

Stanton Nuclear Security Fellows Seminar

PANEL 2: Some Useful History

1. Timothy McDonnell, CEIP

Presidents and Posture: Rhetoric versus Reality under Obama

Background:

As a Stanton Nuclear Security Fellow, I will study US nuclear posture under President Obama. This work will be an extension of my dissertation research on the history of US nuclear posture. Covering the whole period from the late 1940s to the present, the dissertation asks: what causes continuity and change in the combination of weapons and war plans that comprise US posture? Does the president make posture decisions to advance US foreign policy? Does the Pentagon drive parochial decisions about posture? Do domestic or Congressional politics play a role? As great power competition returns and the US modernizes its nuclear forces, it is vitally important to understand the relationship between nuclear weapons and foreign policy. My research on US posture under Obama will advance this goal.

Question:

US nuclear posture under President Obama was puzzling because of its consistency. Obama brought to the White House a deep skepticism of the US nuclear strategy orthodoxy. As an undergraduate writing on the early 1980s nuclear freeze movement he compared the US nuclear arsenal to a ‘billion dollar erector set.’¹ A generation later, as a presidential candidate, Obama pledged to “work with Russia to take US and Russian ballistic missiles off hair-trigger alert,” shrink the US nuclear stockpile, pursue “a global ban on the production of fissile material for weapons,” and make the Intermediate-Range Nuclear Forces treaty global in scope.² As president, Obama’s famous Prague Agenda was rooted in his belief that the US and the world could ultimately be safer without nuclear weapons.³ The path to security was through eventual disarmament, not deterrence.

Nor were these mere rhetorical flourishes. Obama was comfortable engaging with the sometimes abstruse details of nuclear policy, and moreover was willing to expend significant political capital to advance certain nuclear policy goals.⁴ With the exception of Jimmy Carter, no other president has ever

1 See Broad, William J., and David E. Sanger. “Obama’s Youth Shaped his Nuclear-Free Vision.” *The New York Times*, July 4, 2009. <https://www.nytimes.com/2009/07/05/world/05nuclear.html>.

2 Barack Obama, Remarks in Chicago: "A New Beginning" Online by Gerhard Peters and John T. Woolley, The American Presidency Project <https://www.presidency.ucsb.edu/node/277474>

3 Remarks by President Barack Obama in Prague as Delivered. April 5, 2009. <https://obamawhitehouse.archives.gov/the-press-office/remarks-president-barack-obama-prague-delivered>.

4 See for example the personal political capital that Obama expended on his series of Nuclear Security Summits. For discussion of the importance of presidential engagement on nuclear weapons policy see Nolan, Janne, *Guardians of the Arsenal: The Politics of Nuclear Strategy*. Basic Books, 1989.

entered the White House with a similar combination of long-standing interest, skepticism, and technical comfort with respect to nuclear posture.

Given Obama's goals and his willingness to work hard to pursue them, it is surprising that US nuclear posture changed only incrementally during his presidency. The arsenal shrank by a modest 15%. The US maintained its nuclear triad, kept much of its deployed arsenal on alert, continued President George W. Bush's missile defense program, maintained forward deployed nuclear weapons in Europe, preserved substantial offensive counterforce capabilities, and initiated several nuclear modernization programs.⁵ What explains this gap between the President's aspirations towards change and the largely status quo military reality?

Research Approach:

To answer this question I will conduct a detailed case study of US nuclear posture decision-making during the Obama administration. Mirroring my dissertation work on presidents dating back to Truman, it will encompass the entire Obama campaign and presidency. To accomplish this research and understand the gap between Obama's aspirations and observable posture outcomes I will rely on five different kinds of sources. 1) Contemporaneous administration speeches, public statements and policy documents capturing presidential objectives and directives. 2) Contemporaneous journalism which may illuminate internal deliberations. 3) Memoirs, scholarship and published interviews with former Obama administration officials that may shed light on their own views, and by extension on administration debates.⁶ 4) The small number of declassified or unclassified nuclear policy documents that have been released, or which may emerge in the near future.⁷ 5) Personal interviews with former officials aimed at uncovering new information and resolving ambiguities that will inevitably remain following a thorough survey of all other sources.

My Hypothesis:

My working hypothesis is that President Obama knowingly chose to perpetuate the nuclear posture status quo that he inherited because he came to believe that the status quo posture secured core US interests better than alternatives. Any significant diminution in US offensive counterforce or theater nuclear capabilities, he may have feared, could increase the risk of allied proliferation, or even a regional

5 For arsenal reductions see Kristensen, Hans. "Will Trump be Another Republican Nuclear Weapons Disarmer?" *Federation of American Scientists*, November 9, 2016. <https://fas.org/blogs/security/2016/11/trump-disarmer/>. For explicit discussion of forward deployed weapons, alert status and counterforce see Department of Defense. "Report on Nuclear Employment Strategy of the United States Specified in Section 491 of 10. U.S.C." June 12, 2013, pp. 4-6

6 See Kurokawa, Tomoko. "Determinants of the Nuclear Policy Options in the Obama Administration: An Interview with Jon Wolfsthal." *Journal for Peace and Nuclear Disarmament*. Vol. 1 No. 2 (2018) pp. 497-528; and Roberts, Brad. "On Creating the Conditions for Nuclear Disarmament: Past Lessons, Future Prospects." *The Washington Quarterly*, Vol. 42, No. 2 pp. 7-30. President Obama's own memoir, assuming he writes one, could be a valuable source as well.

7 See Trevithick, Joseph. "Here's America's Plan for Nuking its Enemies, Including North Korea." *The Warzone*. April 7, 2017. <https://www.thedrive.com/the-war-zone/9056/heres-americas-plan-for-nuking-its-enemies-including-north-korea>.

proliferation cascade.⁸ Likewise, curtailing the ballistic missile defense program could have made the US homeland more vulnerable. Thus, whatever aspirations Obama may have brought to the White House, the potential foreign policy or security tradeoffs and risks of pursuing them, I hypothesize, proved to be too great.

Related Work and Alternative Hypotheses:

In addition to making a valuable empirical contribution to our understanding of US nuclear weapons policy during the Obama years, this project will help to adjudicate or complicate an evolving debate about the nature of US nuclear posture. That debate centers on two related questions: What factors drive decisions about continuity and change in US nuclear posture, and how sensible are those decisions?

Beginning in the late 1970s, Robert Jervis, Kenneth Waltz and Charles Glaser began to argue that US nuclear posture, with its emphasis on offensive counterforce, was unnecessarily aggressive, and therefore irrational.⁹ To explain this durable pattern of supposedly irrational decisions, others posited that US nuclear posture was driven by some combination of inter-service rivalry, military preference for offensive doctrine, and/or bureaucratic politics.¹⁰

Writing on US arms control and missile defense policy in the 1960s and 1970s, historian James Cameron has posited that domestic and Congressional politics played an important role in posture outcomes.¹¹

More recently, Keir Lieber and Daryl Press, and Austin Long and Brendan Green have posited that the United States' decades-long pursuit of nuclear advantage through counterforce was far more successful than most observers realized.¹² Matt Kroenig goes one step further, claiming that this kind of nuclear advantage yields coercive advantages in international politics.¹³

8 For fear of proliferation cascades as a persistent driver of US policy see Miller, Nicholas L. *Stopping the Bomb: The Sources and Effectiveness of US Nonproliferation Policy*. Cornell University Press, 2018.

9 Jervis, Robert. *The Meaning of the Nuclear Revolution: Statecraft and the Prospect of Armageddon*. Ithaca: Cornell University Press, 1989; Waltz, Kenneth N. *Theory of International Politics*. New York : McGraw-Hill, 1979, Glaser, Charles L. *Analyzing Strategic Nuclear Policy*. Princeton University Press, 1990.

10 See e.g., Halperin, Morton H., *Bureaucratic Politics and Foreign Policy*, The Brookings Institution, 1974, pp. 26-62; Posen, Barry. *The Sources of Military Doctrine : France, Britain, and Germany between the World Wars*. Ithaca : Cornell University Press, 1984, pp. 47-50; Rosenberg, David Alan. "The Origins of Overkill: Nuclear Weapons and American Strategy, 1945-1960." *International Security*, no. 4 (1983): 3; Eden, Lynn. *Whole World on Fire : Organizations, Knowledge, and Nuclear Weapons Devastation*. Ithaca, N.Y. : Cornell University Press, 2004; May, Earnest, John Steinbrunner, and Thomas Wolfe. *History of the Strategic Arms Competition 1945-1972 Part 1*. <http://archive.org/details/HistoryoftheStrategicArmsCompetition19451972Part1>.

¹¹ Cameron, James. *The Double Game: The Demise of America's First Missile Defense System and the Rise of Strategic Arms Limitation*. Oxford University Press, 2018.

¹² Long, Austin, and Brendan Rittenhouse Green. "Stalking the Secure Second Strike: Intelligence, Counterforce, and Nuclear Strategy." *Journal of Strategic Studies* 38, no. 1–2 (January 2, 2015): 38–73; and Lieber, Keir A., and Daryl G. Press. "The End of MAD?" *International Security* 30, no. 4 (Spring 2006): 7–44.

¹³ Kroenig, Matthew. *The Logic of American Nuclear Strategy: Why Strategic Superiority Matters*. Oxford University Press Bridging the Gap Series, 2018; and Kroenig, Matthew. "Nuclear Superiority and the Balance of Resolve: Explaining Nuclear Crisis Outcomes." *International Organization* 67, no. 41 (January 2013): 141-171.

Thus, the existing literature contains three divergent perspectives on US nuclear posture. One posits that it has been rendered pathological by bureaucratic politics. Another suggests that domestic and congressional politics drove posture outcomes. The last suggests that it has been more military capable, and possibly diplomatically beneficial than most observers understood—while remaining silent on where credit should lie.

My project will make important contributions to this evolving debate. This is because the puzzling rhetoric-reality gap of the Obama years appears to be a ‘most likely’ case for explanations for US posture rooted in either bureaucratic or military service interests, or domestic/congressional politics. If a thoughtful, skeptical, detail-oriented president like Obama could not make the posture changes he desired, perhaps push-back from the Pentagon, Strategic Command or Congress will explain why. Alternatively, if a long-standing skeptic of the US nuclear posture orthodoxy ultimately made informed decisions to preserve the status quo, this might lend credence to the argument that he simply decided that the foreign policy price of major posture reform was too great to bear. Either way, the proposed research will contribute to our assessment of the relationship between US nuclear posture and foreign policy.¹⁴

Policy Implications:

This project’s policy implications will hinge upon its conclusions. If President Obama’s earnest efforts to substantially alter US nuclear posture were stymied by the military or Congress, then this study may reveal how. Future presidents could learn from Obama’s experience to implement their preferred policies more effectively.

Alternatively, if—as I suspect—President Obama ultimately chose to largely preserve the US posture status quo because the changes he initially envisaged came with too high a foreign policy price tag, then at least two concrete policy recommendations stand out. First, arms control advocates should radically alter their tactics. Standard arguments that ‘this new weapon is too expensive,’ or ‘that new weapon is destabilizing’ seem unlikely to cause substantial shifts in posture. Their advocacy efforts in and outside government might be more fruitful if they focused their efforts on curtailing the United States’ sprawling foreign policy ambitions. If US global interests were scaled back, the nuclear arsenal might become easier to prune.

Second, and related, it would be wise for presidential candidates, presidents and their senior advisors to consider their foreign policy priorities before committing to nuclear posture reform. However well-intentioned calls for arms reductions or no-first-use policies may be, they may come with a foreign policy cost. Substantially reducing nuclear capabilities all-but necessitates a reduction in US foreign policy ambitions. Reciprocally, failure to deliver promised posture changes could make the initial commitment appear disingenuous or naive. Thereafter, maintaining the status quo would only highlight

14 Gavin, Francis J. “Rethinking the Bomb: Nuclear Weapons and American Grand Strategy.” *Texas National Security Review*. Vol. 2 No. 1 (Jan. 2019). <https://tnsr.org/2019/01/rethinking-the-bomb-nuclear-weapons-and-american-grand-strategy/>.

just how expansive US foreign policy ambitions are, and how useful nuclear threats are in advancing them.

Research Challenges and Concerns:

There are three basic research challenges that I will encounter in this project. All three can be mitigated with thorough research and by presenting my findings carefully.

The first challenge is limited data availability. The internal memoranda, studies, and meeting minutes that I would need to reach iron-clad conclusions will remain classified for decades. I will therefore have to be cautious and skeptical in my approach to the limited corpus of written materials that are available to ensure that I am not reaching incorrect conclusions based on a narrow slice of the data.

The second challenge is related. Interview-based research is inherently problematic because human memory is imperfect, and because interview subjects often seek to present their own views and actions in a favorable light. To a certain extent, I believe I can mitigate this risk through careful pre-interview research and preparation, and by triangulating between interviews and written evidence, as well as among interview subjects.

The final challenge stems from the nature of bureaucratic politics. If Pentagon officials or military service members did work to stymie President Obama's efforts to substantially alter US nuclear posture, they probably would have avoided leaving a paper trail, and may not admit their actions if asked.

Bureaucratic malfeasance is self-concealing. I believe that I can mitigate this challenge by paying careful attention—especially in interviews—to senior officials' suspicions that presidential efforts to change US posture were being undermined. While the specific origins and details of any bureaucratic push-back may be difficult to pin down, if senior Obama officials did encounter meaningful headwinds, they surely would have known it.

2. Joseph Torigian, CFR

Nuclear Weapons and the 1969 Sino-Soviet Nuclear Crisis

The Issue:

My project is to produce a new history of the 1969 Sino-Soviet nuclear crisis. As one of the very few cases in which two nuclear powers killed each other's soldiers, the case is an especially important moment in nuclear history. The event had a significant impact on strategic thinking in Moscow, Beijing, and Beijing. Yet despite its major historical importance, 1969 remains relatively understudied. In his forthcoming work on the global history of nuclear weapons, David Holloway writes that "there is one crisis that has yet to receive the analysis it deserves, and that is the Sino-Soviet crisis of 1969."

Despite the limitations of the extent historical work, the incident has had an enormous impact on the political science literature on nuclear crises. For example, it plays a prominent role in the empirical sections of two recent major books on the role of nuclear weapons in international politics.¹⁵ At the same time, the 1969 case has yet to be fully explored for what it can tell us about how nuclear weapons relate to domestic politics, civil-military relations, conventional forces, multipolarity, intelligence, and signaling.

Beyond its empirical and theoretical importance, not only historians and political scientists will find a return to 1969 valuable. Policymakers interested in the Sino-Russian strategic relationship, and who want to know what Moscow and Beijing learned about the nature of nuclear crises from its outcome, will find much interest in a new history of 1969.

The Questions:

The number of unsolved puzzles surrounding 1969 very quickly strikes anyone reviewing the historiography of the crisis. Crucially, the different possible answers for those mysteries can very easily be linked to competing political science theories about nuclear weapons and international politics. My objective is to link history with political science by identifying concrete empirical questions and explain why one particular answer either strengthens or weakens competing theoretical paradigms.

In particular, the following questions require further investigation.

What was the role of domestic politics in China in sparking the crisis?

Drawing mostly on interviews with Chinese and Russians, Lyle Goldstein concluded in 2001 that "Mao's need for an external threat" was the most convincing explanation for the origins of the crisis.¹⁶ However, other scholars have cautioned that Soviet behavior should not be entirely disregarded as an important

¹⁵ Todd S. Sechser and Matthew Fuhrmann, *Nuclear Weapons and Coercive Diplomacy* (Cambridge: Cambridge University Press, 2017); Matthew Kroenig, *The Logic of American Nuclear Strategy: Why Strategic Superiority Matters* (New York: Oxford University Press, 2018).

¹⁶ Lyle J. Goldstein, "Return to Zhenbao Island: Who Started Shooting and Why It Matters," *The China Quarterly*, no. 168 (2001): 985–97.

influence on Mao's thinking.¹⁷ As Jeffrey Lewis writes, "The entire episode, however, is so intertwined with the politics of the time that even today an objective understanding is difficult to reach. The so-called alert of 1969 demonstrates how difficult it can be to understand nuclear weapons decisions outside of their immediate political context."¹⁸ Whether the origins of the 1969 conflict lie primarily in the international system or domestic politics within China has very obvious implications for competing theoretical paradigms about international politics. Moreover, the question of whether states actually engage in risky behavior on the international stage to pursue domestic policy goals remains controversial.

How did civil-military relations affect the quality of decision-making and analysis in the Soviet Union and China?

One of the most significant unanswered questions about China during the 1969 crisis is how they were interpreting signals from the USSR. In particular, we have little understanding of why Beijing was so convinced that a nuclear attack was imminent in October 1969 when, in fact, it was not. The top leadership believed so strongly that Moscow was planning a secret strike that they evacuated outside of the capital. Solving this puzzle requires asking several key questions. Why did Mao establish a particular institutional framework for civil-military relations? Did those institutional features create any unavoidable pathologies? How should we understand the role of the mysterious Minister of Defense, Lin Biao, who a few short years later would attempt to flee to the Soviet Union? Teasing out the answer to these questions can help us understand how extreme centralization, the idiosyncrasies of individual leaders, the highly politicized nature of decision-making, the role of ideology, and poor systems of command and control made the crisis more dangerous than it might otherwise have been.

Did the Soviet Union really "win" the crisis?

Political scientists and historians debate whether nuclear weapons actually give one country the ability to coerce another, especially during a crisis. Unsurprisingly, these scholars continue to debate whether or not nuclear weapons allowed the Soviet Union to "coerce" China in 1969.¹⁹ The crucial question is whether or not the Chinese decision to re-open negotiations on the border should be considered a response to a serious threat of nuclear attack from the Soviet Union.

What was the role of "nuclear multipolarity"?

Most scholarship on nuclear weapons examines bipolar relationships. Yet 1969 represents an opportunity to understand a crisis when more than one actor obviously places a crucial role. To get a better handle on this issue, I am interested in answering the following questions. Was the Soviet Union less likely to use nuclear weapons against China in 1969 because of a concern over what the US would

¹⁷ Shi Yun and Li Danhui, *Nanyi Jixu de "Jixu Geming": Cong Pi Lin Dao Pi Deng [The "Continuous Revolution" That Was Difficult to Continue: From Criticizing Lin to Criticizing Deng], 1972-1976* (Hong Kong: Quanjie faxing zhongwen daxue chubanshe, 2008); Michael Gerson, *The Sino-Soviet Border Conflict: Deterrence, Escalation, and the Threat of Nuclear War in 1969* (CNA, 2010).

¹⁸ Jeffrey G. Lewis, *Paper Tigers: China's Nuclear Posture* (Abingdon: Routledge, 2014), 24.

¹⁹ Sechser and Fuhrmann, *Nuclear Weapons and Coercive Diplomacy*.

do? How did the Chinese react to the mobilization of US nuclear forces in 1969? Did they think it was about Vietnam, or did they think it was about signaling to the USSR that the US supported China? Did the US oppose a Soviet attack on China because the US believed another nuclear “pole” furthered US interests even if that pole was a potential enemy? What were US plans if the Soviet Union and China fought a nuclear war? To date, political scientists have spent little time thinking about the theoretical implications of the potential answers to questions like these.

Answering these Questions:

Beyond the historical, theoretical, and practical importance of the 1969, a key reason for writing a new history of the incident is the truly astonishing variety of new material that has not been used in previous accounts. I have already spent several years accumulating sources on this topic (at great effort and expense).

Russian-language Sources

My research assistant in Moscow has found in AVPRF, the Russian Foreign Ministry archives, detailed reports from Soviet officials on all border issues and incidents through 1969, as well as discussions of the crisis with foreign diplomats and even some conversations with Chinese officials. Even more exciting, RGANI, the archive of the Communist Party of the Soviet Union, which was closed for years, recently re-opened. My research assistant has already collected extensive documents like protocols for Politburo meetings, as well as associated resolutions and memoranda, from throughout the crisis.

Chinese Sources

Although the Chinese party and foreign ministry archives are officially closed, I acquired extensive primary source material on China in 1969. The Service Center for Chinese Publications, History of Contemporary Chinese Political Movements, and other special collections provide material still technically only for internal circulation. Although scholarship in the mainland faces the problem of censorship, at least up until very recently those rules have not applied to Hong Kong. Books recently published in that city, but which are illegal in the mainland, include the memoirs of the four key generals linked to Lin Biao, the Defense Minister and Mao Zedong’s chosen successor at the time, as well as enormous collections of documents related to Lin.²⁰ The four memoirs are of particularly special interest because they were not subjected to censorship. Despite ongoing restrictions, mainland publishers have also recently published surprisingly high-quality books and on China in the 1969, including biographies, chronologies, document collections, memoirs, and works of history.

²⁰ Li De and Shu Yun, eds., *Lin Biao Riji [Diary of Lin Biao]* (Carle Place: Mirror Books, 2009); Lin Biao, *Lin Biao Wenji [Writings of Lin Biao]* (Hong Kong: CNHK Publications Limited, 2011); Wu Faxian, *Wu Faxian Huiyilu [Memoir of Wu Faxian]* (Hong Kong: Xianggang beixing chubanshe, 2006); Li Zuopeng, *Li Zuopeng Huiyilu [Memoir of Li Zuopeng]* (Hong Kong: Beixing chubanshe, 2011); Cheng Guang, *Xinling de Duihua: Qiu Huizuo Yu Erzi Tan Wenhua Da Geming Shang [Conversation Between Spirits: Qiu Huizuo Discusses the Cultural Revolution with His Son Volume 1]* (Hong Kong: Beixing chubanshe, 2011); Ding Kaiwen and Sima Qingwen, *Zhaoxun Zhenshi de Lin Biao [In Search of the Real Lin Biao]* (Taipei: Shiying chubanshe, 2011).

Other Sources

Fully understanding the 1969 crisis requires looking beyond Moscow and Beijing. Therefore, using funding from Princeton, the Wilson Center, and American University, I have also collected (and sometimes had translated) archival documents from East Germany, Canada, the United Kingdom, Japan, India, and Taiwan. The Wilson Center's Digital Archive possesses even more translated material from throughout the eastern bloc, like Romania. I have also visited the Nixon Presidential Library in California and the National Archives in Maryland.

My previous research, as well as participation in track 2 discussions with retired military and government officials in Russia and China, mean that I can supplement written sources with interviews with both historians and former practitioners. The Wilson Center and I are currently in discussions to hold a conference on new sources on 1969 and potentially invite these individuals from China and Russia to participate. Such a concatenation of historians, former practitioners, and documents should lead to new insights.

Policy Implications:

The policy implications of this project can be categorized into two types: context for US-Russia-China relations today and new theoretical insights that can be applied more broadly.

Policymakers regularly debate the nature of the relationship between Russia and China, and 1969 was a watershed moment in Sino-Russian relations. Understanding key moments like this one are useful because they allow a researcher to derive what long-term structural features might shape thinking in Moscow and Beijing. Why was it that relations between Moscow and Beijing were so poor, and what role did the US play? How advantageous was it to Washington for Moscow and Beijing to suffer bad relations? How amenable were Sino-Soviet relations to policy decisions in the United States? How were force posture decisions regarding nuclear weapons shaped by the challenge of multiple states with such weapons? What did Moscow and Beijing learn about nuclear weapons from the crisis?

Moreover, as discussed above, the empirics of the 1969 case can shape how we think theoretically about nuclear weapons and international politics. Throughout the world, US policymakers are interested in how domestic politics, civil-military relations, multipolarity, and other issues affect choices regarding the bomb.

Feedback:

I am most interested in three forms of feedback.

First, I plan to ultimately complete a book project on 1969. I plan to complete a major portion of the draft by the end of my Stanton Fellowship. However, before the Stanton is done, I will also produce a policy-relevant piece. What kind of venues would be interested in this topic? What particular element of the crisis would be most interesting for policymakers at this point?

Second, I would like to know whether any participants of the conference feel there are other parts of the 1969 crisis that deserve investigation, and whether they find the questions I have already identified are interesting.

Third, I would be very grateful for any advice on a potential oral history conference with historians and former practitioners. The Wilson Center has expressed interest in helping organize such a conference, but I would appreciate any advice participants might have. How should panels be organized? Are there any individuals you think should attend? Some potential participants have expressed concern about visa issues if the meeting is held in the US. What other venues might be possible? How can the meeting be made as attractive to potential participants as possible?

3. Julius Weitzdörfer, Belfer

Lessons from Fukushima, London, and Salisbury for the Recovery from Acts of Nuclear and Radiological Terrorism

Q1: This project proposes to develop and improve policies for the recovery (longer-term, societal and economic) from potential acts of radiological and nuclear terrorism, beyond the phase of emergency management and response. This is important because the response-side of dealing with such incidents has received disproportionately low attention compared to the prevention-side. However, any risk is a product of a probability side and an impact side. If improved planning and preparedness for effective impact mitigation and swift recovery did translate into measurably reducing the expected costs, this would constitute a more well-rounded approach to mitigating the risk of nuclear or radiological terrorism. Therefore, the already advanced efforts to reduce the likelihood of radio-nuclear terror, including safeguards, intelligence and counter-terrorism measures in the broadest sense, must be complemented by improved preparedness for mitigating its impact.

Q2: The big question about the response to and the recovery from such a hypothetical event is how to effectively plan and prepare for scenarios that are yet unknown and unprecedented. This uncertainty both concerns the characteristics of the broad range of possible scenarios as well as their effects on the human, natural and built environment, as well as the adequacy of existing plans to deal with them. Therefore, my research question is threefold and addresses (1) whether there can be lessons learned from comparable events, (2) what such lessons are specifically, and (3) how to implement them into concrete policies relevant to the recovery from acts of radiological and nuclear terror.

Q3: I will address this question by employing comparative law and policy assessment to identify applicable policy lessons from the aftermaths of three different, yet comparable events: The 2006 Litvinenko Polonium incident in London, the 2011 Fukushima Daiichi nuclear accident, and the 2018 Novichok incidents in Salisbury and Amesbury. In addition, there is a recent, fourth event of potential relevance, yet still unfolding, largely unknown and under-studied: The Caesium 137 spill at the Harborview Medical Centre, Seattle, which occurred on 2 May 2019. Drawing on existing reports from the UK and Japan, and on the interviews I have conducted with UK and Japanese officials, as well as new material I plan to assess in the US, I intend to use these cases as the best available and most recent practical experiences, and by analysing related documents insofar as they are not classified or still under preparation.

Q4: While ex-ante prevention efforts remain paramount, holistic risk reduction necessitates addressing both the probability and the impact of an event, which must include constantly improving ex-post crisis management, impact mitigation, and recovery strategies. My working hypothesis is that existing plans lack sufficiently realistic, holistic, and coordinated policies that detail wide-area and long-term recovery, at least in the UK and likely in other jurisdictions, too. Especially, and for a number of reasons, the response and recovery lessons from the above-mentioned events, at least from the latter three of the

four, have not yet been fully and transnationally transferred to the area of nuclear security. This would mean that there is significant and practical potential for policy improvement of planning and preparedness, at very low cost.

Q5: The projects draws on various strands of my prior teaching and research, my policy engagement experience, and draws on the unique combination of my academic backgrounds:

My previous research on the law and governance of extreme risk focussed on unprecedented incidents and disasters. With an unusual academic background in law and in Japanese studies, my areas of expertise are nuclear law, disaster- and crisis-response-law, risk-financing, and environmental law in the jurisdictions of Japan, the UK and the EU. Since 2011, I have covered the legal case of Fukushima extensively. This has included repeated fieldwork in Japan and mainly draws on material exclusively available in Japanese. I wrote extensively on the practical issues involved in off-site response and recovery, and in further publications, I have compared Japan and China's disaster response policies, examined the financing of responses to extreme disasters, and covered Japan for the Oxford Handbook of Comparative Environmental Law. For several years, I have taught modules on risk and science as well as on chemicals and biosafety at the University of Cambridge. Currently, I am just before submission a major volume entitled "Fukushima and the Law", forthcoming with Cambridge University Press this year. It draws together contributions from international experts across a range of disciplines, covering the entire spectrum of law and policy responses to, and lessons from, the accident and has involved working closely with practitioners of nuclear law, nuclear safety experts, regulators and civil servants, and nuclear engineers in Cambridge. The book's core strength is to draw extensively on Japanese scholarship and expertise, while catering to a global audience.

My relevant policy engagement comprises both UK government departments and agencies and Parliament, where I have repeatedly advised members of the Joint Committee on the National Security Strategy, the former Chairman of the Defence Select Committee, and a former UK Secretary of State for Defence. In 2015, I have met former Japanese Prime Minister Naoto Kan to discuss his management of the Fukushima crisis, and I spoke on disaster recovery in the Houses of Parliament in 2017 and in 2018. The senior policymakers, energy and defence experts I have personally advised on crisis management include the Intelligence Oversight Policy Manager and the Head of Incident Management of the National Security Secretariat, UK Cabinet Office. In a series of meetings of particular relevance, I have officially advised the Head of the CBRN Recovery Programme at the UK Department for Environment Food & Rural Affairs (DEFRA), which encompasses the former Government Decontamination Service. Having gained insight into the precise strengths and weaknesses of the UK's radiological and nuclear recovery capabilities, and access to the rare experience gained in the aftermath of the London and Salisbury incidents, seamlessly led to this project.

The project's research questions are directly inspired by the inquiries I received from the CBRN Recovery Programme, now named the CBRN Emergencies team. Inter alia, this group is responsible for recovery

from CBRN terrorism in the UK, its institutional predecessor and current staff having also been involved in radiological forensics and decontamination work subsequent to the 2006 Litvinenko polonium-210 poisoning case in London. At the time of our regular interaction, the group has been scaling up its capabilities to be able to respond to nuclear attacks of a larger scale. In the joint assessment I conducted with the head and several members of the group, it became apparent that nuclear terror preparedness in the UK, which naturally requires a multi-agency approach involving the Cabinet Office, the Home Office, the Department of Defence, Public Health England, the Environment Agency, and other authorities, lacks sufficiently realistic, holistic, and coordinated policies that detail wide-area and long-term recovery. The result of a workshop I jointly organized with DEFRA at the University of Cambridge in 2017, bringing a wide range of UK civil servants together with an interdisciplinary and international group of experts from among my network, and of an additional roundtable at the Royal Society in 2019, was that we not only agreed that the ongoing recovery process around Fukushima provides a valuable study system for likely psychological, social and economic challenges to recovery from an act of nuclear terrorism, but that comparative and cross-sector thinking can provide actionable, practicable policy improvements to the realm of nuclear security.

In addition to addressing the comparatively under-studied response and recovery side, and to using resources exclusively available in Japanese, my most important contribution is cross-sectoral thinking and a trans-national approach. By reassessing the experiences in Japan and the UK with regard their potential to inform response and recovery from radio-nuclear terrorism, I will combine my previous research experience in Japan with my policy work in the UK. Applying specific law and policy lessons from these three cases to the recovery from potential acts of nuclear terrorism brings together two different legal, political, and cultural contexts, but also nuclear accidents with radiological incidents, and urban with wide-area evacuation, decontamination, and community and economic recovery. Thus, exploring common ground and transferable knowledge between the response to and recovery from civil nuclear accidents on the one hand and potential acts of radio-nuclear terrorism on the other hand lies at the heart of my research proposal.

Q6: Based on the new experiences gained in the wake of the above-mentioned cases, the project seeks to propose policy guidelines to improve some of the identified gaps, weaknesses, but also successes, and make them available to a wider community of policymakers globally. Concretely, the policy proposals I aim to develop are intended to address the preparedness for and planning of: risk communication, interdepartmental coordination, mass evacuation, triage, sheltering, treatment, and decontamination for the response phase, and in policies for economic and community recovery, resettlement, return, and food safety in the aftermath of a potential radiological or nuclear attack for the recovery phase. With regard to the project's results, I am determined to publish at least one academic paper in an interdisciplinary journal widely-subscribed by academics and practitioners, e.g. *Risk Analysis*. In addition, I would further disseminate the results in an opinion editorial, e.g. in the *Bulletin of Atomic Scientists*, or in a policy report, drawing on my network spanning across the

International Nuclear Law Association and the OECD NEA Legal Affairs Office in Paris, which regularly publishes international best practice law and policy guides.

Q7: Naturally, the transferability of lessons from the mentioned cases will vary with the exact scenario, area, and substance of attack, and with other circumstances. Yet I see three other challenges for this project: Firstly, that the documents setting out relevant policies are classified, secondly, that I am yet to familiarize myself with the legal and administrative situation in the US, and thirdly that I am new to the field of nuclear security (versus safety) and have to familiarize myself with the existing literature and especially the state of the art regarding recovery policies.