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## UNBALANCED TERROR: A STUDY OF CURRENT NUCLEAR DETERRENCE

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**JCSP 44**

***Exercise Solo Flight***

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Maj Kevin Ramsay

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## **UNBALANCED TERROR: A STUDY OF CURRENT NUCLEAR DETERRENCE**

### **INTRODUCTION**

The Second World War ended with two nuclear explosions in Japan that targeted an unsuspecting and consequently unprepared civilian population. The international community quickly realized these weapons' capabilities for vast devastation. Eventually, this evolved into a *balance of terror*<sup>1</sup> during the Cold War between the United States and the Soviet Union. However, since the end of the Cold War, the world has changed dramatically, and consequently there are many new developments which now affect the concept of nuclear deterrence.

This paper will demonstrate that the delicate balance of terror established during the Cold War has been upset with recent developments. Although nuclear weapons have not been used since the end of the Second World War, without careful diplomacy, a focus on security and a consideration of many factors, the risk that they may be employed again has increased. This paper will explain the development of the current world order, focusing on states with nuclear weapons capabilities. It will then examine cold war nuclear deterrence theories, which will establish a deterrence baseline. It will investigate the current disparity in outlook between the United States and Russia, before examining the non-cold war nuclear states. It will end with an examination of the additional challenges that the modern day poses to traditional cold war deterrence.

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<sup>1</sup> This phrase is a commonly used reference to the nuclear arms race between the two superpowers during the Cold War.

## DEVELOPMENT OF THE CURRENT WORLD ORDER

Following the nuclear strikes on Japan, the world realized the deadly power of nuclear weapons. Several states rushed to develop this technology for themselves. Despite the United States' attempts to prevent others from developing nuclear weapons, they were unsuccessful.<sup>2</sup> By 1968, there were four more confirmed nuclear states: Soviet Union, United Kingdom, France, and China.<sup>3</sup> In that year the United Nations established the nuclear Non-Proliferation Treaty (NPT), which was designed to prevent nuclear states from sharing their knowledge and technology with non-nuclear states. "The NPT entered into force on March 5, 1970, with 43 Parties, including three of the five confirmed nuclear-weapon states: the Soviet Union, the United Kingdom, and the United States."<sup>4</sup> For the most part, the NPT has been successful as over 190 states have signed the treaty.<sup>5</sup> The development of nuclear weapons was slowed to a crawl, and a relatively few number of additional states have both pursued and succeeded in developing nuclear weapons. "Only three states--India, Israel, and Pakistan--have never adhered to the Treaty. Only one state--North Korea--has announced its withdrawal from the NPT."<sup>6</sup> Unsurprisingly, those states not party to the treaty were the ones that were most interested in developing nuclear weapons. Those additional nuclear states are: India, South Africa (which discontinued their program a few years later), Pakistan, and North Korea.<sup>7</sup> A few other states are

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<sup>2</sup> US Delegation to the 2010 Nuclear Nonproliferation Treaty Review Conference, "Treaty on the Non-Proliferation of Nuclear Weapons," last accessed 10 April 2018, 3.  
<https://www.state.gov/documents/organization/141503.pdf>

<sup>3</sup> Scott D. Sagan, "Policy: A Call for Global Nuclear Disarmament," *Nature* 487, Issue 7405 (July 2012): 32. Israel has been vague about its nuclear state status, neither confirming nor denying possessing nuclear weapons. It is expected that they developed them sometime during the 1960s, and have been a nuclear state since.

<sup>4</sup> US Delegation to the 2010 Nuclear Nonproliferation Treaty Review Conference, "Treaty on the Non-Proliferation of Nuclear Weapons," last accessed 10 April 2018, 4.  
<https://www.state.gov/documents/organization/141503.pdf>

<sup>5</sup> *Ibid.*, 6.

<sup>6</sup> *Ibid.*

<sup>7</sup> Scott D. Sagan, "Policy: A Call for Global Nuclear Disarmament," *Nature* 487, Issue 7405 (July 2012): 32.

suspected of attempting to develop nuclear weapons programs: Libya, Iraq and Iran.<sup>8</sup> To date they have not been successful, and the current international belief is that they are no longer pursuing nuclear weapons programs.

It is worth noting that with the advent of nuclear weapons the world changed the way it deals with abhorrent weapons. Unlike the previous examples of chemical weapons and expanding bullets, where their use was banned, but not their production or possession, with nuclear weapons it was both production and possession that was banned. This approach has been more difficult to enforce.<sup>9</sup>

The United Nations believes that the “norm of non-proliferation--the international consensus that the further spread of nuclear weapons would weaken all states’ security, as well as global and regional stability--remains strong.”<sup>10</sup> However, some may see the reversal of position by North Korea as an indicator that it is not as strong as it should be. “The Treaty, the norm of non-proliferation which it embodies, and the elements of the wider non-proliferation regime that the NPT underpins have helped prove wrong the mid-20th century predictions that 20 to 30 states would acquire nuclear weapons.”<sup>11</sup> It was therefore a common belief that by the year 2000 there would be many nuclear states. Consequently, if the small number of nuclear states is an indicator of success, then the NPT can be considered successful in preventing the spread of nuclear weapons.

The United Nations also believes that the “Treaty lessens the incentives for states without nuclear weapons to acquire them and contributes to the peaceful settlement of disputes between

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<sup>8</sup> Hans Blix, “Introduction: The Present Nuclear Order, How it Came About, Why it May Not Last,” in *Nuclear Proliferation and International Order: Challenges to the Non-Proliferation Treaty*, edited by Olav Njølstad, Milton Park, Abingdon: Routledge, 2011, 7.

<sup>9</sup> *Ibid.*, 2.

<sup>10</sup> US Delegation to the 2010 Nuclear Nonproliferation Treaty Review Conference, “Treaty on the Non-Proliferation of Nuclear Weapons,” last accessed 10 April 2018, 6. <https://www.state.gov/documents/organization/141503.pdf>

<sup>11</sup> *Ibid.*, 7.

states.”<sup>12</sup> Although this statement is hard to disprove, it is equally hard to prove. Not possessing nuclear weapons does not appear to be linked to states more likely to peacefully resolve conflict, and one could hypothesize a world in which every state had nuclear weapons, everyone lived in continual fear of being attacked, and consequently states would make effort to not upset others, resulting in fewer disputes erupting into violence. However, this is also not the world that we live in.

Others believe that the NPT is close to its breaking point. “As the members of the club with nuclear capabilities have expanded to include India, Pakistan, North Korea, and undoubtedly Israel, these countries have tried as well to keep United Nations deliberations at arm’s length.”<sup>13</sup> These states have rejected the NPT, with North Korea being the example of a state that had entered into the treaty and then withdrew. If North Korea was ever welcomed back into the international community without dismantling its nuclear weapons program, it would undermine the strength of the NPT, and could cause it to end.

Hans Blix, the former head of the United Nations Monitoring, Verification and Inspection Commission, admits that the NPT has failed. “We must also note the failure of nuclear weapon states to achieve the nuclear disarmament to which they were committed in [the disarmament article] ... of the Treaty.”<sup>14</sup> A major component of the NPT was the eventual disarmament of all nuclear weapons. With more states becoming nuclear states, this is increasing the number of parties involved in disarmament, rather than reducing them, which was clearly the intent. Blix goes on to express that non-nuclear states feel cheated out of nuclear weapons. This may be a

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<sup>12</sup> *Ibid.*

<sup>13</sup> Richard Jolly, Louis Emmerij, and Thomas G. Weiss, “Peace and Security: From Preventing State Conflict to Protecting Individuals,” Chap. 10 in *UN Ideas that Changed the World*, Bloomington: Indiana University Press, 2009, 169.

<sup>14</sup> Hans Blix, “Introduction: The Present Nuclear Order, How it Came About, Why it May Not Last,” in *Nuclear Proliferation and International Order: Challenges to the Non-Proliferation Treaty*, edited by Olav Njølstad, Milton Park, Abingdon: Routledge, 2011, 7.

contributing factor to why North Korea abandoned the NPT and chose to develop their nuclear weapons program. However, it seems strange that states would feel cheated out of not spending significant amounts of time and money in developing nuclear weapons which have not been used against a target since 1945. Blix goes on to say: “Rumors have since been heard that the treaty might be losing its authority and even unravel. If so, a central part of the "nuclear order" would collapse.”<sup>15</sup> The failure of the nuclear states to disarm is compounded by additional non-nuclear states joining their ranks, resulting in a problem for the NPT. Looking at it from this perspective, it has failed. That raises the question of how much longer the international community will continue to follow it. Again, how North Korea is treated will be a key indicator of both the resolve of the United Nations and the strength of the NPT. Its days might be numbered.

Despite the fragility of the NPT, it has achieved its primary objective, which was to slow the spread of nuclear weapons. Herman Kahn, a military strategist and systems theorist, during the year 1984 stated: “The nightmare of an unchecked spread of nuclear weapons is less frightening than it once was, mostly because proliferation has proceeded much more slowly than was feared twenty years ago.”<sup>16</sup> Kahn also stated: “Nonproliferation [sic] policies have worked extraordinarily well. It seems that they will work less well in the future.”<sup>17</sup> In 1984, before Pakistan and North Korea became nuclear states Kahn was already concerned about the permanence of the NPT. If the NPT does dissolve, as is feared by some, at least it did manage to prevent the spread of nuclear weapons while it lasted.

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<sup>15</sup> *Ibid.*

<sup>16</sup> Herman Kahn, *Thinking about the Unthinkable in the 1980s*, New York: Simon and Schuster, 1984, 36.

<sup>17</sup> *Ibid.*, 88.

## COLD WAR NUCLEAR DETERRENCE

The reason the existence of nuclear weapons changed the way the world thought about warfare is that they literally changed everything. Klaus Eugen Knorr, a professor at Princeton University, wrote: “there is the dramatically increased, and indeed global, reach of nuclear weaponry. Nuclear warheads capable of delivery by long-range aircraft, intercontinental rockets, and roaming ships can be launched against targets anywhere on the globe,”<sup>18</sup> He continued this thought further by stating: “Against a nuclear great power there is no safety anywhere.”<sup>19</sup> Any nuclear state could unleash devastation against its foes regardless of geographic separation. Consequently, these powerful weapons became the desire of many states. Knorr explains their “cravings for nuclear armament as a symbol of international status and, within nations, as a source of prestige for governments, scientists, and the military.”<sup>20</sup> Nuclear weapons became status symbols, a physical reminder that states can exert their will over others. It is interesting to note that the *Permanent Five*<sup>21</sup> members of the United Nations Security Council were the first five states to acquire nuclear weapons. Surely there was a component of envy in other states’ desire to obtain nuclear weapons.

With these powerful new weapons, the role of the military needed to change. Bernard Brodie, a military strategist, stated: “Thus far the chief purpose of our military establishment has been to win wars. From now on its chief purpose must be to avert them. It can have almost no

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<sup>18</sup> Klaus Eugen Knorr and Woodrow Wilson School of Public and International Affairs, Center of International Studies, *On the Uses of Military Power in the Nuclear Age*, Princeton, N.J.: Princeton University Press, 1966, 86.

<sup>19</sup> *Ibid.*, 87.

<sup>20</sup> *Ibid.*, 119-120.

<sup>21</sup> The phrase Permanent Five will be used to describe the United States, Russia, United Kingdom, France, and China.

other useful purpose.”<sup>22</sup> The concept that the military must try and prevent wars rather than winning them is another significant change. Brodie clearly believed that if the world experienced another war it would be a nuclear one.

The balance of terror between the superpowers during the cold war was based on several factors. One of those factors was the concept of mutually assured destruction (MAD). This is the concept that each side has enough nuclear weapons to destroy the other, and was believed by many. However, Kahn did not believe that MAD was as absolute. He wrote: “Possibly of first importance is the casting of doubt on the widely accepted theory that the very existence of nuclear weapons creates a reliable balance of terror.”<sup>23</sup> He continued: “A thermonuclear balance of terror is equivalent to signing a non-aggression treaty that neither the Soviets nor the Americans will initiate an all-out attack — no matter how provoking the other side may become.”<sup>24</sup> Kahn studied the possibilities and probable effects of nuclear war and determined that with some government preparations the effects could be limited to nearly a reasonable level. He believed that a nuclear war may be initiated by a nuclear power in the future. He stated that “if proper preparations have been made, it would be possible for us or the Soviets to cope with all the effects of a thermonuclear war, in the sense of saving most people and restoring something close to the prewar standard of living in a relatively short time.”<sup>25</sup> He went on to say that despite the incomplete conclusions in his study, those responsible for conducting it believed “that a nation like the United States or the Soviet Union could handle each of the problems of radioactivity, physical destruction, or likely levels of casualties, if they occurred by

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<sup>22</sup> Frederick Sherwood Dunn, Arnold Wolfers, Percy Ellwood Corbett, William T. R. Fox, Bernard Brodie, and Yale University, Institute of International Studies, *The Absolute Weapon: Atomic Power and World Order*, New York: Harcourt, Brace and company, 1946, 76.

<sup>23</sup> Herman Kahn, "The Feasibility of War and Deterrence," *Survival* 2, no. 2 (1960): 59.

<sup>24</sup> *Ibid.*, 62.

<sup>25</sup> Herman Kahn, *On Thermonuclear War*, 2nd ed. Princeton, N.J: Princeton University Press, 1961, 71.

themselves.”<sup>26</sup> Kahn was confident that a nuclear war would not be the end of the world as we know it, and instead may be limited to reducing a states’ population, their economy, and standing in the world.

Kahn described three types of deterrence: Type 1 or ‘Passive Deterrence’, Type 2 or ‘Active Deterrence’, and Type 3 or ‘Tit-for-Tat Deterrence.’<sup>27</sup> Type 1 Deterrence is the belief that a nuclear attack on one state would be automatically and unthinkingly responded to with a return nuclear strike. Type 2 Deterrence is using strategic threats to deter another state from unwanted behaviour. Type 3 Deterrence is the actions not taken by an aggressor because they fear the repercussions will make the original action counter-productive. Kahn explained: “The difficulties of Type 1 Deterrence arise mainly from the fact that the deterring nation must strike second.”<sup>28</sup> This causes nuclear states to make some calculations, and “The really essential numbers are estimates of the damage the retaliatory forces can inflict after they have been hit and hit hard.”<sup>29</sup> All of the considerations related to Type 1 Deterrence lead to the superpowers building up stockpiles of nuclear weapons, in order to ensure that after they were the victim of nuclear attack they could attempt to destroy the other. This likely led to the false belief that MAD was basically assured in the event of any nuclear attack. Kahn wrote: “Deterrence, therefore, is not just a matter of military capabilities; it has a great deal to do with perceptions of credibility, i.e., the other side’s estimates of one’s determination, courage, and national objectives.”<sup>30</sup> It could be argued that this reliance on perceptions led to a closer communication between the United States and the Soviet Union during the cold war, as neither side wanted to accidentally invoke the other. It is interesting to note that for deterrence: “To be effective, the

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<sup>26</sup> *Ibid.*, 91.

<sup>27</sup> Herman Kahn, "The Feasibility of War and Deterrence," *Survival* 2, no. 2 (1960): 64.

<sup>28</sup> *Ibid.*, 66.

<sup>29</sup> Herman Kahn, *On Thermonuclear War*, 2nd ed. Princeton, N.J: Princeton University Press, 1961, 128.

<sup>30</sup> Herman Kahn, *Thinking about the Unthinkable in the 1980s*, New York: Simon and Schuster, 1984, 89.

power to hurt or kill must be clearly seen and feared by the adversary. In fact, the effect lies in the belief rather than the reality.”<sup>31</sup> The truth of nuclear weapons is that international community is actually unaware of the effectiveness of the nuclear weapons possessed by each nuclear state. A lot of statements about numbers and yields are made, but the fact is we do not know if a single Russian nuclear weapon is as affective as a single American one, or a single North Korean one. All nuclear weapons get treated in a similar manner, however there may be a large disparity regarding their effectiveness. Regardless, we do know that cold war deterrence was successful. “...the Soviet Union and the United States share[d] the belief that a nuclear war would begin only out of desperation or inadvertence. A weakening of deterrence could [have] increase[d] the possibility of a calculated ‘voluntary’ war or worse.”<sup>32</sup>

Knorr remarked: “It is said with considerable justification that nuclear deterrence lends itself to defensive rather than offensive policy purposes...”<sup>33</sup> This is mainly due to the previously stated requirement to be effective after receiving a nuclear strike. However, he continued: “But though this reflects a powerful tendency in the working of mutual nuclear deterrence, it is no more than a tendency. Its weight may be offset by other factors in particular situations.”<sup>34</sup> Those nuclear states which do not adopt a defensive nuclear policy are a danger to the rest of the world. On the plus side, there is a history of non-use of nuclear weapons.

Knorr wrote: “The fact is that a kind of stigma, similar to that adhering to chemical and bacteriological weapons, has attached itself to nuclear weapons, and especially to their active

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<sup>31</sup> Albert Legault and George Lindsey, *The Dynamics of the Nuclear Balance*, Rev. ed. Ithaca, N.Y: Cornell University Press, 1976, 140.

<sup>32</sup> Herman Kahn, *Thinking about the Unthinkable in the 1980s*, New York: Simon and Schuster, 1984, 37.

<sup>33</sup> Klaus Eugen Knorr and Woodrow Wilson School of Public and International Affairs, Center of International Studies, *On the Uses of Military Power in the Nuclear Age*, Princeton, N.J: Princeton University Press, 1966, 142.

<sup>34</sup> *Ibid.*

use.”<sup>35</sup> Despite the large quantity of nuclear weapons in the world, they have not been used against a target since Japan. Knorr believes that “The stigma attached to nuclear bombs operates no doubt in placing a restraint on any first use, even against a nuclear power. But it may operate more forcefully when the opponent is a non-nuclear country.”<sup>36</sup> There was clearly a stigma against using nuclear weapons during the cold war. However, that stigma may not be enough to prevent use in the future, and it is a little naive to put too much faith in it. The truth is that any nuclear state may choose to employ nuclear weapons against any adversary. The question really is how threatened does the state feel? One would think that if a nuclear state believed its existence was threatened, it would employ every advantage it had to ensure its continued survival.

Kahn believed that deterrence was a requirement for nuclear states regardless of whether they were threatened or not.<sup>37</sup> He went on to state that most governments would first choose peace over war because it seems safer, but in times of war would choose first strike over second because it also seems safer.<sup>38</sup> This preference for safety established a delicate balance between nuclear states. Additionally, Kahn wrote: “The large scale use of thermonuclear weapons is such an eventful act, the immediate and long-lasting effects so vast, that even if one could launch a 100 per cent successful first strike, it would be unreasonable to do so on a ‘minor’ issue.”<sup>39</sup> This preference for safety and understanding how impactful the use of nuclear weapons would be were key factors in establishing the balance of terror between superpowers. In fact, Kahn imagined that in a multipolar world a nuclear state who resorted to using nuclear weapons in a conflict “could not even expect to maintain its prewar preeminence [sic] among nations, since

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<sup>35</sup> *Ibid.*, 123.

<sup>36</sup> *Ibid.*, 126.

<sup>37</sup> Herman Kahn, *Thinking about the Unthinkable in the 1980s*, New York: Simon and Schuster, 1984, 71.

<sup>38</sup> Herman Kahn, *On Thermonuclear War*, 2nd ed. Princeton, N.J.: Princeton University Press, 1961, 136.

<sup>39</sup> *Ibid.*, 37.

resorting to war might involve great damage to itself (even if won)”<sup>40</sup> Sadly, Kahn’s argument is not as strong as it should be because we do not live in the multipolar world that he envisioned.

The United States is the only remaining superpower, although it could be said that Russia is also a nuclear superpower due to their larger stockpiles.<sup>41</sup>

Between the devastation of nuclear weapons and the arms race between the United States and the Soviet Union, a careful balance was established. Although there were a few moments where nuclear war seemed possible, such as the Cuban Missile Crisis and several close calls where nuclear states believed themselves to be under attack, nuclear war never broke out. Part of that was the communication between the superpowers, which succeed in preventing reaction to false alarms. However, recent developments have changed the way both nuclear superpowers view their place in the world, and there are now three additional nuclear states to worry about.

## **NUCLEAR STATES OUTLOOK**

The delicate balance established during the cold war has been altered with the addition of several nuclear states. Each state has different stated aims, and a complex situation is now made even worse. It will be more difficult to find a satisfactory role for each of the nuclear powers than it was in the cold war, simply due to the complexity and the disparity in outlook of each nuclear state.

In 2010, the United States has pledged that they “would not threaten or use nuclear weapons against non-nuclear states in good standing with their obligations under the Nuclear

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<sup>40</sup> Herman Kahn, *Thinking about the Unthinkable in the 1980s*, New York: Simon and Schuster, 1984, 50.

<sup>41</sup> Ploughshares Fund, “World Nuclear Weapon Stockpile,” Last accessed 21 April 2018, <https://www.ploughshares.org/world-nuclear-stockpile-report>

Non-Proliferation Treaty (NPT).”<sup>42</sup> However, they did reserve the use of nuclear weapons against nuclear states as well as those not following the NPT. Some have questioned why they would not press the advantage they have against non-nuclear states, and it seems clear that they are committed to the disarmament of nuclear weapons and do not want to, by their actions, encourage other states to pursue them. It seems unlikely that the United States would disarm their significant nuclear weapons without the other nuclear states having already done so.

Russia’s doctrine is significantly different from that of other nuclear states. In 2014 Putin stated that Russia should not be messed with and reminded the world that Russia is a leading nuclear power.<sup>43</sup> They have published doctrine which “states that Moscow would only use nuclear weapons in case of a nuclear or weapons of mass destruction attack on Russia or its allies, or in case of conventional aggression which threatens the very existence of the state.”<sup>44</sup> These tactical nuclear strikes are referred to as de-escalatory nuclear strikes. Their belief is that by using small nuclear weapons they will deter their adversaries. However, there are several issues. One is that it is believed that any threat to the current Russian government is considered a threat to the state, so Putin is more likely to use nuclear weapons than previous leaders. Another issue is that Russia appears to feel threatened by American ballistic missile defence (BMD). Russia possesses the largest nuclear arsenal in the world.<sup>45</sup> The reason is that they intend to overwhelm BMD with superior quantity of weapons. Some others have argued: “It appears that

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<sup>42</sup> Terence Roehrig, "The U.S. Nuclear Umbrella Over South Korea: Nuclear Weapons and Extended Deterrence," *Political Science Quarterly* 132, no. 4 (2017): 659.

<sup>43</sup> Jacek Durkalec and Matthew Kroenig, "NATO’s Nuclear Deterrence: Closing Credibility Gaps," *The Polish Quarterly of International Affairs* 25, no. 1 (2016): 39.

<sup>44</sup> Tatiana Anichkina, Anna Péczeli, and Nickolas Roth, "The Future of US-Russian Nuclear Deterrence and Arms Control," *Bulletin of the Atomic Scientists* 73, no. 4 (2017): 271.

<sup>45</sup> Ploughshares Fund, “World Nuclear Weapon Stockpile,” Last accessed 21 April 2018, <https://www.ploughshares.org/world-nuclear-stockpile-report>

the will to use nuclear weapons decreases to a degree proportional to the number possessed.”<sup>46</sup> If that were true, this would make Russia the least likely nation to use nuclear weapons; however, with their stated policy of using limited tactical nuclear strikes to ‘de-escalate’ a conflict, it seems that Russia disagrees. Russia has seen the fall of communism, and experienced the long recovery that their transition took. Given their previous super power status and current lowered place in the world order, they likely believe that they are not in their rightful place and are highly likely to try and regain lost footing. Their threats should be taken seriously, as they have a history of scorched earth policy and appear to prefer to destroy something than lose it to an adversary.

India is believed to have acquired nuclear weapons to both counter China and for the associated prestige.<sup>47</sup> It appears they wanted to be recognized by the Permanent Five more than they were concerned about Pakistan following them. They have pledged no first use, although they reserve the right to respond with nuclear weapons in the event of a chemical or biological attack. Due to the continued conflict over the Kashmir region with Pakistan, the possibility of nuclear weapon use remains a significant potential outcome.

Pakistan underwent the serious efforts to become a nuclear state, not because they were interested in access to nuclear energy, but instead they were “propelled by a sense of competition with India.”<sup>48</sup> Pakistan’s acquiring of nuclear weapons may have been an attempt to be seen as equal to India. Pakistan does not agree to the principle of no first use, and sees them “not only a political instrument but a matter of military necessity, [and] has been enraged at its perceived

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<sup>46</sup> Albert Legault and George Lindsey, *The Dynamics of the Nuclear Balance*, Rev. ed. Ithaca, N.Y: Cornell University Press, 1976, 143.

<sup>47</sup> Gareth Evans, "Nuclear Deterrence in Asia and the Pacific: Nuclear Deterrence," *Asia & the Pacific Policy Studies* 1, no. 1 (2014): 96.

<sup>48</sup> Shubham Sharma, "Endogenous Nuclear Deterrence: The Bomb and Security in South Asia," *Jadavpur Journal of International Relations* 20, no. 2 (2016;2017;): 182.

unequal treatment by the international community as compared with India.”<sup>49</sup> They have also actively blocked negotiations on disarmament. Like Russia, Pakistan may be a serious roadblock to future nuclear disarmament.

“Since confirming its withdrawal from the NPT in 2003, North Korea has been actively developing and testing nuclear weapons and missile delivery systems...”<sup>50</sup> It is currently believed that North Korea possesses fewer than 15 nuclear weapons, which is the world’s smallest nuclear arsenal.<sup>51</sup> Despite their continued threats to the United States and her allies, Gareth Evans, chancellor of Australian National University, believes they “would stop short of an inevitably suicidal nuclear attack. But the situation remains volatile and the prospect not remote of serious miscalculation generating a major confrontation.”<sup>52</sup> Evans also wrote that North Korea has witnessed the forced regime change in Serbia, Iraq and Libya, and “undoubtedly believes that possession of even a very small number of nuclear weapons constitutes some deterrent against forcible regime change.”<sup>53</sup> This is a plausible explanation of why North Korea would endure years of United Nations sanctions and suffers as an international pariah, because the regime believes it is the only way to ensure their continued existence. It cannot be about what is best for the North Korean people, as they are likely the most affected by the United Nations sanctions. With President Trump recently opening diplomatic channels to North Korea, it seems as though this ploy has worked.

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<sup>49</sup> Gareth Evans, "Nuclear Deterrence in Asia and the Pacific: Nuclear Deterrence," *Asia & the Pacific Policy Studies* 1, no. 1 (2014): 96.

<sup>50</sup> *Ibid.*

<sup>51</sup> Ploughshares Fund, “World Nuclear Weapon Stockpile,” Last accessed 21 April 2018, <https://www.ploughshares.org/world-nuclear-stockpile-report>

<sup>52</sup> Gareth Evans, "Nuclear Deterrence in Asia and the Pacific: Nuclear Deterrence," *Asia & the Pacific Policy Studies* 1, no. 1 (2014): 97.

<sup>53</sup> *Ibid.*, 102.

Evans stated: “There is a quite widespread perception that nuclear weapons can dramatically increase a state’s coercive bargaining power.”<sup>54</sup> This could be why some of the new nuclear states made the significant efforts to join the club. They envied the Permanent Five. Kahn believed that additional nuclear states could be a good thing. “This kind of multipolarity, though many fear it, seems more likely to make the world safer than not, even with some potentially difficult problems of transition (the nuclear armament of Japan and West Germany, for example).”<sup>55</sup> However, the world that Kahn imagined had many nuclear states, all with significant economies, a closer competition for power than the unipolar world we live in. He believed that if one state chose to escalate a conflict to nuclear weapons they would be shunned by the international community, their economy would suffer, and they would lose power as a result. It is unlikely that he imagined the interconnectedness of today’s economies and the near universal reliance on the only remaining super power. It is hard to believe that Canada would stop trading with the United States because they employed a nuclear weapon, despite the Canadian preference to nuclear disarmament. Additionally, Kahn likely assumed a world with complete rational actors in charge of states. Evans believes that a problem with deterrence is that it depends on rational actors in charge of states. “Political actors and circumstances can change, and it cannot be assumed that complete rationality will always prevail in the stress of a real-time crisis.”<sup>56</sup> This highlights that additional nuclear states do not make the world a safer place, as Kahn had envisioned, but instead increases the complexity of international relations, increases the political misunderstandings, and increases the possibility of errors. However, it is not only the additional nuclear states which cause problems to deterrence.

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<sup>54</sup> *Ibid.*, 92.

<sup>55</sup> Herman Kahn, *Thinking about the Unthinkable in the 1980s*, New York: Simon and Schuster, 1984, 50.

<sup>56</sup> Gareth Evans, "Nuclear Deterrence in Asia and the Pacific: Nuclear Deterrence," *Asia & the Pacific Policy Studies* 1, no. 1 (2014): 105.

## ADDITIONAL MODERN CHALLENGES

Stephen Cimbala, a distinguished professor of Political Science at Penn State Brandywine, argues that nuclear and cyber are linked. He complains: “Yet, for the most part, nuclear deterrence and cyber warfare issues are treated as separate and distinct compartments by academic, media and many military commentators.”<sup>57</sup> He states that the modernization updates to the electronic control systems will increase the vulnerability of the systems due to hacking. He warns: “Unfortunately, neither nuclear deterrence nor cyber war will be able to live in distinct policy universes for the near or distant future.”<sup>58</sup> He points out that BMD will likely be subject to cyber-attack and without clear information decision-makers will be hindered.<sup>59</sup> He also points out that the smaller number of higher yield nuclear weapons possessed by the United States and Russia actually make this more alarming because during the Cold War there was enough Type 1 Deterrence due to the sheer number of weapons.<sup>60</sup> Both Russia and ISIS have already demonstrated their superiority in the cyber domain compared to Western states. Without serious investment and protection of all nuclear weapons, states’ nuclear stockpiles may be subject to unintended use by non-state actors. Are all nuclear states sufficiently protected? It seems unlikely that they would be. There is a chance that a nuclear weapon could be launched by an actor using a cyber-attack attempting to disrupt the current world order.

In addition to the cyber threat, there is the possibility that more states may choose to become nuclear. Terence Roehrig, a professor at the United States Naval War College, believes that despite South Korea being protected under the United States’ nuclear umbrella, the United States would be very unlikely to employ nuclear weapons as a response to a nuclear attack on

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<sup>57</sup> Stephen J. Cimbala, "Nuclear Deterrence and Cyber Warfare: Coexistence Or Competition?" *Defense & Security Analysis* 33, no. 3 (2017): 194.

<sup>58</sup> *Ibid.*

<sup>59</sup> *Ibid.*, 195-197.

<sup>60</sup> *Ibid.*, 195.

South Korea by North Korea.<sup>61</sup> If South Korea does not feel protected by the United States, and the NPT dissolves or North Korea's status as a pariah is not maintained, they may choose to become a nuclear state as well, compounding the complexity problem by adding yet another actor. However, additional actors are not the only source of complexity, as new technology may also threaten to change the current order.

James Holmes, a professor at the United States Naval War College, wrote about new anti-submarine technology that will eliminate a submarine's ability to hide underwater.<sup>62</sup> This will have a huge effect on both submarine warfare and submarine-launched nuclear weapons, as nuclear states will no longer have the continued ability to threaten nuclear attacks across the entire world. He believes that type of new technology will alter the existing nuclear deterrence world order. He explains that "preserving nuclear deterrence may demand more of political leaders than it has for decades." When a nuclear state's submarines are no longer a viable nuclear weapon delivery system they will have to spend significant amounts of money reconsidering their nuclear delivery systems.

However, money will not just be diverted to changing submarines as launching platforms. Nuclear states already spend a significant amount of money in developing, protecting and maintaining these weapons which they do not employ. Evans commented: "As to military cost-benefit, the history of the nuclear age provides ample evidence that nuclear weapons do not enable reductions in spending on conventional forces."<sup>63</sup> This means that spending on conventional weapons will not be reduced, and this is another financial burden that nuclear states

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<sup>61</sup> Terence Roehrig, "The U.S. Nuclear Umbrella Over South Korea: Nuclear Weapons and Extended Deterrence," *Political Science Quarterly* 132, no. 4 (2017): 677.

<sup>62</sup> James R. Holmes, "Sea Changes: The Future of Nuclear Deterrence," *Bulletin of the Atomic Scientists* 72, no. 4 (2016): 228-233.

<sup>63</sup> Gareth Evans, "Nuclear Deterrence in Asia and the Pacific: Nuclear Deterrence," *Asia & the Pacific Policy Studies* 1, no. 1 (2014): 101.

will assume. Keith Payne, a Professor and Head of the Graduate Department of Defense and Strategic Studies at Missouri State University, believes that the United States needs to adapt to the new reality. Payne explains: “the United States must once again confront the world as it is and invest in the thinking, nuclear capabilities and infrastructure critical to the deterrence or defeat of strategic attacks, nuclear and non-nuclear.”<sup>64</sup> If the United States needs to make serious financial investments in its nuclear capabilities, one can only imagine how much of an affect the money spent would have on smaller economies, such as North Korea or Pakistan. Being a nuclear state appears to bring some prestige at the expense of significant continual costs.

One must question the utility of weapons that have not been employed since 1945. Matthew Fuhrmann, a professor of Political Science at Texas A&M University, believes that the tradition of non-use is still strong. He predicts: “a significant amount of domestic and international blowback could result from shattering the tradition of nuclear non-use that has persisted since 1945.”<sup>65</sup> It seems unlikely that an international pariah such as North Korea would concern themselves with the international blowback of employing nuclear weapons. Their real deterrent, if there is one, is that if they were to employ nuclear weapons it is very likely that the United States and many others would ensure the destruction of their regime. However, Russia has previously stated that they will employ tactical nuclear weapons on their own homeland. If they were to do so, would that really prevent Europe from trading with Russia? The European Union was also negatively affected by the sanctions placed against Russia due to the Crimea invasion. The invasion of Ukraine was not enough to entirely stop trade, it seems as though nuclear weapon employment will not be either.

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<sup>64</sup> Keith B. Payne, "Nuclear Deterrence in a New Age," *Comparative Strategy* 37, no. 1 (2018): 7.

<sup>65</sup> Matthew Fuhrmann, "On Extended Nuclear Deterrence," *Diplomacy & Statecraft* 29, no. 1 (2018): 53.

Overall, the world is not the same place as it was during the Cold War. Some nations have chosen to invest and excel in cyber capabilities, which have a significant impact on nuclear deterrence. There are now nine nuclear states, more than there were during the Cold War. Each additional nuclear state changes the dynamic, as they each have different national goals and values. New technological advancements may fundamentally change the way Cold War deterrence had been established. The cost involved in maintaining nuclear capabilities is not insubstantial, and yet more nations are investing in this technology than during the Cold War. Although there is a history of non-use, the truth is that any nuclear nation may choose to employ their nuclear weapons. The international stigma should not solely be counted on to prevent nuclear attacks.

## **CONCLUSION**

The current nuclear order has evolved due to a number of strange reasons. However, the current nine nuclear states all have access to devastating weapons. The Cold War model of deterrence, while still applying in some ways, does not fit all of the current day circumstances. Nuclear states all have different outlooks on both their place in the world and their employment of nuclear weapons. These simple facts increase the complexity of the relationships required to prevent their use. The additional challenges presented by improvements in technology, the interconnectedness of the world due to the internet, and interwoven economies have all changed the nature of deterrence. This paper has demonstrated that without careful diplomacy nuclear weapons may again be used in the future. Although the United States and Russia remain the most significant nuclear states due to their large holdings, it seems unlikely that any of the nuclear states will agree to disarmament anytime in the near future.

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