

# RETHINKING NATIONAL SECURITY

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## Summary

When World War II ended in 1945 our nation was secure from attack. Since then, we have invested trillions of dollars in an effort to improve our national security. We have applied some of our brightest minds to maximize the value of that investment. Yet, absurdly, we now can be destroyed in under an hour. What went wrong?

In mathematics, an absurd result from a logical line of reasoning proves that at least one underlying assumption is false. While other factors contributed to our predicament, we need to critically re-examine the assumptions about national security that are currently taken for granted, starting with the concept itself. The primary thesis of this paper is that, in the age of nuclear weapons, cyberattacks, terrorism, and environmental crises, national security is becoming inseparable from global security. We need to rethink national security at a fundamental level.

## Caveats

Because global security requires making even our adversaries feel more secure, that thesis will sound Pollyannaish to many, especially to those who have sacrificed on the battlefield or struggled at the negotiating table. I therefore want to emphasize that I am posing a vision for the future that can only be attained via a long-term process of change. Those who worry that this vision will allow our adversaries to take advantage of us can put their concerns to rest. This paper, by itself, will not have that kind of impact.

National security is a deeply entrenched concept, supported by the experience of centuries of warfare. But nuclear weapons and other technological developments have changed the environment in fundamental ways that we have not yet fully integrated. As Einstein famously said at the dawn of the nuclear age, “The unleashed power of the atom has changed everything save our modes of thinking and we thus drift toward unparalleled catastrophe.” [Nathan and Norden 1981, page 376]

The current state of the world is unstable, but we cannot jump to a stable end-state. Other nations also must join in the process, adding to its complexity. The first step is to pose the vision and open our

own minds to its possibility, safe in the knowledge that our existing national security structures have enough inertia to prevent a dangerous jump. Posing that vision is the purpose of this paper.

Two other caveats are in order. First, this paper lists a number of questions on which I now have strong opinions. I have listed them as questions because that is how I initially had to face them and how I also expect others to approach them. Second, so many others have raised similar questions in the past that referencing them all would be impossible and citing just a few would unfairly diminish the rest. I have therefore cited no one explicitly, but thank them all.

## Is national security becoming inseparable from global security?

We usually act as if national security makes sense in and of itself, but nuclear weapons, other WMD technologies, cyber warfare, terrorism, and global environmental crises are making our national security increasingly dependent on all nations feeling more secure, including those we regard as adversaries.

Economically depressed North Korea proves that almost any nation that truly desires nuclear weapons can obtain them. While other considerations played a role in transforming that nation into the nuclear-armed menace it is today, our focus on national security was one of the most important factors. Thinking primarily in terms of our own security led us to seek crippling sanctions and to encourage regime change.

Fear of being attacked by the United States led North Korea’s leadership to seek a nuclear deterrent capable of hitting the American homeland—the only way that they can deter us. Seeing us overthrow Saddam Hussein and Muammar Gaddafi reinforced that concern, especially since Pres. George W. Bush had told Gaddafi in 2003 that giving up his nuclear weapons program would allow Libya to “regain a secure and respected place among the nations.” [Bush 2003]

Unless it is truly in our nation’s vital interests to do otherwise, we should treat every nation with the respect it would deserve if it already had nuclear weapons. Otherwise, we will unwittingly encourage nuclear proliferation and additional threats to our

national security. The time to treat a nation with respect is before it has nuclear weapons, not after. And, unfortunately, we often fail to treat even nuclear-armed nations with adequate respect.

In addition to unintentionally encouraging nuclear proliferation, treating national security as separate from global security motivates the proliferation of more easily obtained chemical, cyber, and biological weapons. And global environmental crises clearly require thinking in terms of global, not purely national, interests.

While global security frequently has been advocated and is at the heart of the United Nations (UN) Charter, it warrants greater consideration *in practice* than it has been accorded to date.

### Have nuclear weapons kept the peace?

We have not experienced a world war since 1945, leading many to believe that nuclear weapons have kept the peace. Professor John Mearsheimer, a highly respected expert on international relations, has even called them “weapons of peace.” [[Mearsheimer 2012](#)]

While caution induced by nuclear weapons probably has lengthened the time between world wars, society’s current complacency seems unjustified. Even if nuclear deterrence could be expected to work for 500 years before we destroy ourselves, one-sixth of 500 years is 83 years. Thus, a child born today in America would have roughly one chance in six of being killed by a nuclear weapon over their expected lifetime—the same as in Russian roulette. Are we pointing a partially loaded revolver at the heads of the next generation of Americans? Is the time frame closer to 100 years? If so, are we spinning the cylinder and pulling the trigger five times during that child’s expected lifetime?

Several additional questions deserve critical re-examination: Have the last seven decades been peaceful enough to justify the assumption that nuclear weapons have kept the peace? Has believing that nuclear weapons kept the peace caused us to behave in ways that hurt our national security? Have other factors, besides the advent of nuclear weapons, played a role in lengthening the time between world wars? (It is

true that there has not been a world war since the advent of nuclear weapons, but the same could be said of the UN.) Is 73 years between major wars that unusual? (The last pan-European war prior to the First World War ended 99 years earlier in 1815.)

### Does our “nuclear umbrella” provide protection?

We often speak of extending our nuclear umbrella to our allies. To what extent is that analogy a good one, and to what extent is it misleading? A student in one of my classes, Katy Ferron, suggested that perhaps the nuclear umbrella is made of tin foil. That would protect us in a light rain shower, but could turn deadly in a thunderstorm.

Does our nuclear umbrella embolden our allies in ways that make major crises (and therefore nuclear devastation of our homeland) more likely? In November 2015, Turkey shot down a Russian jet near its border with Syria. Would Turkey have taken that action if it were not protected by our NATO security guarantees? How much danger was there of a crisis ensuing? Vice Admiral Ulrich Weisser, who was head of the policy and planning staff in the German Ministry of Defense, warned:

Moscow also feels provoked by the behavior of a number of newer NATO member states in central and Eastern Europe. Poland and the Baltic states use every opportunity to make provocative digs at Russia; they feel themselves protected by NATO and backed by the U.S. [Weisser 2007]

### Is our nuclear arsenal safe, secure, and effective?

President Obama, in his 2009 Prague speech that committed the United States “to seek the peace and security of a world without nuclear weapons” also said: “As long as these weapons exist, the United States will maintain a safe, secure and effective arsenal to deter any adversary, and guarantee that defense to our allies.” [[Obama 2009](#)] Was Obama stating a fact or an assumption? If it is an assumption, is it true and what does it mean?

President Trump’s 2018 Nuclear Posture Review

(NPR) uses similar language: “The U.S. must have the ability to maintain and certify a safe, secure, and effective nuclear arsenal.” [[Department of Defense 2018](#)] Did the NPR imply that the U.S. in fact has that ability? If so, on what basis and under what definitions of “safe, secure, and effective”?

Sometimes, *reliable* or *credible* is used instead of *effective* as in a 2008 Defense Science Board report which recommended that, “The national security leadership should declare, unequivocally and frequently, that a reliable, safe, secure, and credible nuclear deterrent is essential to national security, and is a continuing high national priority.” [[Defense Science Board 2008](#)]

It helps to note that some of these terms have specialized meanings within the nuclear weapons complex that are very different from how the average person would interpret them. The definition of nuclear weapons safety in a 2016 DoD handbook says nothing about the risks inherent in our *nuclear strategy*: “There shall be positive measures to prevent nuclear weapons involved in accidents, incidents, or jettisoned weapons, from producing a nuclear yield.” [[ODASDNM 2016](#)] Statements such as Obama’s and the Trump NPR reduce public concern about our nuclear weapons in general, even if all they meant is that there will not be a nuclear explosion if a bomber crashes.

Similarly, the handbook’s definition of nuclear weapons security says nothing about how secure or insecure we are as a nation because of our dependence on those weapons: “Nuclear weapons security refers to the range of active and passive measures employed to protect a weapon from access by unauthorized personnel and to prevent loss or damage.” [[Ibid.](#)]

Even within that limited definition, there appear to be serious questions: Two years before Obama’s assertion that our nuclear arsenal is secure, the Air Force lost six nuclear weapons for 36 hours. [[Garwin 2008](#), pp. 27-28]

The handbook does not define either *effective* or *credible*, but a 1980 exchange between Secretary of Defense Harold Brown and Senator John Glenn, while somewhat flippant, raises questions about the

credibility of our nuclear deterrent [Senate Foreign Relations Committee 1980]:

*Senator Glenn*: I get lost in what is credible and not credible. This whole thing gets so incredible when you consider wiping out whole nations, it is difficult to establish credibility.

*Secretary Brown*: That is why we sound a little crazy when we talk about it.

### Is a highly reliable nuclear arsenal necessary for our national security?

An unstated assumption underlies resistance to both the Comprehensive Test Ban Treaty (CTBT) and further reductions in our nuclear arsenal. This is the belief that, to deter an adversary, we must be able to hit it with hundreds of nuclear weapons with high probability. But if North Korea had a 50% chance of being able to strike a major American city with a nuclear weapon, wouldn’t that be adequate to deter us from attacking them the way we attacked Saddam Hussein and Muammar Gaddafi? Conversely, how many nuclear weapons must we be able to land on an adversary and with what level of certainty to deter it from attacking us? If our nuclear arsenal is larger than needed for deterrence, in what ways does that enhance our national security and in what ways does that diminish it?

### Is nuclear terrorism a greater risk than nuclear war?

In a March 2014 press conference, President Obama stated: “Russia’s actions are a problem [but] they don’t pose the number-one national security threat to the United States. I continue to be much more concerned when it comes to our security with the prospect of a nuclear weapon going off in Manhattan.” [[Obama 2014](#)]

Along similar lines, in the 2010 video documentary, *Nuclear Tipping Point*, former Secretary of State and former Chairman of the Joint Chiefs of Staff Colin Powell states: “The real threat now is not from states that understand that we cannot use these weapons without inviting suicidal response but terrorists who do not care about suicidal response, terrorists

who are prepared to commit suicide themselves.” [Nuclear Threat Initiative 2010, 2:42]

Closer examination raises serious questions about the assumption that nuclear terrorism has replaced nuclear war as the greatest risk facing our nation. A nuclear terrorist attack would be unlikely to kill more than 100,000 people, even if the terrorists were able to devise a weapon as sophisticated as the one used on Hiroshima or Nagasaki. In contrast, and using President Obama’s example, a nuclear war with Russia would be likely to kill at least a billion people—10,000 times as many. Using the usual definition of risk as likelihood times loss, that 10,000-to-1 ratio means that nuclear war would have to be at least 10,000 times less likely than nuclear terrorism for the latter to be the greater risk.

I am not saying that we should neglect the threat of nuclear terrorism. Rather, even though nuclear terrorism appears to be a smaller risk than nuclear war, both would be catastrophic and both deserve more attention than they currently are receiving.

**In what ways does our large military arsenal improve our national security, and in what ways might it have a negative effect?**

Our unquestioned superiority in conventional arms would give us an initial advantage in a war with any other nation. But, if that nation has nuclear weapons, it would be likely to use nuclear threats to avoid a humiliating defeat. If such threats occur, would our current nuclear arsenal of well over 6,000 nuclear weapons give us any real advantage? (Russia has approximately the same number and North Korea is estimated to have 10-20.) [Kristensen and Norris 2018] Might the use of our large nuclear arsenal, all by itself, cause a “nuclear winter” that would devastate our homeland?

Has our conventional superiority encouraged us to take actions that have hurt our national securi-

ty, including risking nuclear war? The memoirs of American Gen. Wesley Clark, who was NATO’s Supreme Allied Commander Europe during the 1999 Kosovo Crisis, and those of his subordinate, British Lt. Gen. Sir Mike Jackson, agree that Clark ordered Jackson to take action that risked armed conflict with Russian troops. Their memoirs also agree that a heated argument ensued which ended when Jackson refused to carry out the order.

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Where Clark’s and Jackson’s memoirs differ is in their perceptions of the risk involved. When Jackson refused to carry out Clark’s order, he said, “Sir, I’m not going to start World War Three for you.” [Jackson

2007, page 272] In contrast, Clark “expected that when NATO met the Russians with determination and a show of strength, the Russians would back down.” [Clark 2001, page 395] Did our overwhelming conventional superiority contribute to Gen. Clark’s confidence, and if so, how much risk did it create for our nation’s security?

**Is nuclear diplomacy with “rogue nations” a waste of time?**

Contrary to the conventional wisdom, nuclear diplomacy probably prevented North Korea from developing a nuclear weapon while our main nuclear accord with it was in force. Known as the 1994 Agreed Framework, this agreement prevented North Korea from accessing its plutonium stockpile for eight years until Pres. Bush ended the agreement in 2002. North Korea then re-started plutonium production and did its first nuclear test four years later, in 2006.

The 1994 Agreed Framework also stopped North Korea from completing two large nuclear reactors that, by now, would have made enough plutonium for hundreds of nuclear weapons. Yet it never received the more proliferation-resistant replacement reactors we promised to provide. The partially completed reactors corroded so badly from eight years of exposure to the elements that they had to be aban-

doned.

Does the history of our nuclear diplomacy with North Korea have any lessons for preventing Iran from acquiring nuclear weapons?

What are the criteria for branding these nations as rogues? Do any of our allies meet those criteria?

### Is the United States the world's sole remaining superpower?

What does it mean to be a superpower? Could a superpower be destroyed in under an hour? Would its wars have produced the results we have seen in Vietnam, Afghanistan, Iraq, and Libya? If possessing immense destructive power makes a nation a superpower, does Russia qualify? China? North Korea?

Are we the world's sole remaining *conventional* superpower? In the nuclear age, what are the advantages to being its only conventional superpower? What risks does it create?

If we are wrong in believing that we are the world's sole remaining superpower, has that mistaken belief caused us to take actions that have hurt our national security (e.g., by taking risks or unintentionally encouraging nuclear proliferation)?

What are the components of American power that qualify us as a superpower? Should we place more emphasis on non-military components of American power?

### Are our nation's foreign, military, and cyber policies well thought out?

Vietnam, Iraq, Afghanistan, and Libya raise questions for conventional warfare. Former Secretary of Defense William Perry's recent book does the same at the nuclear level:

Our [nuclear] deterrent forces were also weighed on a political scale: do they give us parity with the forces of the Soviet Union? I did not regard that as the key issue, but I can testify that during the Cold War, no US president was willing to accept nuclear forces smaller than those of the Soviet

Union. And I believe that this perceived imperative did more to drive the nuclear arms race than did the need for deterrence. [Perry 2015, page 46]

A 1995 USSTRATCOM report also raises questions about the logic of our nuclear strategy:

Because of the value that comes from the ambiguity of what the US may do to an adversary if the acts we seek to deter are carried out, it hurts to portray ourselves as too fully rational and cool-headed. ... That the US may become irrational and vindictive if its vital interests are attacked should be part of the national persona we project to all adversaries. [USSTRATCOM 1995]

What happens if both we and a nuclear-armed adversary follow that advice?

Our policies with respect to cybersecurity and cyber weapons also need to be more carefully thought out. Once American cyber weapons are discovered, their exploits can be used against us and our allies. Even just developing cyber weapons, without ever using them, carries risks as the theft and publication of NSA cyber weapons shows. The NotPetya malware utilized one of these stolen NSA exploits and is estimated to have caused more than \$10 billion in damage. [Greenberg 2018]

### How has NATO expansion helped our national security, and how has it hurt?

NATO expansion has had both positive and negative impacts on our national security, but our current national mindset focuses almost exclusively on the positive. We need to consider all aspects of our alliances, including the impact on our national security of the fears they produce in our adversaries.

When NATO expansion into Eastern Europe was first proposed in the 1990's, Secretary of Defense William Perry believed that it would be so threatening to Russia—and therefore so dangerous to our national security—that he considered resigning in protest [Perry 2015, pp. 128-129].

In February 2010, after NATO had expanded right

up to Russia's borders, former Secretary of State Madeleine Albright asserted that, "This is a new NATO ... Its enemy is not Russia." [Ferris-Rotman 2010] However, her vision is not shared by the new, Eastern European members of NATO whose history understandably causes them to fear Russia. Almost a year before Secretary Albright's statement, a number of former leaders of Eastern European nations wrote an open letter to President Obama warning that, "It was a mistake not to commence with proper Article 5 defense planning for new members after NATO was enlarged." [Adamkus et al 2009]

NATO's Article 5 states that an attack on one member shall be considered an attack on them all. If the Russian jet that was shot down in November 2015 by Turkey had detected the attack and shot down the Turkish jets, would it be wise to require a forceful American response? Should Article V be limited to unprovoked attacks?

### Should the president have the sole ability to launch our nuclear weapons? Does he?

In the 1964 dark comedy *Dr. Strangelove*, a rogue American Air Force general orders his bomber wing to attack the Soviet Union. When the president is told what has happened, he objects, "I was under the impression that I was the only one in authority to order the use of nuclear weapons." He is told that, while he is the only one with the *authority* to launch a nuclear strike, the *ability* to do so is possessed by others further down the chain of command "to discourage the Russkies from any hope that they could knock [you] out ... and escape retaliation."

That same "decapitation strike" dilemma exists today. Furthermore, the short flight times of ballistic missiles make it impossible to adhere to the Constitutional requirement that Congress declare war in the most serious case of all, namely nuclear war.

### Conclusion

To reverse the process that has transformed our nation from one that was inviolate into one that can be destroyed in under an hour, it is imperative that we rethink national security at a fundamental level. We need a bipartisan dialog to answer the critically important questions raised in this paper, starting

with the most fundamental one of all: In the age of nuclear weapons, cyberattacks, terrorism, and environmental crises, is national security becoming inseparable from global security?

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When World War II ended in 1945 our nation was secure from attack. Since then, we have invested trillions of dollars in an effort to improve our national security. We have applied some of our brightest minds to maximize the value of that investment. Yet, absurdly, we now can be destroyed in under an hour.

In mathematics, an absurd result from a logical line of reasoning proves that at least one underlying assumption must be false. While other factors contributed to our predicament, we need to re-examine the assumptions that form the foundation for our current approach to national security, starting with the concept itself.

In the age of nuclear weapons, cyberattacks, terrorism, and environmental crises, is national security becoming inseparable from global security? If so, how do our current policies need to change?

We, the undersigned, urgently call for a bipartisan dialog, including Congressional hearings, to answer those critically important questions.

The above statement of support has been signed by the following individuals. Affiliations are provided solely for identification purposes and do not connote support by the signatories' institutions.

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*Dr. Garwin currently serves on DoD's JASON Advisory Group.*

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## References

- [Adamkus et al 2009] Valdas Adamkus, Martin Butora, Emil Constantinescu, Pavol Demes, Lubos Dobrovsky, Matyas Eorsi, Istvan Gyarmati, Vaclav Havel, Rastislav Kacer, Sandra Kalniete, Karel Schwarzenberg, Michal Kovac, Ivan Krastev, Alexander Kwasniewski, Mart Laar, Kadri Liik, Janos Martonyi, Janusz Onyszkiewicz, Adam Rotfeld, Vaira Vike-Freiberga, Alexandr Vondra, and Lech Walesa, "An Open Letter To The Obama Administration From Central And Eastern Europe," July 16, 2009, [available online](#).
- [Bush 2003] George W. Bush, "Libya Pledges to Dismantle WMD Programs," speech given in The James S. Brady Briefing Room, Washington, DC, December 19, 2003, [available online](#).
- [Clark 2001] Wesley Clark, *Waging Modern War*, Public Affairs, New York, 2001.
- [Defense Science Board 2008] The Defense Science Board Permanent Task Force on Nuclear Weapons Surety, "Report on the Unauthorized Movement of Nuclear Weapons," February 2008, [available online](#).
- [Department of Defense 2018] *Nuclear Posture Review 2018*, February 2018, [available online](#).
- [Ferris-Rotman 2010] Amie Ferris-Rotman, "Albright says Russia has nothing to fear from NATO," Reuters, February 11, 2010, [available online](#).
- [Garwin 2008] Richard L. Garwin, "What the U.S. Can Do Now to Reduce the Hazard of Nuclear Weapons," Talk at Qingdao University Symposium Qingdao, Shangdong Province, China 29 October 2008, [available online](#).
- [Greenberg 2018] Andy Greenberg, "The Untold Story of NotPetya, the Most Devastating Cyberattack in History," *WIRED*, August 28, 2018, [available online](#).
- [Jackson 2007] General Sir Mike Jackson, *Soldier: The Autobiography*, Bantam Press, London, 2007.
- [Kristensen and Norris 2018] Hans Kristensen and Robert S. Norris, "Status of World Nuclear Forces," Federation of American Scientists, November 2018, [available online](#).
- [Mearsheimer 2012] John Mearsheimer, "Nuclear-Armed Iran Would Bring 'Stability' But Risks," PBS News Hour, July 9, 2012, [available online](#).
- [Nathan and Norden 1981] Otto Nathan and Heinz Norden, editors, *Einstein on Peace*, New York, Avnel Books, 1981.
- [Nuclear Threat Initiative 2010] Nuclear Threat Initiative, Nuclear Tipping Point, 2010, [available online](#). Secretary Powell's quote starts at 2:42 in the online video.
- [Obama 2009] Barack Obama, "Remarks by President Barack Obama In Prague As Delivered," April 5, 2009, [available online](#).
- [Obama 2014] Barack Obama, "Press Conference with President Obama and Prime Minister Rutte of the Netherlands," March 25, 2014, [available online](#).
- [ODASDNM 2016] Office of the Deputy Assistant to the Secretary of Defense for Nuclear Matters, "Nuclear Matters Handbook, Chapter 7: Nuclear Surety" 2016, [available online](#).
- [Perry 2015] William J. Perry, *My Journey at the Nuclear Brink*, Stanford University Press, Stanford, 2015.
- [Senate Foreign Relations Committee 1980] Nuclear war strategy hearing before the Committee on Foreign Relations, United States Senate, Ninety-sixth Congress, second session, on Presidential Directive 59, September 16, 1980. G.P.O., Washington, DC, 1981, [available online](#) (click on *Download Whole Book* from that page and search on the quotes cited).
- [USSTRATCOM 1995] Strategic Advisory Group (SAG) of the United States Strategic Command, "Essentials of Post-Cold War Deterrence," 1995, [available online](#).
- [Weisser 2007] Ulrich Weisser, "No Digs at Moscow: The West has to stick to its promises," *The Atlantic Times*, March 2007.

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