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**CHINESE AND RUSSIAN POLICIES ON CLIMATE
CHANGE: IMPLICATIONS FOR U.S. NATIONAL
SECURITY POLICY**

by

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IMPLICATIONS FOR U.S. NATIONAL SECURITY POLICY**

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ABSTRACT

Since the conclusion of the 1997 Kyoto Protocol negotiations, the Chinese government has been steadily increasing measures for the reduction of its greenhouse gases (GHG) emissions. Meanwhile, the Russian government has been extremely hesitant to even acknowledge humanity's role in climate change. This thesis investigates why China and Russia have chosen to take such divergent paths regarding climate change after compliance obligations were established at Kyoto. The factors considered include shifts in national public opinion regarding climate change, economics, demographics, expected future effects of global warming, resources, and the Kyoto Protocol itself.

The case studies of Chinese and Russian climate change policies and programs highlight three significant factors in the divergence: 1) the Kyoto Protocol, which set the initial policy baselines for both countries; 2) geography and demography, which forced China to take actions to combat climate change since it is half the size of Russia but has roughly ten times as many people; and 3) the lengthy and continuous leadership of Russia's current president—Vladimir Putin—who has held the position of either president or prime minister since 1999 and has taken virtually no action to combat climate change.

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LIST OF ACRONYMS AND ABBREVIATIONS

| | |
|----------|---|
| AR5 | Fifth Assessment Report |
| CCP | Chinese Communist Party |
| CDM | Clean Development Mechanism |
| CERs | Certified Emissions Reductions |
| CNCC | Chinese National Climate Committee |
| CoP | Conference of the Parties |
| EEZ | exclusive economic zone |
| EIA | Energy Information Administration |
| GHG | greenhouse gases |
| GMD | Guomindang |
| HDE | hydrometeorological events |
| INDC | intended nationally determined contribution |
| IPCC | Intergovernmental Panel on Climate Change |
| JI | Joint Implementation |
| OXFAM-GB | Oxford Committee for Famine Relief Great Britain |
| PRC | People's Republic of China |
| SSTC | State Science and Technology Commission |
| UNCLOS | United Nations Convention on the Law of the Sea |
| UNFCCC | United Nations Framework Convention on Climate Change |
| WWF | World Wildlife Fund |

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I. INTRODUCTION

At the beginning of the 1990s, the Soviet Union and China were far and away the two largest communist countries in the World. Even though the Soviet Union would soon collapse in 1991, there was still no reason to expect that these two countries—with so many obvious similarities—would take such different approaches in their policies regarding climate change and global warming. However, that is exactly what has happened. Since the conclusion of the 1997 Kyoto Protocol negotiations—which many experts refer to as the first ever meaningful multinational climate change agreement—the Chinese government has been steadily increasing measures for the reduction of its greenhouse gases (GHG) emissions. Meanwhile, the Russian government has been extremely hesitant to even acknowledge humanity's role in climate change and has taken virtually almost no steps toward reducing Russia's GHGs emissions.

This thesis investigates why China and Russia have chosen to take such divergent paths regarding climate change since the foundational origins were established at Kyoto. The areas of focus include shifts in national public opinion regarding climate change, economics, demographics, expected future effects of global warming, resources, and the Kyoto Protocol itself.

There has been a significant shift in public opinion regarding climate change since the late 1990s. This shift has resulted in a broader, almost worldwide, acceptance that global warming is indeed occurring. It is extremely important to identify the expected effects, because they may have a profound impact on every nation in the world. There is little doubt that the majority of the effects of climate change will have a negative impact on most nations, but there will also likely be benefits—even if only short term—experienced by many nations as well. Identifying these expected effects at a national level is important in order to identify what countries are best poised to benefit in the future from global warming. The majority of research has concentrated on either proving that global warming is occurring or investigating what can be done to halt or minimize its effects in the future. The significance of this thesis is that it looks beyond the global phenomena in order to seek a deeper understanding of why two of the world's largest

emitters of GHGs emissions have chosen essentially to head in opposite directions in the fight against global warming. Comparing and contrasting China's and Russia's climate change policies and programs may also help to identify gaps in current policy and assist with suggestions for future policy prescriptions.

This topic is important for U.S. national security policy because of the inherent importance of climate change for the United States and its allies. China and Russia are among the most influential states in determining the future of coordinated international responses to climate change, and it is imperative to gain a better understanding of the determinants of their policies in this domain.

II. COMPARISONS AND POTENTIAL EXPLANATIONS

The Working Group I contribution to the Intergovernmental Panel on Climate Change (IPCC's) Fifth Assessment Report (AR5) states, "Warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. The atmosphere and ocean have warmed, the amounts of snow and ice have diminished, sea level has risen, and the concentrations of greenhouse gases have increased."¹ This warming of the climate system may be regarded by specialists as a scientific fact, but convincing public opinion of it throughout the world remains a huge problem.

Adding to this difficulty is the fact that, even though average temperatures are shown to be increasing through scientific research, these average increases are being masked in the huge temperature shifts being seen all over the world. It is easy not to notice this increase when extreme temperatures are being experienced on both ends of the thermometer. This has led to different levels of national beliefs in the global warming phenomenon itself. For example, Elena Lioubimtseva, director of the Environmental Studies Program at Grand Valley State University, writes:

Climate change is not regarded as an acute environmental problem by Russia's general public. Recent opinion polls indicate that a significant percentage of the Russian public does not see climate change as a very important issue and does not approve of spending taxpayers' money on climate change mitigation.²

The 2007–2008 Gallup global opinion survey also showed that 97% of Americans were aware of climate change compared to 85% of Russians, and 62% of Chinese. The most telling survey statistic of all, though, was perhaps that 63% of Americans believed that climate change was a serious personal threat compared to 39% of Russians and only

1. T. F. Stocker et al., "IPCC, 2013: Summary for Policymakers," in *Climate Change 2013: The Physical Science Basis: Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* (New York: Cambridge University Press, 2013), 4, https://www.ipcc.ch/pdf/assessment-report/ar5/wg1/WG1AR5_SPM_FINAL.pdf.

2. Elena Lioubimtseva, "Russia's Role in the Post-2012 Climate Change Policy: Key Contradictions and Uncertainties," *Forum on Public Policy*, (2012), 11, <http://forumonpublicpolicy.com/spring2010.vol2010/spring2010archive/lioubimtseva.pdf>.

21% of Chinese. Whether or not public opinion agrees with the scientific community will not stop the effects that are expected to occur from the increase in the Earth's average temperature.³

A. COMPARING ECONOMIES

The Cold War came to an end with various events, including the collapse of the Soviet Union in 1991. In the early 1990s, the two largest communist countries in the world accelerated their distinct, ground-breaking shifts toward capitalism. Russia's shift involved a much more drastic reform approach, patterned after the "shock therapy"—or "big bang"—reform that had recently been implemented in Poland's transition toward a free market society.⁴ In contrast, China chose a slower-paced economic approach. According to Doug Guthrie,

As practitioners, the architects of the Chinese reforms have embraced the gradualist view, and it has led to a gradual and stable path through the economic reforms. Furthermore, the dramatic success of the first two-and-a-half decades of reform in China (compared with the turmoil caused by rapid reform programs in countries like Russia) raises serious doubts about the shock therapy approach and the economic assumptions that undergird that view.⁵

As Guthrie's observation indicates, China's transition toward capitalism began in the 1970s, well before Russia's transition in the 1990s. Even though China's single political party is still referred to as the Chinese Communist Party (CCP), next to nothing within the party itself—outside of its overall oligarchical benefits structure—bears much resemblance to the original communist party for which it was named.

With such different paths toward more capitalist systems, one might expect distinct policies for combating climate change. The reality, though, as previously highlighted, is that both the Chinese and Russian governments are much more concerned

3. Anita Pugliese and Julie Ray, "Top-Emitting Countries Differ on Climate Change Threat: Chinese see least threat from global warming; Japanese see the most," *Gallup* December 7, 2009, <http://www.gallup.com/poll/124595/Top-Emitting-Countries-Differ-Climate-Change-Threat.aspx>.

4. Jeffrey D. Sachs, "The End of Poverty (2005): A Plan to Establish a Market Economy," in *Political Economy Reader: Markets as Institutions*, ed. Naazneen H. Barma and Steven K. Vogel (New York: Routledge, 2008), 365.

5. Doug Guthrie, "China and Globalization (2006): The Politics of Market Reform," in *Political Economy Reader: Markets as Institutions*, ed. Naazneen H. Barma and Steven K. Vogel (New York: Routledge, 2008), 399–400.

with national economic performance than with reducing national GHGs emissions. For the most part, industrial standards aimed at reducing GHGs emissions are much more costly than standards that are not designed to attain this goal. Therefore, the overall national economic benefits involved with reducing emissions in China and Russia are insignificant, at least in the short term. Instead, economic incentives would seem to deter both countries from reducing emissions, rather than to provide either country with any sort of motivation for the reduction of emissions.

That is not to say that the economic benefits of reducing GHGs emissions within China and Russia are a complete zero-sum game. Some argue that there are overall economic benefits in reducing GHGs emissions levels now because addressing these requirements at present, will, in the long run, end up costing just a fraction of the exponential penalties that would be incurred by putting off reductions until a later date. While this argument would seem to hold water—and in all likelihood may end up proving to be accurate—it is currently difficult to quantify. At a time when many people seem to be more oriented to achieving instant gratification than pursuing long term goals it can be extremely difficult to make the case for the potential benefits associated with long range results.

B. DEMOGRAPHICS

In order to investigate possible explanations of why China and Russia have differed so drastically in their actions to reduce GHGs within their own borders, it is important to compare the two countries at the demographic level. Russia is the world's largest country in terms of land area with a total area of 17,075,200 square kilometers (6,592,735 square miles). China is the second largest, with a total of 9,596,960 square kilometers (3,705,406 square miles).⁶ Russia has the ninth largest population in the world, at about 2% of the total population (142,098,141). Meanwhile, China has the world's largest population, at about 19% of the total population (1,401,586,609).⁷ In

6. Nations Encyclopedia, s.v. "The Russian Federation," <http://www.nationsencyclopedia.com/economies/Europe/Russia.html#ixzz3kErSNJOW>.

7. World Population, Worldometers, accessed August 30, 2015, <http://www.worldometers.info/world-population/china-population/>.

other words, in geographic terms Russia is nearly twice the size of China, while China has roughly ten times as many people as Russia.

This demographic data helps to explain why China, at 23%, is by far the largest emitter of GHGs in the world. It also helps to explain why Russia is responsible for 5% of the world's GHGs emissions. Moreover, this data brings out a few other not so obvious facts. The first is that Russia actually has a much higher emissions per capita rate than China. Russia is responsible for only 5% of the world's GHGs emissions, which is about 2.5 times its percentage of the world's overall population. China is responsible for 23% of the world's GHGs emissions, which is about 1.2 times its percentage of the world's overall population. This means that Russia has over two times the GHGs emissions rate per capita than does China. Yet when it comes to the steps that these countries are taking to reduce GHGs emissions, they are headed in what appear to be almost polar-opposite directions.

This demographic data may also help to explain why the two countries are taking divergent steps to reduce GHGs emissions. It should be recalled that, though Russia may emit twice the GHGs per capita compared to China, Russia's population is only one tenth the size of China's, and—on top of that—Russia is nearly twice the size of China. One of the most basic ways to put this overall demographic data into perspective is to point out that the Russian population simply does not have to experience the same visible pollution levels that the Chinese population does—on an almost daily basis—in major cities, including Beijing. Russia's population has the luxury of being able to spread out over its vast countryside, while China's population is faced with having to congregate in much more densely populated cities, since its area is only half that of Russia.

C. THE FUTURE EFFECTS OF GLOBAL WARMING

Some of the effects of global warming already being seen today include floods, droughts, and heat waves. A few examples of the future effects being predicted include a lack of fresh water, melting of permafrost, and increased access to Arctic sea lanes. While average global rainfall remains at relatively the same level, its distribution throughout the world is becoming extremely uneven. This is causing areas that are

already traditionally accustomed to experiencing droughts to have to endure them on even greater and more destructive levels. On the other end of the spectrum, areas that have typically received substantial rainfall are now dealing with an even heavier amount, which is not only increasing the overall extent of floods within these regions but also each flood's overall destruction capacity as well.⁸

1. Effects in Russia

These same imbalances in rainfall and other weather phenomena are being experienced throughout Russia in the form of floods, droughts, heat waves, rapid frosts, tornados and heavy snowfalls. Observation results in Russia have noted a 6.3% annual increase in these hydrometeorological events (HDE). The economic impact of these events is becoming more apparent as well. For example, a 2013 research report suggested that “without adequate measures to adapt agriculture to climate change, the annual economic loss from a decrease in climate-determined crop yield in Russia is estimated at RUB 108bn (approximately \$3.5bn) by 2020 and over RUB 120bn (approximately \$3.9bn) by 2050.”⁹

The thawing of permafrost in Russia's northern regions is leading to infrastructure issues as well, such as the need for the reconstruction of roads and gas and oil pipelines. While Russia's northern region is almost entirely rural, it holds about 75% of Russia's oil production and about 93% of Russia's natural gas. Therefore, even though it does not directly and immediately affect the majority of Russia's population, this thawing of permafrost will continue to have a substantial impact on Russia's ability to extract

8. O.A. Anisimov et al., “Russia and Neighboring Countries: Environmental, Economic and Social Impacts of Climate Change,” *OXFAM GB and WWF Russia*, (2008), 14, <http://www.wwf.ru/resources/publ/book/eng/275>.

9. “Economic Analysis of the Impact of Climate Change on Agriculture in Russia: National and Regional Aspects,” *Oxfam Research Reports*, April 2013, https://www.oxfam.org/sites/www.oxfam.org/files/file_attachments/rr-economic-impacts-climate-change-agriculture-russia-010413-en_0.pdf.

and export its natural resources in the future. As of 2010, Russia was spending about \$1.8 billion annually on upkeep on its gas and oil pipelines. Future spending on maintenance for these pipelines is expected to increase as global temperatures continue to rise.¹⁰

The analytical literature suggests that Russia will also experience a number of noticeable positive effects from global warming. The Arctic region is a likely venue for many of these expected positive effects. To begin with, the navigation of sea lanes is expected to improve due to the melting of the Arctic's sea ice. As Daniel Moran puts it, "Though Russia is normally thought of as remote and landlocked, if it were to face warmer Arctic conditions, it could find itself with one of the world's longest commercially viable coastlines and with access to polar shipping routes that would facilitate its trade with Europe, Asia, and North America."¹¹ Additionally, the increases in average global temperatures are likely to reduce the cost of providing heat to people in Russia's inhabited regions. Russia's expected temperature increases should also make much of its territory more desirable for habitation and future commercial development.

Some also hold that global warming could have a very positive effect on Russia's agricultural system. For instance, Gus Lubin and Mamta Badkar write, "Global warming could increase Russia's arable land by 37 to 67 percent, according to researchers at the University of Illinois. This would add 425,000 square miles of farmland—an area three times the size of Montana."¹² While this sounds promising, the current Russian agricultural system is considered to be primitive and too inefficient to take full advantage of these possible gains. Therefore, it is more likely that global warming would have a minimal impact—if any—on Russia's future agricultural gains, at least in the near term. Samuel Charp and Georgi V. Safonov wrote in 2010 regarding global warming's effect

10. Samuel Charp and Georgi V. Safonov, "Climate Change and Role of Energy Efficiency," from *Russia After The Global Economic Crisis*, (Washington, D.C.: Edward Brothers Inc., 2010), 128–130.

11. Daniel Moran, *Climate Change and National Security: A Country-Level Analysis*, (Washington, D.C.: Georgetown University, 2011), 115–16.

12. Gus Lubin and Mamta Badkar, "The Good, The Bad And The Ugly Effects Of Global Warming In Russia," *Business Insider*, August 1, 2011, <http://www.businessinsider.com/russian-permafrost-melting-2011-07>.

on Russian agriculture, “Studies based on highly detailed models suggest that global warming will have a net zero effect on the sector.”¹³

Possibly the biggest climate change benefit of all for Russia could be the increased access to many of its previously untapped natural resources in its claimed territorial waters. According to the United Nations Convention on the Law of the Sea (UNCLOS), each state has the right to claim 12 nautical miles from its coast for territorial waters and 200 miles from its coast as its exclusive economic zone (EEZ). Within a state’s Exclusive Economic Zone, that state retains the right to all living and non-living resources. In 1909, Canada was the first country to declare that it claimed all land to the north of its territorial border as its sovereign territory, when Captain J. E. Bernier mounted a tablet on Melville Island inscribed: “This memorial is erected to commemorate the taking possession for the Dominion of Canada of the whole Arctic archipelago lying to the north of America from longitude 60° W. to 141° W. up to the latitude of 90° N.”¹⁴ Canada’s 1909 declaration may have contributed to the Soviet Union’s proclamation of 1926, which decreed that all lands to the north of the Soviet Union—up to and including the North Pole—were Soviet territory.¹⁵ Ironically, the enhancement of access to natural resources that Russia may experience from the warming of the Arctic could end up being offset and minimized by most of the developing world turning away from carbon-based energy in campaigns against global warming.¹⁶

2. Effects in China

China is the world’s largest emitter of GHGs, and it has come to a point where the effects and challenges facing the country as a result can no longer be ignored. The Chinese government has—for the most part—avoided the international pressures that have been brewing since the mid-1990s regarding climate change, but it also has recently

13. Charp and Safonov, “Climate Change and Role of Energy Efficiency,” 130.

14. Ivan L. Head, “Canadian Claims to Territorial Sovereignty in the Arctic Regions,” *McGill Law Journal* 9, no. 3 (1963): 211, <http://lawjournal.mcgill.ca/userfiles/other/131472-head.pdf>.

15. Marlene Laruelle, *Russia’s Arctic Strategies and the Future of the Far North* (New York: Taylor and Francis, 2015), 94–96.

16. Moran, *Climate Change and National Security*, 115–16.

begun to experience some of its overall effects within its own environment. These internal effects have seemingly helped push China to take actions aimed at combating climate change.

According to a 2011 synthesis report from China's leading climate change scientists, "It is very likely that future climate change would cause significant adverse impacts on the ecosystem, agriculture, water resources, and coastal zones in China."¹⁷ China has already begun to feel the effects of increased droughts and flooding. Other effects include glacial melting in the Himalayas and a decline in China's agricultural output. China's leaders have begun to acknowledge the problem, as Yu Qingtai, China's special ambassador for climate change, stated, "The issue of climate change has become a serious challenge in today's world. It affects not only the development of the global economy and prosperity, but also the very existence of mankind. A united front to confront this challenge, and to safeguard the common home of mankind has become the unanimous appeal by all members of the international community."¹⁸

China could nonetheless do a lot more to curb its GHGs emissions. Some of the predicted future effects may cause China to finally take more significant actions. Rainfall in northern China is expected to continue its decline, causing even more severe droughts and making fresh water a scarce resource in the near future. Studies have predicted that precipitation could decrease by as much as 30% by the second half of the twenty-first century in numerous river regions in northern China. Meanwhile, rainfall in southern China is expected to continue to increase and to lead to even more severe flooding in the future.

Additionally, climate change is expected to increase the intensity of China's heat waves. These increased temperatures will likely lead to more transmissions of infectious diseases. Daniel Moran points out yet another climate change problem China will likely

17. Lin Erda, Xu Yinlong, Wu Shaohong, Ju Hui, and Ma Shiming, "Synopsis of China National Climate Change Assessment Report (II): Climate Change Impacts and Adaptation," *Advances in Climate Change Research* 3 (Suppl.) (2007): 1, quoted in Joanna I. Lewis, "China," in Moran, *Climate Change and National Security*, 10.

18. "Statement by H.E. Ambassador Yu Qingtai, China's Special Representative for Climate Change," Thematic Debate of the United Nations General Assembly on Climate Change, February 12, 2008, <http://www.china-un.org/eng/hyfy/t406936.htm>.

experience, as a result of its expected glacial melting. In Moran's words, "The Yellow and Yangtze rivers, which support the richest agricultural regions of the country and derive much of their water from the Tibetan glaciers, will initially experience floods as the glaciers melt, and then drought, once the glacial runoff is gone."¹⁹

D. RESOURCE COMPARISON

There is an obvious discrepancy when comparing the size of China's population to the extent of its arable land. China's population makes up more than 20% of the world's total, but China has only about 7% of the world's arable land. This discrepancy is expected to increase for two reasons. One reason is that China has a comparatively high birth rate, and the second is a predicted decline in China's future crop production. According to Moran, "Scientists predict a 5 to 10 percent decline in overall crop productivity in China by 2030 as a result of climate change, and a decline of up to 37 percent in rice, maize, and wheat yields after 2050." How is China going to compensate for these productivity reductions, which are bound to pose a serious threat to its long-term food security?²⁰

Russia is the exact opposite of China when it comes to the size of its population compared to the magnitude of its fresh water resources and arable land. Moreover, unlike China, Russia's population has been shrinking for over 20 years. Russia's population makes up just 2% of the world's total, but it possesses 20% of the world's fresh water reserve and about 7% of the world's arable land.²¹

E. THE KYOTO PROTOCOL

The Kyoto Protocol was established in 1997 in Kyoto, Japan. It has been widely hailed as the first global step toward the reduction of GHGs because of its establishment of specific emissions limits on industrialized nations. At present, there are 192 parties to the Kyoto Protocol, but only 37 of those parties have binding targets in its current second

19. Moran, *Climate Change and National Security*, 11.

20. *Ibid.*, 13.

21. O. A. Anisimov et al., "Russia and Neighboring Countries," 14, 30.

period. The first period of the Kyoto Protocol began in 2008, and the second began in 2013. Many of the Kyoto Protocol's original parties have gone in entirely different directions from their commitments within the protocol's original framework, as evidenced by the reduced number of parties with active binding targets.²²

Widespread belief in global warming and its harmful effects does not mean that every nation is going to act in concert in order to protect the ecosphere against rising temperatures in the future. Some observers believe that certain countries may be in a position to benefit from the warming temperatures, and that those countries might not want the phenomenon to slow down. These observers point to how support for the Kyoto Protocol diminished in Canada, Japan, New Zealand, and Russia, and other countries which did not sign up for the second commitment period under the Protocol (2013-2020).²³

F. CARBON CAP AND TRADE UNDER THE KYOTO PROTOCOL

When a member country signed up for a binding commitment under the first period of the Kyoto Protocol, that country was then required to reduce its GHGs emissions by 5.2% from its original baseline. Each participant country's baseline was established in 1990, and there were three different ways that a participant country could—and still can—reach its 5.2% reduction goal. The first way was obvious in that a country could autonomously reach its goal by reducing its GHGs by the mandated 5.2%. The second way was to complete a portion of the 5.2% reduction goal and complete the remaining portion via trading emissions allowances. Emissions allowances could be obtained in trade from other participants in the Kyoto Protocol that had a surplus of such allowances. Moreover, surpluses could be achieved by country participants whose reductions were greater than the 5.2% mandate requirement. Russia and Ukraine had a

22. David G. Victor, *The Collapse of the Kyoto Protocol and the Struggle to Slow Global Warming* (Princeton, New Jersey: Princeton University Press, 2001), 3.

23. Betwa Sharma, "India's Negotiator Says Climate Treaty Talks 'Partial Success,'" *India Ink*, November 25, 2013, http://india.blogs.nytimes.com/2013/11/25/indias-negotiator-says-climate-treaty-talks-partial-success/?ref=topics&_r=0.

tremendous amount of surplus emissions allowances following the first period of the Kyoto Protocol.²⁴

The last way of achieving the mandate reduction was—and still is—to offset the difference below the 5.2% reduction goal by obtaining carbon emissions credits. These credits are gained through investing in carbon emission reduction projects in less developed countries. As explained in the Kyoto Protocol policy information, “Such projects are arguably more cost effective than projects implemented in richer nations because developing countries have on average lower energy efficiencies, lower labor costs, weaker regulatory requirements, and less advanced technologies.”²⁵ The idea is that these investments will provide sustainability at a lower cost in countries that otherwise would not be able to afford to make this Kyoto Protocol commitment. This process is called the Clean Development Mechanism or CDM; it generates emissions credits called Certified Emissions Reductions (CERs) that can then be traded, just like the surplus trades described earlier.²⁶

Joint Implementation (JI) works essentially the same as CDM except that JI projects occur in other participating Kyoto Protocol countries, while CDM projects take place in developing countries. In a JI project, both the host country and the investing country receive carbon emissions credits from the project, making it twice as beneficial for the hosting country.²⁷ Jessica E. Tipton explains the entire process as follows: “Countries that manage to keep emissions below their targets can then sell surplus carbon credits to other countries risking non-compliance, a system known as carbon trading.”²⁸

In light of these comparisons and potential explanations of China’s and Russia’s divergent approaches toward combating climate change, it is next important to examine

24. Lioubimtseva, “Russia’s Role in the Post-2012 Climate Change Policy,” 4.

25. “Mandatory & Voluntary Offset Markets,” Stockholm Environment Institute and Greenhouse Gas Management Institute, (2011), <http://www.co2offsetresearch.org/policy/MandatoryVsVoluntary.html>.

26. Ibid.

27. Ibid.

28. Jessica E. Tipton, “Why did Russia Ratify the Kyoto Protocol? Why the Wait? An Analysis of the Environmental, Economic, and Political Debates,” *Slovo* 20, no. 2 (2008), 68, http://www.academia.edu/1785038/Why_did_Russia_ratify_the_Kyoto_protocol_JTipton.Slovo.Autumn_2008.

each country's actual climate change policies and programs, beginning with each country's participation and negotiation in the Kyoto Protocol itself. Chapter III considers Russia, while Chapter IV focuses on China.

III. RUSSIA

Given all the future effects of climate change expected in Russia, what steps have Russian leaders taken to implement climate change policies and programs? As a result of the Kyoto Protocol's original 1997 negotiations—as previously alluded to—Russia had placed itself in a prime position to reap many of the benefits that were expected to result from carbon caps and trading in the future.

Additionally, on top of Russia's expertly negotiated Kyoto Protocol baseline GHGs levels, Moscow also skillfully identified a potential windfall of even more carbon credits that could be obtained by enticing other countries to invest in Russian hosted Joint Implementation projects. As David Victor points out, "Russia and Ukraine are by far the cheapest sources of emissions credits—not because the Russians and Ukrainians have had an epiphany about the risks of global warming, but rather because their savvy negotiators got an emissions target in Kyoto that far exceeds the likely level of emissions."²⁹ Each participant country's baseline for the Kyoto Protocol was established in 1990, just prior to the collapse of the Soviet Union in 1991. As Victor noted in 2001, "Russia and Ukraine agreed in Kyoto to freeze emissions at 1990 levels, but the collapse of the post-Soviet economy in the early 1990s means that their emissions are already far below that target."³⁰ This helps to explain why Russia's surplus of carbon emissions credits from the first period of the Kyoto Protocol far exceeds that of any other country. According to the United Nations Framework Convention on Climate Change (UNFCCC), "There were 236 projects in the pipeline [worldwide] at the end of 2010 with the potential to offset more 400 million tons of emissions by 2012 . . . Russia dominates this market with more than 65 percent of the estimated annual emissions reductions for Kyoto's enforcement period (2008-2012)."³¹

29. Victor, *The Collapse of the Kyoto Protocol*, 9.

30. *Ibid.*

31. Toni Johnson, "The Debate over Greenhouse Gas Cap-and-Trade," *Council on Foreign Relations*, November 3, 2011, <http://www.cfr.org/climate-change/debate-over-greenhouse-gas-cap--trade/p14231>.

Even though Russia is only responsible for about 5% of the world's greenhouse gasses (GHGs) emissions, it is still considered a significant player on the global energy stage. According to Elena Lioubimtseva,

Russia is an energy superpower: it is the world's largest producer of natural gas (20.9% of world production), the second largest producer of crude oil (12.3% of world production) and the world's sixth largest producer of coal (IEA 2010). It is the number one exporter of natural gas, accounting for more than 14% of the world's gas export (IEA 2010), and the second top oil exporter after Saudi Arabia (IEA 2010).³²

It would seem to make sense that, based on the initial Kyoto Protocol negotiations, including the 1990 baseline GHGs emission figures, Russia would be motivated to proceed with its participation within the protocol. After all, the collapse of the Soviet Union in 1991 led to GHGs emissions in Russia dropping by almost 40% from 1990 to 1998. Russia's emissions have been on the rise ever since but still remain well below the originally negotiated 1990 baseline levels. According to some estimates, Russia isn't expected to return to the 1990 emissions baseline levels until around 2025—which would logically seem to suggest that Russia would want to continue to participate within the original Kyoto Protocol framework for as long as it could.³³

Even so, Russia debated whether or not to ratify the Kyoto Protocol based largely on the fact that the United States chose not to do so, in 2001. Russia was disappointed that the U. S. chose not to ratify the Kyoto Protocol. As Tipton wrote in 2008, “The loss of U.S. demand for Russia's carbon credits meant that this aspect of Kyoto would no longer bring Russia a guaranteed economic boon.”³⁴ Tipton added that “Russia initially envisaged considerable economic gains from selling surplus quotas abroad and from foreign investment via Joint Implementation (JI) projects. After the USA pulled out of the Protocol in March 2001 for fear of the effect on the country's economy, Russia's

32. Lioubimtseva, “Russia's Role in the Post-2012 Climate Change Policy,” 2.

33. *Ibid.*, 12.

34. Tipton, “Why did Russia Ratify the Kyoto Protocol?,” 94.

situation became more complicated.”³⁵ After a few years of deliberation, however, Russia finally decided to ratify the Protocol in 2004.³⁶

An additional benefit that Russia has over almost every other participant under the Kyoto Protocol was—and remains—the emissions credits provided by the enormously expansive Russian forests. According to Lioubimtseva,

More than 25% of the national domestic emissions (RF Fourth National Communication 2006) are absorbed by Russia’s natural and managed ecosystems including forests, wetlands, rangelands, and arable lands. The Russian boreal forests represent the largest forested region on Earth with more than 55% of the world’s conifers, 21–22% of the world’s growing stock, and 11% of the world’s live forest biomass (Houghton et al. 2007). Over 887 million hectares of forest and woodland remain, comprising 52% of the land area of Russia.³⁷

Russia negotiated such advantageous terms under the Kyoto Protocol that it was expected that it would wish to continue to attempt to benefit from these terms for as long as possible. However, Russia did not sign on for a binding target under the second period of the Kyoto Protocol that began in 2013.

A. RUSSIA BEYOND KYOTO

Despite Russia’s active participation in the Kyoto Protocol, Russian leaders for a long time questioned what the human role was in causing climate change. It was not actually until 2009 that the Russian government seemed to stop its questioning and finally took an alternate public approach, when President Dmitry Medvedev finally chose to adopt a “‘Climate Doctrine,’ officially acknowledging anthropogenic climate change for the first time and finding that mitigation policies will have a net economic benefit for

35. Tipton, “Why did Russia Ratify the Kyoto Protocol?,” 68.

36. *Ibid.*, 6.

37. Lioubimtseva, “Russia’s Role in the Post-2012 Climate Change Policy,” 5.

the nation.”³⁸ That very same year, Russia also publicly pledged at the Copenhagen Climate Change Conference to reduce its GHGs emissions by 15 to 25% by 2020.³⁹

One interpretation of this pledged reduction is that Russia was taking a positive step beyond the Kyoto Protocol to both acknowledge and actively contribute toward GHGs reduction on the global stage. With that being said though, achieving the reduction, in effect, required absolutely no action by the Russian government because the baseline was derived from the pre-Soviet Union collapse 1990 baseline levels.

Russia’s continued insistence on using the 1990 baseline GHGs emission level is likely the single best overall indicator in determining if Russia is serious or not about its role in combatting climate change. When Russia actually chooses to implement a climate change policy or program that establishes a new baseline (instead of the originally negotiated Kyoto Protocol baseline), international observers may actually start to believe that Russia is taking its global environmental protection role seriously.

Another example that helps illustrate Russia’s overall seriousness regarding climate change is its participation in the Action Plan on Climate Change for the Barents Co-operation in 2013. The Russian Foreign Minister met with the Finnish, Norwegian, and Swedish Foreign Ministers and helped solidify a plan that was described as “containing concrete activities to be realized by the working groups under the Barents Euro-Arctic and Regional Councils.”⁴⁰ On the surface, this sounded as if Russia had some sort of obligation under the plan. Upon further investigation, though, there were no explicit concrete activities required from Russia.

Additionally, in 2014 Russia put forth a plan of action to ensure that it would reach the upper bound of its previous reduction goal established in Copenhagen in 2009. This affirmed Russia’s new target as a 25% GHGs emissions reduction by 2020, from its 1990 baseline level. Russian officials attempted to sell the overall significance of the plan

38. Yale Center for Environmental Law and Policy, “Climate Change Solutions: Frontline Perspective from Around the Globe,” Climate Policy & Emissions Data Sheet: Russia, 2011, http://archive.envirocenter.yale.edu/uploads/pdf/Russia_Climate_Policy_Data_Sheet.pdf.

39. Ibid.

40. Action Plan on Climate Change for the Barents Co-operation, Barents Euro-Arctic Council, <http://www.beac.st/en/Climate-Change/Barents-Action-Plan>.

of action by emphasizing the difficulty that was likely to be encountered in trying to achieve a goal at the upper end of the previously established window, rather than just merely setting a target at the lower end of the previously established window.⁴¹

This led to one of Russia's more recent declarations involving climate change. In March 2015, Russia submitted its most recent climate action plan to the UN Framework Convention on Climate Change (UNFCCC). The English translation of Russia's overall goal in its intended nationally determined contribution (INDC) and clarifying information on the UNFCCC website reads as follows: "limiting anthropogenic greenhouse gases in Russia to 70–75% of 1990 levels by the year 2030 might be a long-term indicator, subject to the maximum possible account of absorbing capacity of forests." In other words, Russia is attempting to reduce its GHGs emissions by 25–30% from its 1990 baseline level, but if for some reason Russia is not able to reach this target level—the Russian leadership has already conveniently identified the most likely main causal factor—it must be because not enough credit was given for the absorbing capacity of Russia's expansive forests.⁴²

To most observers—on the surface—Russia's latest UNFCCC target might seem like quite a lofty goal and a sizeable overall reduction in GHGs emissions. However, as one begins to dig deeper into the analysis of the numbers, this latest target might not be that significant. The most obvious problem with the new target is that Russia is once again choosing to use its pre-Soviet Union collapse 1990 baseline level, rather than a more up to date baseline that would more accurately reflect Russia's actual GHGs emissions. It is important to keep this in mind because, as Frederic Legrand writes, "After the fall of the Soviet Union, Russia's emissions fell to 56% below 1990 levels, including forests. They started rising gradually again in 2002 and by 2012 had reached 50% below 1990 levels. Excluding land use, they were 32% below 1990 levels. This means that

41. Olga Dobrovidova, "Russia Outlines Plans to Meet 2020 Climate Goals," *Responding to Climate Change*, July 25, 2014, <http://www.rtcc.org/2014/03/03/russia-outlines-plans-to-meet-2020-climate-goals/#sthash.V9zP65Xx.dpuf>.

42. United Nations Framework Convention on Climate Change, United Nations, accessed August 30, 2015, <http://www4.unfccc.int/submissions/indc/Submission%20Pages/submissions.aspx>.

Russia can significantly increase its emissions over the coming 15 years and still hit the 2030 target set out in its INDC.”⁴³

Moreover, Russia’s current struggling economy by itself was expected to reduce Russia’s GHGs emissions by about 3 percent. Therefore, the combination of Russia’s struggling economy with the use of the 1990 baseline level alone would allow Russia to actually increase its overall GHGs emissions output and still be able to hit its latest emissions pledge under the INDC.⁴⁴

Predictably, though, Vladimir Putin is telling a much different story not only when it comes to Russia’s latest INDC emissions pledge, but also regarding Russia’s past GHGs emissions reductions. Russia, according to Putin, from 1991–2012,

over-fulfilled its commitments under the Kyoto Protocol . . . and not only prevented an increase in greenhouse gas emissions but also considerably reduced them. Thanks to this, about 40 billion tons of carbon dioxide equivalent didn’t get into the atmosphere . . . For comparison, greenhouse gas emissions by all the countries totaled 46 billion tons in 2012 . . . Russia’s efforts have made it possible to delay global warming almost by a year.⁴⁵

Putin attributed much of these reductions in GHGs emissions to Russia’s considerable modernization of its economy as well as to Russia’s implementation of new clean air and energy efficient technologies. Although Putin often in the past questioned the significance of mankind’s role in either causing or increasing climate change, Putin now seems to accept credit for Russia’s apparent success, whether it’s actually warranted or not. Savoring Russia’s somewhat skewed climate change success, Putin added, “We have simultaneously managed to actually double GDP over the same period. I want to say by this that it is quite possible to pay necessary attention to development and ensure development and care about nature.”⁴⁶

43. Frederic Legrand, “Paris Summit 2015: Ambiguous Russian climate pledge mystifies many,” Carbon Brief Clear on Climate, last modified April 1, 2015, <http://www.carbonbrief.org/ambiguous-russian-climate-pledge-mystifies-many>.

44. Ibid.

45. Donat Sorokin, “Putin: Russia over-fulfilled Kyoto Protocol, delaying global warming almost by a year,” TASS: Russian News Agency, November 30, 2015, <http://tass.ru/en/economy/840418>.

46. Ibid.

Putin's comments crediting Russia with delaying global warming for a year served as an interesting backdrop heading into the December 2015 UN Climate Conference in Paris. Many have called the conference an overall success since there were numerous moments during the negotiations when it seemed unlikely that any sort of written agreement would be achieved. Additionally, those that claim success also point to the immense complexity of persuading 195 countries to reach a complete accord on anything, much less to actually come to a unanimous agreement on something as extremely complicated as climate change.⁴⁷

However, most of the commentators who have called the UN Paris Climate Conference an overall success still tend to point to Russia's contribution as lacking any real substance. As Brian Palmer puts it,

While most of the developed world has agreed to draw down its greenhouse gas emissions by 2025 or 2030, Russia has promised only to limit growth to approximately 40 percent above current levels. The promise was almost universally regarded as unserious. (NRDC [National Resources Defense Council], which publishes *onEarth*, gave Russia an F for its carbon reduction commitment.)⁴⁸

While it still remains to be seen how long Russia will continue down this path of almost complete climate change non-participation, it is safe to say that, based on its latest contribution at the UN Paris Climate Conference in 2015, there do not appear to be any significant changes to Russia's climate change policies and programs anywhere on the horizon.

B. PRIMARY CAUSES FOR RUSSIA'S CURRENT POLICIES AND PROGRAMS

Following the Kyoto Protocol's first negotiations in 1997, Russia was in a prime position to potentially benefit from the future effects of the cap and trade system that numerous countries were expected to participate in. These potential benefits seemed to

47. Woodrow Clark and Dimitri Elkin, "Russia joins other nations in a historic climate change agreement," *Russia Direct*, December 14, 2015, <http://www.russia-direct.org/opinion/russia-joins-other-nations-historic-climate-change-agreement>.

48. Brian Palmer, "The Putin Puzzle: How to decipher the Russian president's mystifying statements on global warming," *On Earth*, December 2015, <http://www.onearth.org/earthwire/deciphering-vladimir-putin-climate-change>.

induce Russia into participating in a number of multinational climate change projects. In other words, the dividends that these projects were expected to deliver attracted Russia. While the origins of the Kyoto Protocol appeared to offer significant signs of promise that Russia might end up playing a pivotal—possibly even leading—global role in combating climate change, Russia has not done so.

C. THE UNITED STATES AND THE KYOTO PROTOCOL

The 1997 Russian delegates in Kyoto could be hailed as some of the best negotiators in modern history. Conversely, some might wonder how the negotiators from the other attending countries could allow such a blatantly inaccurate baseline to be agreed upon. However, one chooses to look at the Kyoto Protocol's initial negotiations, Russia, as a result of those negotiations, had every reason to fully participate in policies and programs designed to combat climate change. Ironically, it was the United States that would essentially deincentivize much of Russia's future collective participation in reducing GHGs emissions, by choosing not to ratify the Kyoto Protocol in 2001.

Whether the United States understood at the time the overall future effect its non-ratification decision would have on Russia's future climate change policies and programs is up for debate. The decision, however, appeared to remove many of the economic climate change policy incentives that Russia had previously expected to benefit from, under the Kyoto's carbon cap and trade system.

Like a great many of the other Kyoto Protocol participants, Russia has become involved in numerous other multinational climate change negotiations. Unlike other participants, however, Russia has continued to insist on using the extremely beneficial 1990 baseline GHGs emissions level established under the Kyoto Protocol's original negotiations. By continually referencing this baseline level while other participants are establishing more accurate and up to date baseline levels, Russia is able to claim significant reductions in its GHGs emissions, while taking virtually no steps to actually reduce its overall carbon footprint.

D. PUTIN'S LONG-TERM AUTHORITARIAN CONTROL

Other factors appear to have contributed to Russia's overall climate change inaction. One of these factors is the duration of the Russian presidential term. Russia's current constitution was instituted in 1993, two years after the collapse of the Soviet Union. The current constitution has been instrumental in allowing Vladimir Putin to retain Russian presidential authority for a grand total of three terms, so far. Article 81 of Russia's Constitution states, "The President of the Russian Federation shall be elected for a term of four years," and that "No one person shall hold the office of President of the Russian Federation for more than two terms in succession."⁴⁹ After Putin succeeded President Boris Yeltsin in 2000, he was president for a total of eight years, from 2000 to 2008. Following Putin's first two presidential terms, Dmitry Medvedev, who had previously served as Prime Minister under Putin, became Russia's next president (2008-2012). Many experts hold that Putin hand-selected Medvedev for the specific purpose of Putin being able to one day reassume the position as Russia's president.

In the meantime, Putin served as Medvedev's Prime Minister in 2008–2012. Medvedev's numerous struggles in his presidential role opened the door for Putin's controversial election as Russia's president once again in 2012. Only this second time around, Putin's presidential term would be six years versus the previous four. Medvedev signed the constitutional amendment in 2008 that extended the duration of the term.⁵⁰

Putin was also President Yeltsin's Prime Minister from August to December 1999. This means that Putin has served as Russia's President or Prime Minister since 1999. Putin still has two years remaining in his current term (2012-2018) and also still has the opportunity to seek the nomination for a second successive six-year term. This means that Putin could serve an astonishing twenty four years in a row—in one office or another—as one of the most powerful men in Russia.

49. "The Constitution of the Russian Federation: President of the Russian Federation," <http://www.departments.bucknell.edu/russian/const/ch4.html>.

50. Philip P. Pan, "Russia's Medvedev Signs Constitutional Amendment to Lengthen Presidential Terms," *Washington Post*, December 31, 2008, <http://www.washingtonpost.com/wp-dyn/content/article/2008/12/30/AR2008123000839.html>.

Putin's long-term position of authority has been extremely detrimental to the overall direction of Russia's climate change policies and programs. One of the reasons for this, as noted earlier, is that until 2009, Russian leaders refused to even acknowledge mankind's likely contribution to climate change. Another reason why it could be argued that Putin has probably been Russia's biggest overall climate change detractor is his tireless pursuit of unrelenting control over nearly all aspects of Russia's entire media system.

E. PUTIN'S MEDIA CONTROL

Russia's tight media control dates back to the days of the Soviet Union (1917-1991) and the tsars before 1917. Jill Dougherty points out, "You can, of course, take a gang of men, give them some guns, and send them off to seize a broadcasting center. That's what happened in October 1993 when Russian lawmakers revolted against Putin's predecessor, Boris Yeltsin. They failed, but 69 people died in the attack on the government's Ostankino Television Center."⁵¹ Taking into consideration his predecessor's lack of ability to control the media, Putin set out to reestablish the media control previously enforced under Soviet power. According to Timothy Heritage, "One of Putin's initial acts after rising to power in 2000 was to restore Kremlin control over the media, which was much more outspoken under President Boris Yeltsin in the free-wheeling decade after the Soviet Union's collapse in 1991. Most Russian media are now owned by the state or by private individuals or companies loyal to Putin."⁵²

Putin's press secretary, Dmitry Peskov, describes him as a news junkie: "As a former KGB officer and head of the KGB's successor agency, the FSB, Putin knows the value of information . . . Whoever owns the news media systems control what they say. It's not like President Putin has ever shied away from this idea, or even given a hint that

51. Jill Dougherty, "How the Media Became One of Putin's Most Powerful Weapons: After decades of wielding Soviet-style hard power, Russia is developing a subtler form of influence," *Atlantic*, Apr 21, 2015, <http://www.theatlantic.com/international/archive/2015/04/how-the-media-became-putins-most-powerful-weapon/391062/>.

52. Timothy Heritage, "Independent media battle on in Putin's Russia," *Reuters*, Jul 30, 2015, <http://www.reuters.com/article/2015/07/30/us-ukraine-crisis-russia-media-insight-idUSKCN0Q40HI20150730>.

he is worried that the public is aware of how he feels.”⁵³ Putin told reporters at a 2013 news conference, “There should be patriotically minded people at the head of state information resources, people who uphold the interests of the Russian Federation. These are state resources. That is the way it is going to be.”⁵⁴ Putin has implemented a strategy for controlling television and newspapers, and he has even expanded this control to the Internet.

In 2014, President Putin signed a law aimed at minimizing foreign ownership of Russian media outlets. The law established a 20% limit of foreign ownership of these outlets. The overall goal of the law was to expand Putin’s control over Russian independent news media outlets. The author of the bill, Vadim Dengin, stated, “We understand very well that those who own information own the world. When foreigners come here to make money and then actively influence the media market and use it for their own benefit, at this moment, I want to say that I am ready to close down Russia and ensure its security.”⁵⁵

One would think that the Russian public would be up in arms regarding Putin’s media tactics, but this does not seem to be the case at all. Elizaveta Osentinskaya, a former editor for *Forbes Russia*, suggests, “Right now society doesn’t think it needs free media.”⁵⁶ Russian society is instead left with a state-run television system that it seems perfectly content with. The vast majority of the Russian public receives its information from television on a daily basis.

When it comes to climate change and global warming, the national media frame the issue in very different contexts. As Xiaoquan Zhao of George Mason University puts it, “Unlike many other social issues with which the public may have first-hand experience, global warming is an issue that many come to learn about through the media.

53. Peskov quoted in Dougherty, “One of Putin’s Most Powerful Weapons.”

54. Dougherty, “One of Putin’s Most Powerful Weapons.”

55. Michael Birnbaum, “Russia’s Putin signs law extending Kremlin’s grip over media,” *Washington Post*, October 15, 2014, https://www.washingtonpost.com/world/europe/russias-putin-signs-law-extending-kremlins-grip-over-media/2014/10/15/6d9e8b2c-546b-11e4-809b-8cc0a295c773_story.html.

56. *Ibid.*

The primary source of mediated information about global warming is the news.”⁵⁷ Most Russians receive information regarding climate change from Russia’s mainly state-run media conglomerates, and, as Marlene Laruelle points out, “It is unlikely that Russian ‘civil society’ will be able to pressure public opinion and the government into becoming more engaged in its understanding of climate change.”⁵⁸

Putin’s intention is to minimize the independent media outlet voice in order to maximize the effectiveness of his state-run media outlets. One of the main climate change messages put out by these state-run media outlets is that Russia’s Arctic is currently projected to be its greatest future economic hope. Luke Coffey of Al-Jazeera writes, “Russia certainly has important interests in the Arctic region and even higher ambitions, but its Arctic agenda has little to do with climate change. Instead, it can be best described in the old-fashioned and often quite unhelpful terms of geopolitics.”⁵⁹

Russia has long had its sights set on its Arctic North where it has by far the longest Arctic bordering coastline. According to Coffey, “Russia is investing greatly in the region. Around \$3.3bn will be invested in the Arctic on oil and gas and major infrastructure projects over the next five years.”⁶⁰ Putin is using the Arctic’s potential benefits overall to promote Russian nationalism. Coffey continues, “For Putin, the Arctic is an area that allows Russia to flex its muscles without incurring any significant geopolitical risk. Because nationalism is on the rise in Russia, Putin’s Arctic strategy is popular among the population.”⁶¹ In essence, Putin uses this renewed Russian nationalism regarding the Arctic to provide the Russian public with a glimmer of hope during its current economic hardship. As far as implementing any new Russian climate

57. Xiaoquan Zhao, “Media Use and Global Warming Perceptions: A Snapshot of the Reinforcing Spirals,” *Communication Research* 36, no. 5 (2009), http://sciencepolicy.colorado.edu/students/envs_4800/zhao_2009.pdf.

58. Marlene Laruelle, *Russia’s Arctic Strategies and the Future of the Far North*, (New York: Taylor and Francis, 2015), 82.

59. Luke Coffey, “Russia’s Arctic adventures: Vladimir Putin’s Arctic rhetoric goes down well with a population that has little hope for its future,” *Al-Jazeera*, September 2, 2015, <http://www.aljazeera.com/indepth/opinion/2015/08/russia-arctic-adventures-150830102827271.html>.

60. Ibid.

61. Ibid.

change policies in the Arctic, however, there has been no indication that Putin has any inclination to do so.

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IV. CHINA

Some experts say that the Kyoto Protocol was flawed from the outset because it didn't cover the three countries that currently produce the highest percentage of the world's GHGs emissions: China, India, and the United States. China has the highest percentage of the world's GHGs emissions at 23%. The United States is next at 15%, followed by India at 5%. The United States did not ratify the Kyoto Protocol because of concern that it might somehow harm its future strategic interests. As stated by President George W. Bush,

Kyoto is, in many ways, unrealistic. Many countries cannot meet their Kyoto targets. The targets themselves were arbitrary and not based upon science. For America, complying with those mandates would have a negative economic impact, with layoffs of workers and price increases for consumers. And when you evaluate all these flaws, most reasonable people will understand that it's not sound public policy. That's why 95 members of the United States Senate expressed a reluctance to endorse such an approach.⁶²

President Bush might have added that China and India have never had binding targets because they have always been considered developing countries under the Kyoto Protocol. Critics argue that it is hard to take the Protocol seriously when it does not involve the most substantial contributors to the problem.⁶³

Beyond the December 2012 Doha Amendment to the Kyoto Protocol, which established a second commitment period from 2013 to 2020,⁶⁴ there were also negotiations in Lima in 2014 that attempted to establish a legal framework to enforce payment on countries with higher GHG emissions. A huge problem confronting the framework was that China, India, and the United States had all taken the same stance—

62. President George W. Bush, "President Bush Discusses Global Climate Change," The White House, June 11, 2001, <http://georgewbush-whitehouse.archives.gov/news/releases/2001/06/20010611-2.html>.

63. Steven Gelis, "Kyoto Protocol, 10 years later: Did deal to combat greenhouse emissions work and what of its future?," *National Post*, February 14, 2015, <http://news.nationalpost.com/news/world/kyoto-protocol-10-years-later-was-the-deal-to-combat-greenhouse-emissions-successful-and-what-of-its-future>.

64. United Nations Framework Convention on Climate Change, "Kyoto Protocol," April 21, 2016, https://unfccc.int/kyoto_protocol/items/2830.php.

that is, they would not commit to a treaty that would impose any legal obligation requiring them to reduce emissions. As Corina Haita of the International Center for Climate Governance noted, “It’s interesting to note the evolution of China, whose CO2 emissions level was half that of the USA in 1990 . . . China overtook the USA in 2005, becoming the largest emitter of GHGs emissions. Therefore, China is becoming a crucial player in the international climate change agreements and the continuation of the Kyoto Protocol.”⁶⁵ While estimates differ regarding China’s predicted national emissions peak, there are some signs that appear to indicate a decrease in China’s overall emissions output. According to the National Bureau of Statistics of China, “After rising 6.7% per year for the previous decade, China’s emissions growth slowed to 1.2% in 2014. The lower growth in China’s emissions compared with the previous year was driven primarily by relatively stable coal use (measured in energy terms).”⁶⁶

China and the United States cannot seem to agree on each other’s responsibilities regarding emissions. For instance, the two countries are far apart when it comes to the spectrum of responsibilities concerning the Kyoto Protocol. Even though the United States was one of the original signatory participants of the Protocol, it never actually ratified it. As Shannon Tiezzi points out,

The United States has always been reluctant to accept drastic emissions cuts. Recently, this foot-dragging has been more and more tied to the United States’ economic rivalry with China—U.S. politicians are unwilling to commit to emissions cuts that would not apply equally to China, fearing that it would put the United States at a disadvantage economically.⁶⁷

China, on the other hand, obviously looks at this question in a much different light. This was evident in 2013, when China walked out on negotiations in Warsaw,

65. Corina Haita, “The State of Compliance in the Kyoto Protocol,” International Center for Climate Governance, December 2012, <http://www.iccgov.org/en/iccgstudies/the-state-of-compliance-in-the-kyoto-protocol/>.

66. National Bureau of Statistics of China, 2015 China Statistical Yearbook, (China Statistics Press, 2015) quoted in Robert B. Jackson, Joseph G. Canadell, Corinne Le Quere, Robbie M. Andrew, Jan Ivar Korsbakken, Glen P. Peters and Nebojsa Nakicenovic, “Reaching Peak Emissions,” *Nature Climate Change*, Vol. 6, January 2016, <https://earth.stanford.edu/jacksonlab/sites/default/files/nclimate2892.pdf>.

67. Shannon Tiezzi, “The U.S. and China Play Chicken Over Climate Change: U.S.-China cooperation on climate change could literally save the world — so why aren’t they cooperating?,” *Diplomat*, November 26, 2013, <http://thediplomat.com/2013/11/the-us-and-china-play-chicken-over-climate-change/>.

Poland, concerning the Green Climate Fund. China, along with a group of other developing countries, wanted to require developed countries to pay \$100 billion dollars a year to developing countries in order to help them adapt to climate change. China asserted that it still considered itself a developing nation, citing a low per capita GDP and high poverty rate.⁶⁸

A. CHINA BEYOND KYOTO

Unlike Russia, China has visibly experienced the effects caused by its GHGs emissions and has begun to come to grips with the consequences of inaction. According to the World Health Organization, in China “the number of cancer patients and deaths because of lung, stomach, liver and esophagus diseases accounted for 30 percent, 40 percent, 50 percent and 50 percent of the global total, respectively.” Though these high percentages can only be regarded as partially attributable to China’s worsening air and water pollution, the effects on public health and public opinion in China are still substantial.⁶⁹

Since China has always been considered a developing country under the Kyoto Protocol, it has not been required to lower its GHGs emissions. However, this has not stopped China from taking steps to curb its emissions and lessen its carbon footprint. China is the world’s biggest producer and consumer of coal, but it also understands that its coal resources are not infinite. Chinese leaders have set the goal of deriving 15% of their country’s energy supplies from sources other than fossil fuels by 2020. Significant subsidies are provided to China’s clean energy sector, in the hope of helping to achieve this goal.⁷⁰ Moreover, China has designated a sizeable portion of its national territory as ecological zones. These “red zones for ecological protections” make up about 20% of its

68. Tiezzi, “The U.S. and China Play Chicken Over Climate Change.”

69. World Health Organization quoted in “What Countries Are Doing To Tackle Climate Change,” *NPR*, December 9, 2011, <http://www.npr.org/2011/12/07/143302823/what-countries-are-doing-to-tackle-climate-change>.

70. *Ibid.*

territory. Additionally, the Chinese have recently increased their nuclear power output with 15 reactors currently in use and 26 more reactors in the process of being built.⁷¹

To be sure, some of China's declarations regarding climate change have been less than fully convincing. For example, the bilateral climate change agreement reached with the United States in 2014. According to President Barack Obama,

The United States intends to achieve an economy-wide target of reducing its emissions by 26%-28% below its 2005 level in 2025 and to make best efforts to reduce its emissions by 28%. China intends to achieve the peaking of CO2 emissions around 2030 and to make best efforts to peak early and intends to increase the share of non-fossil fuels in primary energy consumption to around 20% by 2030.⁷²

The point is not that all of China's policies are stellar, but rather that, unlike Russia, China is actually implementing policies that acknowledge and—at least somewhat—attempt to curb its emissions. For instance, in 2014, China also pledged to obtain one-fifth of its electrical power from renewable sources by the year 2030.⁷³

China is additionally taking immediate steps to reduce its current carbon footprint by shutting down coal plants. The city of Beijing plans to shut down its four major coal-fired power plants by the end of 2016, with the plan to replace them with gas-fired plants that can reportedly produce over two and a half times more electricity. The city of Beijing has also set its own goals beyond Chinese national goals, including cutting its annual coal consumption by 13 million tons before 2017.⁷⁴

Beijing has also imposed vehicle bans during times of especially bad pollution, such as during the 2008 Olympics, limiting driving to every other day when the city expects heavy pollution to persist for at least three days. According to *Reuters*, “the city's environmental protection agency admits that telling residents they can only drive on

71. Feng Zhaokui, “What China Is Doing to Clear the Air and Fight Climate Change,” *World Post*, September 10, 2014, http://www.huffingtonpost.com/feng-zhaokui/china-climate-change-fight_b_5798234.html.

72. President Barack Obama, “U.S.-China Joint Announcement on Climate Change,” The White House, November 11, 2014, <https://www.whitehouse.gov/the-press-office/2014/11/11/us-china-joint-announcement-climate-change>.

73. Natasha Geiling, “Here's How China Is Planning To Curb Its Climate Impact,” *Climate Progress*, April 1, 2015, <http://thinkprogress.org/climate/2015/04/01/3641084/china-doing-good-things/>.

74. *Ibid.*

alternating days is not a viable long-term solution to Beijing's pollution problem."⁷⁵ The point, however, is that at least current policy is being implemented. Another example is the 1978 initiation of the Three North Shelterbelt Project. The project has resulted in the planting of over 66 billion trees in China thus far. This is considered to be the largest tree planting project ever undertaken. The project is slated to end in 2050, and its overall goal is to increase the size of the world's forests by ten percent.⁷⁶

B. SINGLE PARTY GOVERNMENTAL SYSTEM

China, like Cuba, North Korea, Vietnam, and a number of other countries, has a single party governmental system. Cheng Li writes, "There is no sign of a multiparty system emerging in the near future. The Chinese Communist Party will continue to have strict control over the army, media, legal and judicial system."⁷⁷ This for all intents and purposes allows the Chinese Communist Party to implement projects, as well as policies, without having to take into consideration the possibility of an oppositional public viewpoint.

One of the major problems with a single party system is that the lack of oppositional viewpoints can lead to narrow-minded decisions that do not factor in the possible risks associated with them. One of the best examples of this is the Chinese Communist Party's decision to build the Three Gorges Dam along the Yangzi River. The Three Gorges Dam project required relocating well over a million people, and even though the project seems to have provided an example of China's conscientious effort to produce cleaner energy, it has also showed the Chinese government's failure to take into account many of the substantial risks posed in the creation of such a monumental dam.

International opinion regarding the project warned of many of these possible consequences, but these warnings appeared to fall on deaf ears. The Three Gorges Dam Project was approved by Chinese leaders in 1992. The project began construction in 1994

75. Geiling, "Here's How China Is Planning To Curb Its Climate Impact."

76. Ibid.

77. Cheng Li, "One Party, Two Coalitions in China's Politics," *Brookings*, August 16, 2009, <http://www.brookings.edu/research/opinions/2009/08/16-china-li>.

and was eventually completed in 2006. The Three Gorges Dam—to this day—remains the largest dam ever built in the world, at just over five times larger than the Hoover Dam.⁷⁸ By all accounts, the Three Gorges Dam is truly an engineering marvel. The growing concerns over the risks posed by the dam, however, may prove to be as immense as the dam itself. For example, some have argued that the body of water created by the dam has led to an increase in seismic activity within the region. According to Blake Campbell-Hyde, “Frighteningly, the dam may have been tied to major earthquakes—including the one in May of 2008 which killed 87,000 people—by placing tremendous pressure and fluctuation (by rapidly raising and dropping water volume) on the underlying geological plates.”⁷⁹

Many experts have also warned that the reservoir’s water could eventually become too polluted over time to provide adequate drinking water for future generations. Beyond water quality, there were numerous other environmental concerns associated with the construction of the dam. According to Conrad Schirokauer and Donald N. Clark, “The government discounted warnings about the potential disaster posed by the buildup of silt behind the dam, unpredictable geologic effects, the dangers of forming a lake even more polluted than the present river, and possible adverse effects downstream.”⁸⁰

Additionally, the human rights violations resulting from the forced relocation of such an immense number of citizens almost assuredly would have never allowed for the project to have even broken ground in most traditional democratic nations. It has also been argued that the project would have actually been much less expensive and more favorable to the protection of the environment if a series of smaller dams had instead been built. By building the Three Gorges Dam, though, China was able to buttress the growth potential of Chongqing in Sichuan, which (some observers argue) could not have

78. Blake Campbell-Hyde, “Breaking Ground: Environmental and Social Issues of the Three Gorges Dam in China,” Mandala Projects, Inventory of Conflict and Environment, Case 254, January 2012, <http://www1.american.edu/ted/ICE/china-dam-impact.html>.

79. Ibid.

80. Conrad Schirokauer and Donald N. Clark, *Modern East Asia: A Brief History* (Boston: Houghton Mifflin Company, 2008), 389.

been accomplished through the building of a series of smaller dams. Chinese leaders apparently believed that the chosen “megadam” approach was the only way in which to provide Sichuan with the maritime accessibility required to unleash Chongqing’s metropolis potential.⁸¹

The Three Gorges Dam project not only helps to show that China’s single party government system is indeed taking action to implement programs and projects aimed at producing cleaner energy for the future, but it also appears to show that the Chinese Communist Party is seemingly more concerned with future economic growth than it is with future environmental protections.

C. CLIMATE CHANGE POLICIES

While individual projects may, at a minimum, show signs of climate change progress, it is actual policy implementation that is likely to be more accurate in gauging China’s overall national progress in combatting climate change. An example that helps to illustrate this point is that, even though China’s first institutionalized agency for countering climate change originated in 1987, when China’s State Science and Technology Commission (SSTC) first established the Chinese National Climate Committee (CNCC)—it would still take about another twenty years for any documented attempt at climate change policy implementation.⁸²

The tenth Five Year Plan, which covered the period 2001–2005, was the first to mention climate change. Even though an actual reference to climate change only occurred once in the plan, its mere initial mention set the stage for China’s eleventh Five Year Plan, which covered the period 2006–2010, when actual Chinese domestic climate change policy targets began to take shape. The most significant of the targets within the eleventh Five Year Plan were: to reduce water consumption per unit of GDP by 20%, to

81. Schirokauer and Clark, *Modern East Asia: A Brief History*, 389.

82. Iselin Stensdal, “China’s Climate-Change Policy 1988–2011: From Zero to Hero?” Fridtjof Nansen Institute (2012): 5, ISBN (978-82-7613-651-7), http://digital.library.unt.edu/ark:/67531/metadc501485/m2/1/high_res_d/Chinas%20Climate-Change%20Policy%201988-2011%20From%20Zero%20to%20Hero.pdf.

reduce major pollutant emissions by 10%, and to increase forest coverage by 18.2 to 20.0%.⁸³

In 2007—during the early period of the eleventh Five Year Plan—China established the National Climate Change Program. Near the end of the eleventh Five Year Plan China took the seemingly unprecedented step—possibly altering the future global landscape of combatting climate change—of pledging to reduce its overall carbon intensity by 40–45% per unit of GDP by 2020. The U.S. Energy Information Administration (EIA) defines carbon intensity as “the amount of carbon by weight emitted per unit of energy consumed.”⁸⁴ The significance of this target was that it did not occur solely in a domestic policy setting. Instead, China made this pledge on the international level, at the Copenhagen Climate Change Conference in December 2009. An additional point of significance of China’s Copenhagen pledge was that its commitments regarding emissions reductions were based on 2005 levels, unlike Russia’s continued insistence on using 1990 Kyoto Protocol GHGs baseline levels.

Many critics have pointed out that China’s pledge at Copenhagen (under the auspices of the United Nations Framework Convention on Climate Change [UNFCCC]) was not in any way legally binding. While this is correct, the real significance of the pledge resides in China’s overall shift in mindset. Since the first negotiation of the Kyoto Protocol back in 1997, China had always insisted that developing countries should not be obligated to achieve any emission reductions, until developed countries had first met their emission reduction goals. This may seem like an illogical argument to many, but the reality is that in 2013 developed countries were responsible on average for 6 times more GHGs emissions per capita than were developing nations. Additionally, while projections of GHGs emissions per capita anticipated that those of developing nations would grow at

83. C. Cindy Fan, “China’s Eleventh Five-Year Plan (2006-2010): From ‘Getting Rich First’ to ‘Common Prosperity,’” <http://www.sscnet.ucla.edu/geog/downloads/597/300.pdf>.

84. U.S. Energy Information Administration, “Independent Statistics & Analysis,” U.S. Department of Energy, <http://www.eia.gov/tools/glossary/index.cfm?id=C>.

a higher rate than those of developed countries, these same projections also forecast a much higher GHGs emission rate per capita in developed countries well beyond 2035.⁸⁵

What really matters in this particular instance is the fact that China went against its previous narrative. Even though China's emissions reduction pledge at Copenhagen was not legally binding, the ground-breaking aspect was that it was not contingent on the developed countries first reducing their emissions.⁸⁶

China's climate change policies and initiatives continued to expand in the 12th Five Year Plan period (2011–2015). It was during this period that the first domestic carbon-specific target was announced. Another positive aspect of the 12th Five Year Plan was that the relative target reduction date was revised to 2010 to more accurately reflect China's GHGs emission levels at the time. Overall, this meant that China was attempting to reduce its carbon intensity by 17 percent by the end of the 12th Five Year Plan period, as compared to 2010 emission levels.⁸⁷

China, on its own, has even gone as far as to implement a trial cap-and-trade system that was initially implemented in five cities and two towns. The overall idea was that when a Chinese business exceeded its GHGs emissions limit it could then purchase emissions credits from another Chinese business. While the system has not appeared to progress much since its original inception back in 2008, its attempted implementation could still be considered a positive sign—an expression of constructive intentions.⁸⁸

Perhaps the most significant development was China's willingness in 2014 to enter into a bilateral climate change agreement with the United States. One of the major U.S. critiques of the Kyoto Protocol was that it did not set emissions targets for two of the world's three largest GHGs emitters: China and India. In this context, a climate

85. Jonathan M. Harris, Brian Roach, and Anne-Marie Codur, "The Economics of Global Climate Change," *Global Development and Environment Institute* (2015): 8, http://www.ase.tufts.edu/gdae/education_materials/modules/the_economics_of_global_climate_change.pdf.

86. Olivia Treloar Boyd, "Energy Reform and Climate Change Mitigation in China: The Ideas Motivating Change," (2011): 2, College of Asia and the Pacific http://www.academia.edu/1216950/Energy_Policy_and_Climate_Mitigation_in_China_The_Ideas_Motivating_Change.

87. Stensdal, "China's Climate-Change Policy 1988–2011," 12. ISBN.

88. Jacques deLisle and Barry Lefer, "The U.S.-China Climate Change Pact: A Silver Lining?" *Wharton*, November, 2014, <http://knowledge.wharton.upenn.edu/article/the-hurdles-facing-the-us-china-climate-change-pact/>.

change agreement between the world's two largest GHGs emitters (China and the United States) can be regarded as of monumental significance. In this agreement, China committed (a) to reversing its increasing GHGs emissions by 2030 and (b) to increasing its non-fossil fuel energy share by 20% during the same period, while the United States agreed to a 26%–28% GHGs emission reduction from its 2005 levels by 2025.⁸⁹ Additionally, Valerie Karplus of the Massachusetts Institute of Technology writes,

The deal also includes a renewed commitment to engage in joint research and development on building energy efficiency, alternative fuel vehicles, clean coal, and a newly added focus on the energy-water nexus. This deal also breaks the cycle of each nation waiting for the other to act first, and it invites other nations—especially developing nations that previously viewed commitments as premature or unfair—to declare contributions to the global effort.⁹⁰

In 2015, at the Conference of the Parties (CoP) to the United Nations Framework Convention on Climate Change (UNFCCC) in Paris, China reaffirmed the goals previously established in its 2014 bilateral agreement with the United States. China also agreed to take on two additional goals in its intended nationally-determined contribution (INDC) to the Paris accord. The first was to decrease GHGs emissions per unit of GDP by 60 to 65 percent. China's second additional goal was to increase forest carbon stock by 4.5 billion cubic meters, with both of these goals being relative to China's overall 2005 levels of each.⁹¹

As previously noted, the obvious problem with the UNFCCC is that none of the agreements reached is in any way legally binding. This means that 195 countries—on the surface—appear to have pledged to hit GHGs emissions reductions targets, but the reality is that there are absolutely no punitive measures in place if a country does not achieve its

89. Jesse Jenkins, "Is the US-China Climate Change Deal a Game-Changer? An Interview with MIT's Valerie Karplus," *MITEI*, December 10, 2014, <http://mitei.mit.edu/news/us-china-climate-change-deal-game-changer-interview-mits-valerie-karplus>.

90. *Ibid.*

91. Warwick J. McKibbin et al., "China's carbon future: A model-based analysis," *Brookings*, December 31, 2015, <http://www.brookings.edu/research/papers/2015/12/31-chinas-carbon-future-mckibbin-morris-wilcoxon-liu>.

reduction goals. In other words, each country is merely being held accountable in the court of global public opinion.⁹²

Many have argued that China is unlikely to ever agree to a legally binding accord on climate change because it is not in its economic interest to do so. In other words, if there's a choice to be made between potential economic growth or potential GHGs emission reductions, China is likely to always choose economic growth. While this indeed may still prove true, accountability obligations and the resulting lack of trust in the court of public opinion (domestic and international) could end up proving more punitive than any legally binding agreement might have been. The reality is that only time will ultimately reveal the seriousness of each country's pledges.⁹³

92. "Russia Needs an Up-To-Date Climate Policy," Analytical Center for the Government of the Russian Federation, last modified January 11, 2016, <http://ac.gov.ru/en/events/07472.html>.

93. Boyd, "Energy Reform and Climate Change Mitigation in China," 5.

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V. CONCLUSION

The case studies involving China and Russia illustrate that there are numerous reasons for the diverging climate change approaches that China and Russia have chosen to take over the last few decades. These case studies highlight three factors in particular that probably played the most significant roles in their diverging climate change policies and programs.

The first of these factors was the Kyoto Protocol, which set the initial foundation—or baseline—for China’s and Russia’s climate change policies. In China’s case, the Kyoto Protocol seemed to completely excuse developing countries from almost any participation in attempts to reduce GHGs emissions until developed countries had accomplished substantial emissions reductions first. By doing so, the Kyoto Protocol practically endorsed climate change inaction prior to Chinese diplomats having to even sit down at the negotiating table.

In Russia’s case, the initial 1997 Kyoto Protocol baseline negotiations were so favorable that they incentivized Russia to continue to participate in climate change negotiations on the international stage. It is difficult to determine whether Russia would have chosen to continue to participate within the framework of the Kyoto Protocol if Russia’s GHGs emissions baseline had been updated beyond its 1990 level. It is certain, however, that Russia’s climate change incentives quickly evaporated when the United States chose not to ratify the Kyoto Protocol in 2002.

The second significant factor is the combination of geography and demography. Simply put, China is much smaller than Russia, but it has many more people. Even though China has been under virtually no international obligations to reduce its GHGs emissions, Chinese leaders have opted to take action because of the visible physical effects China has already begun to experience from climate change. In contrast, Russia’s sparsely populated and vastly more extensive countryside has not experienced similar visible physical effects. Therefore, Russian leaders have not had to take the same climate change steps that Chinese leaders were forced to take.

Finally, the third significant factor has been the lengthy and continuous leadership of Russia's current president, Vladimir Putin. It is remarkable that Putin has held a substantial position of authority in Russia since August 16, 1999, when he initially served as President Boris Yeltsin's Prime Minister. An argument can be made that for Russia the most critical constant variable since the Kyoto Protocol's original negotiations in 1997 has been Putin's leadership role. Not only has his leadership role been constant, but his climate change policies seem to have been equally consistent as well. In other words, Putin has been unwavering in his continued insistence that Russia take absolutely no action in combatting climate change.

It is important to note that Putin's climate change consistency lies in his actions, rather than his rhetoric, as he recently stated, "The quality of life of all people on this planet depends on . . . our ability to resolve the problem of climate change."⁹⁴ Putin's actions, however, continue to indicate the same non-participant climate change policies of Russia's recent history. Quentin Buckholz describes Putin's public rhetoric as purposely masking "the reality that there has been no substantive change in Russia's attitude toward climate change or willingness to act decisively to address the issue."⁹⁵

A. NATURAL SELECTION VERSUS MUTUAL AID

There seems to be a natural tendency to think of the Communist origins of China and Russia as one and the same. The truth is, however, that their communist roots are distinct in important ways. The Soviet Union under Joseph Stalin believed itself to be the supreme nation that was eventually meant to rule the communist world, when the communist dream was finally realized.⁹⁶ China looked to the Soviet Union for acceptance into the communist order during its infant stages of communism.

Even though China looked to Stalin's Soviet Union for guidance, China eventually chose its own distinct path to communism. While the Chinese Communist

94. Putin quoted in Quentin Buckholz, "Russia and Climate Change: A Looming Threat," *Diplomat*, February 4, 2016, <http://thediplomat.com/2016/02/russia-and-climate-change-a-looming-threat/>.

95. Buckholz, "Russia and Climate Change: A Looming Threat."

96. Elliot R. Goodman, *The Soviet Design for a World State* (New York: Columbia University Press, 1960).

Party (CCP) completed its conquest of the mainland in 1949, most countries for several years endorsed Chiang Kai-shek and the nationalist Guomindang (GMD) as the ruling government in China. Mao and the CCP established the People's Republic of China (PRC) on October 1, 1949, and the GMD was forced out of continental China and obliged to flee to Taiwan. Stalin died in 1953. Meanwhile, Mao had assumed that the leadership role for the communist world would naturally be passed along from Stalin to him. Instead, Nikita Khrushchev denounced Stalinism in 1956, thereby creating an even greater political rift between the Chinese and Soviet Communist parties.⁹⁷ Unresolved border disputes over territories dating back to the nineteenth century and earlier have only served to further fuel the bitterness between the two countries.

On top of long-standing disputes over territory, the disparity in available natural resources between China and Russia is also becoming increasingly apparent. As China's scarcity of natural resources continues to become more pressing—further enhanced by the effects of climate change—Chinese leaders will have to deal with this mounting problem. Russian leaders will in turn have to react to these future Chinese policies because of the impact that they are likely to have on Russia.

Chinese leaders are likely to continue on their current path of climate change policy implementation and to further China's cooperation with Russia regarding the increasing flow of Chinese immigrants from northern China into southern Russia. According to a 2008 climate change report by the Oxford Committee for Famine Relief Great Britain (OXFAM-GB) and the World Wildlife Fund (WWF)-Russia,

All over Central Asia, China and, possibly, in Mongolia there will be increasing demand for water for irrigation purposes, human use and hydropower stations. Climate change consequences don't happen on their own but rather exacerbate the already existing serious stresses upon the environment. Assessment of social losses is a challenging task. There is no complete information on social losses yet; however, it is already clear that the losses will be huge and millions of people will be forced to migrate.⁹⁸

97. This discussion is indebted to Conrad Schirokauer and Donald N. Clark, *Modern East Asia: A Brief History* (Boston: Houghton Mifflin Company, 2008), 325–28.

98. O. A. Anisimov et al., "Russia and Neighboring Countries: Environmental, Economic and Social Impacts of Climate Change," *OXFAM GB and WWF Russia* (2008), 46–47, <http://www.wwf.ru/resources/publ/book/eng/275>.

While there have been numerous joint immigration ventures between China and Russia in the past, there are signs that Russia's population is becoming more and more concerned with the increased flow of Chinese immigrants into Russia's less populated southeastern territories. Russia enforced a much stricter Chinese immigrant deportation policy in the recent past. According to Jeanne Wilson's account regarding Russian action on Chinese immigration in 1994, "Border controls regulating the presence of Chinese in the area were also stepped up. Over the years, the Russian Border Guards, the Interior Ministry, and the Federal Counterintelligence Service carried out a series of movements—codenamed 'Operation Foreigner'—to identify and deport Chinese illegal aliens."⁹⁹

At present the overall relations between China and Russia could be characterized as cooperative. However, it's not that difficult to imagine those relations quickly turning hostile due to the disparity in natural resources and the prospect of sharper immigration disputes. Additionally, China and Russia have had territorial disputes in the past, and as a result, Russia is currently in possession of territory once owned by China that many Chinese still believe rightly belongs to China. As Mao Zedong described it to a visiting Japanese delegation in 1964, "About a hundred years ago the area east of Baikal became Russian and since then Vladivostok, Khabarovsk, Kamchatka and other points have become territories of the Soviet Union. We have not yet presented the bill for this list."¹⁰⁰

China and Russia have both made recent attempts to expand their territorial claims. China has done so with its recent territorial claims of islands that Beijing has newly constructed in the South China Sea, and Russia has done so with its recent expansive territorial claims in the Arctic—to say nothing of its annexation of Crimea in March 2014. China may eventually attempt to alleviate the disparity of land, natural resources, and population density between China and Russia by seizing Russian territory previously belonging to China. Doing so would hypothetically provide China with the

99. Jeanne Wilson, *Strategic Partners: Russian-Chinese Relations in the Post-Soviet Era*, (New York: Taylor and Francis, 2004), 125.

100. Mao Zedong quoted in Sergey Radchenko, "The Sino-Soviet Split," in Odd Arne Westad & Melvyn Leffler (eds.), *Cambridge History of the Cold War* (Cambridge: Cambridge UP, 2010), 356. http://phobos.ramapo.edu/~theed/Cold_War/y%20Cambridge%20CW%20vol%202/Ch%2017%20The%20Sino-Soviet%20split%20349.pdf.

land necessary to solve its current population density problem, while also providing an abundance of additional natural resources that China may regard as necessary in the future.

While some may consider the idea of China engaging Russia in a conflict over something as basic as natural resources far-fetched, numerous renowned theorists have proposed that a scarcity of resources will inevitably lead to catastrophic future crises. The most prominent of these theorists is Robert Malthus, the author of the Malthusian crisis prediction. Malthus famously predicted that an inevitable crisis will grip the earth when population growth surpasses the earth's food production capability. According to Malthus, "There is a principle in human society, by which population is perpetually kept down to the level of the means of subsistence."¹⁰¹ In his crisis prediction's purest form, the crisis will occur simply due to the basic relationship of supply and demand: not enough food to supply the demand of the earth's population.

Critics have argued that the industrial revolution proved the Malthusian crisis prediction invalid, yet when applied on a national or regional level, versus a global level, the prediction's accuracy is almost undeniable because of the recurrence of famines throughout world history. While these famines have not occurred—at least to this point—at the global level, they have certainly struck at the national and regional level, some owing to natural causes and some owing to human actions. For Malthus, famine was for all intents and purposes, the world's last impenetrable natural barrier to keep the global population under control. As Malthus described it,

Famine seems to be the last, the most dreadful resource of nature. The power of population is so superior to the power of the earth to produce subsistence for man that premature death must in some shape or other visit the human race. The vices of mankind are active and able ministers of depopulation. They are the precursors in the great army of destruction, and often finish the dreadful work themselves. But should they fail in this war of extermination, sickly seasons, epidemics, pestilence, and plague advance in terrific array, and sweep off their thousands and tens of thousands. Should success be still incomplete, gigantic inevitable famine

101. Thomas Malthus, "An Essay on the Principle of Population," (1798): 56. <http://www.esp.org/books/malthus/population/malthus.pdf>.

stalks in the rear and with one mighty blow levels the population with the food of the world.¹⁰²

Another aspect of Malthus' writings that correlates to Communist China was his suggestion of regulating child birth to reduce future food production demand. China implemented a single child policy in 1980 for this exact reason. While Malthus made this suggestion in specific reference to implementing this policy among England's poor population at the time, China went even further and applied it to its entire population, though in 2015, China phased out its single child policy in favor of a two child policy.¹⁰³

In addition, yet another theory that seems to validate the likelihood of China and Russia sparring over future dwindling natural resources is Charles Darwin's natural selection theory, which actually derived a key ingredient from Malthus' *On Population*. This key ingredient was Malthus' observation that human populations tend to double on average every 25 years. Darwin applied this same propensity for population growth to plant and animal populations. Only Darwin proposed that when faced with dwindling natural resources (including food supply) the plants and animals that were the most physically fit would be most likely to survive and thus pass their genes on to the next generation. This is why many have commonly referred to Darwin's natural selection theory as the survival of the fittest.¹⁰⁴

When formulating his natural selection theory, Darwin observed plants and animals in the tropical environment of the Galápagos Islands. The question in this particular case though, is what would happen to Darwin's natural selection theory if it was faced with the nearly constant freezing conditions of Russia's Siberia? Ironically, it would be under these specific conditions that one of the strongest natural selection theory counterarguments would emerge, Peter Kropotkin's mutual aid theory. Kropotkin was a Russian evolutionary theorist who observed organisms working together against the harsh freezing environmental conditions of Siberia. Kropotkin's mutual aid theory was that nature's true form of competition was "a second form of struggle—the style that Darwin

102. Malthus, "An Essay on the Principle of Population," 44.

103. "Thomas Malthus (1766-1834)," October 4, 1995, <http://www.ucmp.berkeley.edu/history/malthus.html>.

104. Dennis O'Neil, "Darwin and Natural Selection," 2013, http://anthro.palomar.edu/evolve/evolve_2.htm.

called metaphorical—[that] pits [an] organism against the harshness of surrounding physical environments, not against other members of the same species.”¹⁰⁵ Up until now, Kropotkin’s mutual aid theory has been surprisingly accurate regarding the behavior of organisms in the harsh freezing conditions of Russia’s Siberia. Just as Kropotkin personally witnessed among the organisms in Siberia, man’s true form of struggle has been—for the most part—against the harshness of the surrounding physical environment in Siberia, rather than against that of other men.

If Kropotkin’s mutual aid theory is correct, it would seem logical that Darwin’s natural selection theory does not hold up under the historically harsh environmental conditions in Siberia. However, as one examines the expected future physical environmental conditions of Siberia, it seems that Kropotkin might, in the end, actually agree with Darwin. Today’s generally accepted global consensus is that Russia’s frozen Siberia is not only beginning to experience a thawing, but that this thawing is just the beginning of an eventual overall evolution toward an ecosystem that resembles a tropical environment, or what Darwin’s natural selection theory described as the conditions required for “the form of struggle that pits organism against organism.”¹⁰⁶ Simply put, climate change—in all likelihood—appears to be transforming the environmental conditions in Siberia from those of mutual aid to those of the survival of the fittest.

B. FINAL REFLECTIONS

As suggested in the introduction, this comparison of China’s and Russia’s climate change policies and programs could prove useful for U.S. national security policy because of the inherent importance of climate change for the United States and its allies. The comparison could not only help to identify gaps in current U.S. policy but also assist with suggestions for future U.S. policy prescriptions.

Since China and Russia are among the most influential states in determining the future of coordinated international responses to climate change, it is imperative for the

105. Stephen Jay Gould, “Kropotkin was no crackpot,” *Natural History* 106, (1997): 7–8.
<https://www.marxists.org/subject/science/essays/kropotkin.htm>.

106. *Ibid.*, 8.

United States to better understand the determinants of their policies in this domain. Moreover, China and Russia arguably pose the two greatest current state threats to U.S national security. Understanding their past and present actions to combat climate change might help to better forecast their policy prescriptions in the future.

Lastly, the divergence of climate change policies in China and Russia may pose significant regionally specific national security concerns in relations between the two countries. As China undertakes further measures to deal with climate change, a serious risk of an increased volatility within the region could arise. The disparities in natural resources, geography, and demography between China and Russia are becoming more and more evident. These disparities are likely to be exacerbated as China continues to observe its Russian neighbor taking little to no action to curb its GHGs emissions.

LIST OF REFERENCES

- Anisimov, O.A., A. S. Ginsburg, I.G. Gritsevitch, A.O. Kokorin, John Magrath, A.V. Stetsenko, B.A. Revitch, Antonio Hill, and I.E. Chestin. "Russia and Neighboring Countries: Environmental, Economic and Social Impacts of Climate Change." *OXFAM GB and WWF Russia*, (2008). <http://www.wwf.ru/resources/publ/book/eng/275>.
- Barents Euro-Arctic Council "Action Plan on Climate Change for the Barents Cooperation." Accessed May 18, 2016. <http://www.beac.st/en/Climate-Change/Barents-Action-Plan>.
- Birnbaum, Michael. "Russia's Putin signs law extending Kremlin's grip over media." *Washington Post*, October 15, 2014. https://www.washingtonpost.com/world/europe/russias-putin-signs-law-extending-kremlins-grip-over-media/2014/10/15/6d9e8b2c-546b-11e4-809b-8cc0a295c773_story.html.
- Boyd, Olivia Treloar. "Energy Reform and Climate Change Mitigation in China: The Ideas Motivating Change." (2011): 1–106. College of Asia and the Pacific http://www.academia.edu/1216950/Energy_Policy_and_Climate_Mitigation_in_China_The_Ideas_Motivating_Change.
- Buckholz, Quentin. "Russia and Climate Change: A Looming Threat." *Diplomat*, February 4, 2016. <http://thediplomat.com/2016/02/russia-and-climate-change-a-looming-threat/>.
- Campbell-Hyde, Blake. "Breaking Ground: Environmental and Social Issues of the Three Gorges Dam in China." *Mandala Projects*, Inventory of Conflict and Environment, Case 254, January 2012, <http://www1.american.edu/ted/ICE/china-dam-impact.html>.
- Charp, Samuel, and Georgi V. Safonov. "Climate Change and Role of Energy Efficiency." In *Russia After The Global Economic Crisis*. Washington, D.C.: Edward Brothers, 2010.
- Clark, Woodrow, and Dimitri Elkin. "Russia joins other nations in a historic climate change agreement." *Russia Direct*, December 14, 2015. <http://www.russia-direct.org/opinion/russia-joins-other-nations-historic-climate-change-agreement>.
- Coffey, Luke. "Russia's Arctic adventures: Vladimir Putin's Arctic rhetoric goes down well with a population that has little hope for its future." *Al-Jazeera*, September 2, 2015. <http://www.aljazeera.com/indepth/opinion/2015/08/russia-arctic-adventures-150830102827271.html>.

- “The Constitution of the Russian Federation: President of the Russian Federation,” <http://www.departments.bucknell.edu/russian/const/ch4.html>.
- deLisle, Jacques, and Barry Lefer. “The U.S.-China Climate Change Pact: A Silver Lining?” *Wharton*, November, 2014. <http://knowledge.wharton.upenn.edu/article/the-hurdles-facing-the-us-china-climate-change-pact/>.
- Dobrovidova, Olga. “Russia Outlines Plans to Meet 2020 Climate Goals,” *Responding to Climate Change*, July 25, 2014. <http://www.rtcc.org/2014/03/03/russia-outlines-plans-to-meet-2020-climate-goals/#sthash.V9zP65Xx.dpuf>.
- Dougherty, Jill. “How the Media Became One of Putin’s Most Powerful Weapons: After decades of wielding Soviet-style hard power, Russia is developing a subtler form of influence.” *Atlantic*, Apr 21, 2015. <http://www.theatlantic.com/international/archive/2015/04/how-the-media-became-putins-most-powerful-weapon/391062/>.
- “Economic Analysis of the Impact of Climate Change on Agriculture in Russia: National and Regional Aspects.” *Oxfam Research Reports*, April 2013. https://www.oxfam.org/sites/www.oxfam.org/files/file_attachments/rr-economic-impacts-climate-change-agriculture-russia-010413-en_0.pdf.
- Fan, C. Cindy. “China’s Eleventh Five-Year Plan (2006-2010): From ‘Getting Rich First’ to ‘Common Prosperity.’” <http://www.sscnet.ucla.edu/geog/downloads/597/300.pdf>.
- Geiling, Natasha. “Here’s How China Is Planning To Curb Its Climate Impact.” *Climate Progress*, April 1, 2015. <http://thinkprogress.org/climate/2015/04/01/3641084/china-doing-good-things/>.
- Gelis, Steven. “Kyoto Protocol, 10 years later: Did deal to combat greenhouse emissions work and what of its future?” *National Post*, February 14, 2015. <http://news.nationalpost.com/news/world/kyoto-protocol-10-years-later-was-the-deal-to-combat-greenhouse-emissions-successful-and-what-of-its-future>.
- Gould, Stephen Jay. “Kropotkin was no crackpot.” *Natural History* 106, (1997). <https://www.marxists.org/subject/science/essays/kropotkin.htm>.
- Guthrie, Doug. “China and Globalization (2006): The Politics of Market Reform.” In *Political Economy Reader: Markets as Institutions*, edited by Naazneen H. Barma and Steven K. Vogel, 399–423. New York: Routledge, 2008.
- Haita, Corina. “The State of Compliance in the Kyoto Protocol.” *International Center for Climate Governance*, December 2012. <http://www.iccgov.org/en/iccgstudies/the-state-of-compliance-in-the-kyoto-protocol/>.

- Harris, Jonathan M., Brian Roach, and Anne-Marie Codur. "The Economics of Global Climate Change." *Global Development and Environment Institute* (2015): 3–58. http://www.ase.tufts.edu/gdae/education_materials/modules/the_economics_of_global_climate_change.pdf.
- Head, Ivan L. "Canadian Claims to Territorial Sovereignty in the Arctic Regions." *McGill Law Journal* 9 no. 3 (1963): 200–226. <http://lawjournal.mcgill.ca/userfiles/other/131472-head.pdf>.
- Heritage, Timothy. "Independent media battle on in Putin's Russia." *Reuters*, Jul 30, 2015. <http://www.reuters.com/article/2015/07/30/us-ukraine-crisis-russia-media-insight-idUSKCN0Q40HI20150730>.
- Jackson, Robert B., Joseph G. Canadell, Corinne Le Quere, Robbie M. Andrew, Jan Ivar Korsbakken, Glen P. Peters, and Nebojsa Nakicenovic. "Reaching Peak Emissions." *Nature Climate Change*, Vol. 6, January 2016. <https://earth.stanford.edu/jacksonlab/sites/default/files/nclimate2892.pdf>.
- Jenkins, Jesse. "Is the US-China Climate Change Deal a Game-Changer? An Interview with MIT's Valerie Karplus." *MITei*, December 10, 2014. <http://mitei.mit.edu/news/us-china-climate-change-deal-game-changer-interview-mits-valerie-karplus>.
- Johnson, Toni. "The Debate over Greenhouse Gas Cap-and-Trade." *Council on Foreign Relations*, November 3, 2011. <http://www.cfr.org/climate-change/debate-over-greenhouse-gas-cap--trade/p14231>.
- Laruelle, Marlene. *Russia's Arctic Strategies and the Future of the Far North*. New York: Taylor and Francis, 2015.
- Legrand, Frederic. "Paris Summit 2015: Ambiguous Russian climate pledge mystifies many." Carbon Brief Clear on Climate. Last modified April 1, 2015. <http://www.carbonbrief.org/ambiguous-russian-climate-pledge-mystifies-many>.
- Li, Cheng. "One Party, Two Coalitions in China's Politics." *Brookings*, August 16, 2009. <http://www.brookings.edu/research/opinions/2009/08/16-china-li>.
- Lioubimtseva, Elena. "Russia's Role in the Post-2012 Climate Change Policy: Key Contradictions and Uncertainties." *Forum on Public Policy*. (2012). <http://forumonpublicpolicy.com/spring2010.vol2010/spring2010archive/lioubimtseva.pdf>.
- Lubin, Gus and Mamta Badkar. "The Good, The Bad And The Ugly Effects Of Global Warming In Russia." *Business Insider*, August 1, 2011. <http://www.businessinsider.com/russian-permafrost-melting-2011-07>.

- Malthus, Thomas. "An Essay on the Principle of Population." (1798): 56.
<http://www.esp.org/books/malthus/population/malthus.pdf>.
- "Mandatory & Voluntary Offset Markets." *Stockholm Environment Institute and Greenhouse Gas Management Institute*, (2011).
<http://www.co2offsetresearch.org/policy/MandatoryVsVoluntary.html>.
- McKibbin, Warwick J., Adele Morris, Peter J. Wilcoxon, and Weifeng Liu. "China's carbon future: A model-based analysis." *Brookings*, December 31, 2015.
<http://www.brookings.edu/research/papers/2015/12/31-chinas-carbon-future-mckibbin-morris-wilcoxon-liu>.
- Moran, Daniel. *Climate Change and National Security: A Country-Level Analysis*. Washington, D.C.: Georgetown University, 2011.
- Nations Encyclopedia, s.v. "The Russian Federation."
<http://www.nationsencyclopedia.com/economies/Europe/Russia.html#ixzz3kErSNJOW>.
- Obama, Barack. "U.S.-China Joint Announcement on Climate Change." *The White House*, November 11, 2014. <https://www.whitehouse.gov/the-press-office/2014/11/11/us-china-joint-announcement-climate-change>.
- O'Neil, Dennis. "Darwin and Natural Selection." 2013. http://anthro.palomar.edu/evolve/evolve_2.htm.
- Palmer, Brian. "The Putin Puzzle: How to decipher the Russian president's mystifying statements on global warming." *On Earth*, December 2015.
<http://www.onearth.org/earthwire/deciphering-vladimir-putin-climate-change>.
- Pan, Philip P. "Russia's Medvedev Signs Constitutional Amendment to Lengthen Presidential Terms." *Washington Post*, December 31, 2008.
<http://www.washingtonpost.com/wp-dyn/content/article/2008/12/30/AR2008123000839.html>.
- Pugliese, Anita and Julie Ray. "Top-Emitting Countries Differ on Climate Change Threat: Chinese see least threat from global warming; Japanese see the most." *Gallup*, December 7, 2009. <http://www.gallup.com/poll/124595/Top-Emitting-Countries-Differ-Climate-Change-Threat.aspx>.
- Radchenko, Sergey. "The Sino-Soviet Split," in Odd Arne Westad & Melvyn Leffler (eds.). *Cambridge History of the Cold War*. Cambridge: Cambridge UP, 2010, 349–372.

- “Russia Needs an Up-To-Date Climate Policy.” Analytical Center for the Government of the Russian Federation. Last modified January 11, 2016. <http://ac.gov.ru/en/events/07472.html>.
- Sachs, Jeffrey D. “The End of Poverty (2005): A Plan to Establish a Market Economy.” In *Political Economy Reader: Markets as Institutions*, edited by Naazneen H. Barma and Steven K. Vogel, 359–374. New York: Routledge, 2008.
- Schirokauer, Conrad, and Donald N. Clark. *Modern East Asia: A Brief History*. Boston: Houghton Mifflin Company, 2008.
- Sharma, Betwa. “India’s Negotiator Says Climate Treaty Talks ‘Partial Success.’” *India Ink*, November 25, 2013. <http://india.blogs.nytimes.com/2013/11/25/indias-negotiator-says-climate-treaty-talks-partial-success/?ref=topics&r=0>.
- Sorokin, Donat. “Putin: Russia over-fulfilled Kyoto Protocol, delaying global warming almost by a year.” *TASS: Russian News Agency*, November 30, 2015. <http://tass.ru/en/economy/840418>.
- Submitted Intended Nationally Determined Contributions (INDCs). Center for Climate and Energy Solutions. Last accessed August 30, 2015. <http://www.c2es.org/international/2015-agreement/indcs>.
- Stensdal, Iselin. “China’s Climate-Change Policy 1988–2011: From Zero to Hero?” *Fridtjof Nansen Institute* (2012): 1–21., ISBN (978-82-7613-651-7). http://digital.library.unt.edu/ark:/67531/metadc501485/m2/1/high_res_d/Chinas%20Climate-Change%20Policy%201988-2011%20From%20Zero%20to%20Hero.pdf.
- Stocker, T.F., D. Qin, G.K. Plattner, M. Tignor, S.K. Allen, J. Boschung, A. Nauels, Y. Xia, V. Bex, and P.M. Midgley. “IPCC, 2013: Summary for Policymakers.” In *Climate Change 2013: Physical Science Basis: Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, 3–29. New York: Cambridge University Press, 2013, https://www.ipcc.ch/pdf/assessment-report/ar5/wg1/WG1AR5_SPM_FINAL.pdf.
- Tiezzi, Shannon. “The U.S. and China Play Chicken Over Climate Change: U.S.-China cooperation on climate change could literally save the world—so why aren’t they cooperating?” *Diplomat*, November 26, 2013. <http://thediplomat.com/2013/11/the-us-and-china-play-chicken-over-climate-change/>.
- Tipton, Jessica E. “Why did Russia Ratify the Kyoto Protocol? Why the Wait? An Analysis of the Environmental, Economic, and Political Debates.” *Slovo* 20, no. 2 (2008). http://www.academia.edu/1785038/Why_did_Russia_ratify_the_Kyoto_protocol_JTipton.Slovo.Autumn_2008.

- “Thomas Malthus (1766-1834).” October 4, 1995. <http://www.ucmp.berkeley.edu/history/malthus.html>.
- United Nations Framework Convention on Climate Change. “United Nations.” Accessed August 30, 2015. <http://www4.unfccc.int/submissions/indc/Submission%20Pages/submissions.aspx>.
- Victor, David G. *The Collapse of the Kyoto Protocol and the Struggle to Slow Global Warming*. New Jersey: Princeton University Press, 2001.
- “What Countries Are Doing To Tackle Climate Change.” NPR, December 9, 2011. <http://www.npr.org/2011/12/07/143302823/what-countries-are-doing-to-tackle-climate-change>.
- Wilson, Jeanne. *Strategic Partners: Russian-Chinese Relations in the Post-Soviet Era*. New York: Taylor and Francis, 2004.
- World Population. Worldometers. Accessed August 30, 2015. <http://www.worldometers.info/world-population/china-population/>.
- Yale Center for Environmental Law and Policy. “Climate Change Solutions: Frontline Perspective from Around the Globe.” *Climate Policy & Emissions Data Sheet: Russia*, 2011. http://archive.envirocenter.yale.edu/uploads/pdf/Russia_Climate_Policy_Data_Sheet.pdf.
- Zassoursky, Ivan. *Media and Power in Post-Soviet Russia*. New York: M. E. Sharpe, 2004.
- Zhao, Xiaoquan. “Media Use and Global Warming Perceptions: A Snapshot of the Reinforcing Spirals.” *Communication Research* 36, no. 5 (2009). http://sciencepolicy.colorado.edu/students/envs_4800/zhao_2009.pdf.
- Zhaokui, Feng. “What China Is Doing to Clear the Air and Fight Climate Change.” *World Post*, September 10, 2014. http://www.huffingtonpost.com/feng-zhaokui/china-climate-change-fight_b_5798234.html.

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