though over the past several years [CSR's Working Group](#) has been able to identify several types of concerns by examining a dozen specific cases via reports and expert discussions: India, Pakistan, Egypt, Nigeria, Turkey, countries around the South China Sea (with a focus on Indonesia and the Philippines), Brazil, China, UAE, Iran and Saudi Arabia, and Russia.

First, a leading concern is *how climate change and other security stressors are combining in nuclear weapons-possessing countries* such as India, Pakistan, China, and Russia.

Glacial melt, hotter temperatures, and extreme flooding events threaten three major nuclear weapons possessing states that happen to share river resources and borders: Pakistan, India, and China. Geopolitical rivals [India](#) and [Pakistan](#) are each already dealing with extreme climate change effects from intolerable heat waves to catastrophic flooding. Pakistan is suffering from water stress and is dependent on upstream India for a majority of its freshwater supply due to shared river resources. Deadly skirmishes in 2019 highlighted the brimming tension regarding territorial disputes in Kashmir; these Issues led to water related threats in the past and in early 2019 an Indian cabinet minister reprised threats to block downstream flow.¹

At the same time, Pakistan and India continue to bolster their respective nuclear arsenals, with the latter recently reaching nuclear triad status (capabilities to launch nuclear weapons by air, sea, and land). Further complicating already deeply-entrenched discord, India and China had their own fatal confrontation between troops along their shared border in 2020. Beijing and Islamabad have close historical ties and China has invested heavily in Pakistan, particularly in its nuclear energy sector.

Russia is grappling with higher temperatures, wildfires, collapsing permafrost, and flooding throughout its territory, particularly in Siberia. The Arctic is perhaps the world's paramount example of the geopolitical impacts of climate change; sea ice is melting at unprecedented rates which presents opportunities that neighboring countries such as Russia are actively exploiting. Moscow sees the Northern Sea Route, abundant natural resource extraction potential, and other benefits as burgeoning economic pathways -- and another way to impose its security agenda and influence. At the same time, nuclear powered submarines, floating nuclear reactors, and WMD developments present grave concerns and

¹ Jeffrey Gettleman, "India Threatens a New Weapon Against Pakistan: Water," *The New York Times*, February 21, 2019, <https://www.nytimes.com/2019/02/21/world/asia/india-pakistan-water-kashmir.html>

rising confrontational risks in this new environment. The United States withdrew from the Intermediate-Range Nuclear Forces (INF) Treaty last year following Russian breaches of the treaty, which leaves only New START to actively limit U.S. and Russian nuclear weapons deployments -- expiring in Feb 2021 unless both countries extend it. Some pressures on the preexisting arms control system can be healthy, and according to some, Moscow and Washington have yet to arrive at a breaking point. However, if New START is not extended, it could be incredibly destabilizing. Perhaps most importantly, Russia wishes to be a leading actor on the global power stage, and by exporting its nuclear energy technology via its state owned corporation, Rosatom, or pushing its presence in the Arctic, it seeks to carve out that power, one way or another. The growing threat of mis-, dis-, or mal-information with origins in Moscow further complicates this nexus of climate, nuclear, and security issues, undermining both regional and global stability.

[China](#) is under increasing pressure by fellow nuclear weapon states Russia and the United States to join them in nuclear arms control agreements, though its future role in such agreements is uncertain. It continues to hold as the world's fastest growing domestic nuclear power developer. Like Russia, China plans on becoming a leader in exporting civil nuclear technology and has established partnerships with several countries across the globe. These nuclear energy trends tie directly to China's policies on climate change, which is impacting China within its borders: desertification, flooding, and sea level rise have begun to jeopardize agricultural and highly urbanized coastal areas. The headwaters of South Asia's major rivers, a regional freshwater system that is already experiencing climate-related stress, begin in the Tibetan Plateau where China has been constructing hydro-projects along rivers to accommodate growing food, water, and energy needs. This will continue to impact the water supply of downstream countries, including nuclear-armed Pakistan and India. Beijing continues to push its Nine-Dash Line in the South China Sea, a setting for a great power confrontation (much like the Arctic, a region Beijing is also attempting to access more and more).

In addition to their own climate, nuclear, and security issues, Russia and China are playing an outsized role and on every single one of this project's case study countries. Whether it is directly through building, operating and owning nuclear reactors (e.g., Rosatom in Egypt and Beijing in Pakistan) or being a key trade partner or neighbor (e.g., China and the South China Sea or Russia and Turkey) both countries are heavily impacting economic, energy, and security developments throughout these key nations.

Second, the group examined whether *nuclear energy newcomers are experiencing major climate and security strains*. This is an especially high concern for those whose fate has an outsized impact on the stability of their regions, such as Egypt, Nigeria, and Turkey.

According to recent reports, the Egyptian Nuclear and Radiological Regulatory Authority plans on extending a construction license for the El Dabaa nuclear power plant in mid to late 2021. The Nile River Delta is one of the most vulnerable to sea level rise in the world, and the nuclear site lies just west of the delta. Meanwhile, [Egypt](#) is suffering from freshwater stress and relies heavily on the Nile River, over which it is in continuing talks to resolve disputes with its neighbors over upstream damming. It has also experienced a tumultuous decade -- the Arab spring and subsequent return of authoritarianism, domestic terrorism, and other factors have contributed to national and regional instability. As a major player in the Middle East/North Africa region, Egypt acts as a regional linchpin and its nuclear, climate, and security developments could shape an entire area for decades.

[Turkey](#)'s coastal Akkuyu nuclear power site, advanced under Rosatom's initial build-own-operate model that ensures a decades-long reliance on Russia, is currently under construction. Ankara hopes it will be operational in 2023. Turkey is a NATO member but is increasingly caught between its European alliance and Russian relations. Nuclear energy concerns center on Russian incentives to cut costs by sacrificing safety and security measures. This is especially concerning considering the country's neighborhood and its importance to regional stability. Not only must Turkey grapple with its own vulnerabilities to climate-induced sea level rise, drought, and desertification, it has also been managing an influx of Syrian migrants fleeing instability -- with links to [climate-related drought](#).

[Nigeria](#) is not as far along as Egypt or Turkey in building nuclear reactors, though its regional influence, continuing nuclear plans, and onslaught of climate and other security challenges warrant special attention. It has been battling extremist groups like Boko Haram in key areas of the country for almost a decade, while grappling with internal migration due to the resulting instability and widespread desertification in the north. This has raised ethnonationalist tensions and sparked deadly confrontations. In a major contribution to reducing risks from weapons-usable nuclear materials, in 2019 Nigeria hosted a multinational operation to remove highly enriched uranium from a China-built research reactor, after a number of setbacks due to ongoing security concerns. Nigeria has been actively exploring nuclear energy, signing agreements with Rosatom in 2017 for the development of two reactors. The country has rising energy demands and is attempting to diversify its energy mix to keep up with its growing population. Adding to the country's future challenges, climate models predict that sea level rise will flood its mega city, Lagos, and usher in even hotter temperatures, worsening desertification and water shortages.

The [South China Sea](#) continues to rise in strategic importance, as seen in continuing tensions between China and the United States there. A WMD free zone by the Southeast Asian nations is one tool in this region meant to keep nuclear jockeying out of such tensions, as well as minimize proliferation concerns for countries such as Indonesia and the Philippines that are considering nuclear energy. There are several countries that are hedging interest in establishing programs. Meanwhile, the region's climate projections include more extreme storms, warming ocean waters, and sea level rise, factors that will severely impact vulnerable sectors such as fisheries. China's looming presence and geopolitical standoff with the United States over lucrative shipping lanes and growing extremist sects are already adding to insecurity in the region.

Third, the group found that *preparing for the physical effects of climate change on nuclear infrastructure is more urgent than ever*. In [India](#), extreme weather events threaten multiple nuclear reactors along its ample coastline, especially in its western region and in the southern state of Tamil Nadu. Sea level rise and increased cyclone activity are particularly alarming for these established and planned sites.

For Nigeria, desertification and drought are pressing concerns in the areas around its existing research reactors; both of these issues have already contributed to large scale migration and internal instability. Civil unrest also rocked Egypt over the last decade, and as uprisings were unfolding in Cairo, Rosatom (Russia's nuclear energy company) was moving to construct the country's first nuclear reactor along its coast. Rising seas are a direct threat to the site, as are extreme temperatures---both climate change impacts that the country is already navigating and will continue to navigate for the foreseeable future.

Of course, all three of these categories also directly apply to the United States---a nuclear weapon possessing state whose nuclear actions and policies greatly influence global affairs (including the fate of its commercial nuclear energy industry in the future, which will be informed in part by climate policies), and who is already being hit by severe effects of climate change. American nuclear sites are vulnerable to climate change effects such as increased severity and frequency of natural disasters; including power plants and defense sites such as Offutt Air Force Base, the home of US Strategic Command, which was hit by extreme flooding in 2019.

As CSR's case study reports in this series pointed out, the United States also has a prime opportunity to integrate the convergence of climate and nuclear trends into its international relationships. This can take a wide range of shapes, from playing a stronger role in exploring new multilateral fuel cycle arrangements, to renewing the U.S.-Egypt 123 Agreement which will expire at the end of 2021, to assisting nuclear energy newcomers such as Nigeria in developing the aforementioned analytical tools needed to manage potential nuclear sites well, to making significant investments in climate resilience in countries where climate-nuclear risk convergences are high.

Indeed, the United States has more tools than ever to understand and address these converging threats. Nonetheless, it will take sustained effort to begin eliminating the silos that often prevent experts across these areas of risks from collaborating on solutions to do their best to meet all U.S. security needs.

Converging Solutions

It is critical that policies and solutions are designed to reflect the many ways that nuclear and climate trends influence one another (including in the ways outlined above). Systems analysis will be required, as well as personnel in key positions to look across U.S. federal policy and bring together stakeholders whose work must be coordinated.

Climate change mitigation and adaptation policies must account for nuclear energy trends and involve plans to reinvigorate U.S. leadership in nuclear security, safety, and nonproliferation around the world. American leaders concerned about nuclear weapons threats in South Asia, or with regard to Russia and China, must understand the basic contours of how climate change is dramatically shaping these countries and will continue to do so in the future. American nuclear weapons policy must reflect how our nation's expanding nuclear weapons modernization plans could dampen public confidence that nuclear energy can grow peacefully, thereby potentially setting back one pathway to addressing the climate crisis.

There is good news in that there are tools at our disposal to understand the convergence of climate, nuclear, and other security trends better than ever. How climate change effects could physically impact nuclear sites is one example: by layering extreme weather data over maps of existing and planned nuclear reactor sites, countries can begin to see the intersection between these risks. Along a similar vein, climate change projections can show us where record heat will make some parts of the world uninhabitable in the future and forecast how high sea levels could rise around existing or planned nuclear sites. Even today there are basic online tools to show, for example, sea level rise scenarios along Egypt's coast where the El Dabba nuclear power plant is under construction. Just as AI and machine learning systems are informing the defense and diplomatic communities' understanding of conflict and fragility dynamics, these tools can easily be used further to track nuclear safety- and security-related trends in countries where climate change effects will come into play.

Seeing the potential for positive, threat-reducing action, in March 2020, the CSR Working Group participants generated specific U.S. policy ideas that they then ranked according to which policies would make the greatest impact. The group's ideas advise that the next administration should:

- ***Develop an early warning system for strategic risks and their convergence.*** Big data and machine learning/AI systems are advancing in how they can help the government anticipate and prevent the confluence of strategic risks. Indeed, it's possible now to envision developing an early warning system that could give analysts and decision makers more comprehensive assessments of chronic issues and generate notice for when and where climate, nuclear, and other security risks are combining---including, for example, incorporating emerging infectious disease threats. This would require consistent funding and setting of meta standards, along with transparency. It could also involve public-private cooperation.
- ***Cap and eliminate tactical and low-yield nuclear weapons.*** As noted above, rising threats around nuclear weapons are influencing international cooperation on other strategic threats and shaping public opinion regarding the desirability of nuclear energy. The United States controlling and working to eliminate these most dangerous and destabilizing nuclear weapons capabilities would signify a pivot toward greater cooperation in diminishing nuclear threats.
- ***Create a National Security Council (NSC) director with oversight of the climate, nuclear, and security nexus.*** As noted above, the Biden administration must ensure policies and investments on addressing these issues are connected---and hopefully mutually reinforcing, but at minimum

that some U.S. policies don't undermine the ability for others to succeed. This will require the coordination functions and insights across government agencies that are resident in the NSC.

- ***Liberalize the visa regime to keep a well-trained science and technology workforce in the United States.*** Across strategic risks like nuclear dangers and the climate crisis, it is imperative, for its own interests, that the United States be open to the contributions of non-citizens and potential future citizens.
- ***Invest in a Climate Corps for national service.*** The expansion and growing enthusiasm of the youth population in America should be harnessed for national service in addressing the climate crisis. Members of a climate corps could take on a range of important functions and help show U.S. seriousness about leadership in this space.
- ***Invest in the communication and understanding of science in the world.*** Declining trust in science and the scientific community is devastating the nation, and this is manifesting in dangerous policies that set back progress against nuclear and climate threats. Overcoming this trend requires tailored, concerted communications and public outreach efforts that include proactively addressing disinformation. The United States holding the worst record to date in COVID-19 cases and casualties is a stunning example of the scale of this challenge despite the incredible power and ingenuity of the nation.
- ***Address the climate change and security nexus as a central point in the National Security Strategy and other key strategies.*** In addition to placing climate security threats at the center of the next National Security Strategy, leaders of the Department of Defense in the next administration should also make climate security---including climate effects on nuclear threats and solutions---central to the National Defense Strategy, the National Military Strategy, the Guidance for Employment of the Force, and other relevant instruction. It should expand international military education and training programs to the civilian sectors and make the climate-nuclear-security nexus a key element of programming.
- ***Expand analysis of these converging risks by the intelligence community.*** The intelligence community should have a cross-silo, permanent process or entity focused on converging threats and their potential to drive swift, dramatic changes in the security environment, to include the intertwined climate and nuclear trends described herein.

Conclusion

Perhaps most important, regaining trust in American leadership will require special attention to shaping the international order in ways that both meet U.S. interests and create common benefits for others in the world. Transnational trends like the growing risk of nuclear conflict, significant uncertainty about the future of the civil nuclear energy market, and the climate crises will be some of the strongest forces to shape our security in the 21st century. Strong and resilient international systems require that the United States more boldly address all of these issues.

Today, we understand the nexus of various nuclear and climate trends---and how they link to and shape other security trends---in more detail than ever before. Now it is time to act. We have a responsibility to continue working through the challenges that these interconnections create, and more tools than ever to solve them.

**Working Group On Climate, Nuclear, & Security Affairs
March 2020 Workshop Attendees**

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Note: Proceedings were held under the Chatham House Rule. While this briefener compiles ideas and contributions by workshop attendees, it does not represent the views of any individual attendee.