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NUCLEAR WEAPONS AND THE STABILITY THAT IT BRINGS

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JCSP 40

Exercise *Solo Flight*

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NUCLEAR WEAPONS AND THE STABILITY THAT IT BRINGS

By Maj C.J. Durant

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The age of nuclear weapons started when *Trinity*, the code name of the first nuclear weapon, was tested 16 July 1945. Three weeks later, two atom bombs were dropped on Japan, hastening the end of World War II.

The US maintained its new status as the sole nuclear superpower for less than five years. In 1949, the Soviets conducted their first nuclear test and the nuclear arms race started.[1] Over the subsequent years, both the US and USSR researched, developed and tested larger atomic weapons – including the hydrogen bomb in 1952[2] - and multiple mechanisms of their employment. By the late 1950s, the first Intercontinental Ballistic Missiles (ICBM) had been test launched.[3] Both countries now had sufficient arms and launching platforms for mutually assured destruction (MAD) of one another. The US, using a strategic triad of bombers, land-based missiles and sea based missiles on submarines to accomplish this feat.[4]

It was not until each side had amassed sufficient weapons to achieve a frightening level of devastation that these nations determined “enough was enough”, and new avenues were pursued to curb the arms race. The 1960s and 1970s saw a number of bilateral and multilateral treaties come into force to keep control over nuclear weapons and reduce their cataclysmic potential.

The Limited Test Ban Treaty of 1963 outlawed atomic tests in the ocean, atmosphere and space.[5] *The Nuclear Non-Proliferation Treaty* of 1968 prohibited nuclear state signatories from sharing nuclear weapons with non-nuclear states and prohibiting the

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[1] Stephen M. Younger, "MADness," *Military History* 26, no. 1 (April 2009): 47.
[2] *Ibid.*
[3] Robert P. Jameson, "Armageddon's Shortening Fuse: How Advances in Nuclear Weapons Technology Pushed Strategists to Mutually Assured Destruction, 1945-1962," *Air Power History* 60, no. 1 (Spring2013 2013): 42.
[4] Stephen M. Younger, "MADness…, 48.
[5] Stephen M. Younger, "MADness…, 49.

latter from seeking nuclear weapon development as well. This was to limit the spread of the nuclear arsenal but provide technology to all for nuclear research for peaceful, energy purposes.[6] Two bilateral agreements in the 1970s included the first Strategic Arms Limitation Talks (SALT) that encompassed two treaties: *The Interim Agreement on Offensive Weapons* which froze the number of launchers for ICBMS; and the *Limitation of Anti-Ballistic Missile Systems*, limiting potential sites for strategic missile defence to two. These were followed after seven years of negotiation by *The Strategic Arms Limitation Treaty* (SALT II) that finally sought to bring down the number of the thousands of nuclear weapons held in each superpower's arsenal.[7]

This period of time, from the start of the nuclear arms race, until the breakup of the USSR was fraught with tension and proxy wars. Then a relative if uneasy stability followed, brought on by the assurance that the risk of catastrophic loss if either of these two megaliths were to enter into conflict against one another was prohibitively great.

The political landscape since that era has shifted from bipolar, through unipolar to arguably now a multipolar world. As such, this paper will show that the US nuclear capacity is a key enabler in maintaining the balance of global stability in the 21st century. This paper will be divided into four parts. The first will discuss the question of stability and how it is to be considered for this paper. Subsequently, the different interactions between symmetric and asymmetric nuclear dyads will be reviewed to expose where conflict is most likely to occur. This paper will then discuss the arguments for and against the reduction and complete disarmament of nuclear weapons throughout the world. The

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[6] Department for Disarmament Affairs, United Nations, "Non-Proliferation of Nuclear Weapons (NPT)," last accessed 10 May 2014, http://www.un.org/en/conf/npt/2005/npttreaty html.

[7] Amy Woolf, P. Kerr, and M. Nikitin, "Arms Control and Nonproliferation: A Catalog of Treaties and Agreements," *Congressional Research Service: Report* (July 15, 2013), 4-5.

three areas of discussion, looking from the *pessimistic* point of view, present the problems of continued nuclear proliferation, nuclear terrorism, and basing national defence on a "bluff." Finally, the same three areas will be discussed from the *nuclear optimists'* point of view. First though, there is the problem of stability.

A QUESTION OF STABILITY

While the early arms race between the two superpowers was fraught with tension and reciprocal fear for the other's perceived nuclear advantage, since the 1972 SALT there has been a relative stability in the world. In particular since the advent of the nuclear age in 1945, and the abrupt end of World War II, there has not been a large-scale global war. Regional wars have arisen during this time: Korea, Vietnam, the five year long war in the former Yugoslavia, and the 1969 clash between China and USSR demonstrate conflicts still occur, but as a whole, the world has become more stable as it has also become more interconnected. John Lewis Gaddis termed this the "Long Peace" and argued this was predominately due to nuclear deterrence.[8]

Ward Wilson disagrees with Gaddis' theory, equating the theory of nuclear deterrence based solely on the lack of a large-scale war, as the cause of stability as "proof by absence."[9] Wilson cites many other probable social and economic reasons for the increasing stability in the world: exhaustion and distraction; closer economic ties; alliances; and international treaties and organizations.[10]

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[8] John L. Gaddis, "The Long Peace: Elements of Stability in the Post-war International System," *International Security*, vol. 10, no. 4, 1986, 99.

[9] Ward Wilson, "Nuclear weapons keep us safe," *Five Myths About Nuclear Weapons*, (New York: Houghton Mifflin Harcourt Publishing Company, 2013) 89.

[10] *Ibid*., 92-93.

While different views on the reasons, both authors agree that the world has achieved a semblance of global peace over the last 70 years. As the world continues to become more entwined both economically and politically, there is a serious potential for regional conflicts to create instability in the world. Conventional conflicts between neighboring countries may draw in super-powered allies or conflicts in close proximity to important shipping routes could have serious financial effects on the world markets. Thus stability is not simply the absence of world war, but the ability to solve struggles through diplomatic channels with only limited conventional conflicts.

THE TWO SIDES

Two schools of thought for a nuclear future are that of the *optimist* and *pessimist*. The pessimists are skeptical that the stability achieved between the two superpowers can be replicated amongst all the other nations with various values, regional conflicts and political dynamics. The cold war stability was based on a myriad of factors and continued proliferation will lead eventually to nuclear conflict.[11] Conversely, optimists argue that the existential threat of nuclear weapons compel nations to act extremely cautiously with even minor nuclear risk. Fearful from potential nuclear conflict, nations are dissuaded from actions that could increase the risk.[12]

With a starting point for stability and understanding the two common points of view, this paper will now briefly discuss nation dyads where nuclear power is a factor and how it affects their interactions towards one another.

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[11] David Karl, "Proliferation pessimism and emerging nuclear powers," *International Security* 21, no. 3 (97 1996): 91-92.

[12] *Ibid.*, 90.

COUPLES INTERACTION

Kenneth Waltz, a nuclear optimist argues that "the measured spread of nuclear weapons is more to be welcomed than feared."[13] He theorizes that a gradual spread of these arms is likely to promote peace as they encourage caution between nuclear opponents. James Pasley's investigation of conflict between nuclear dyads show "that nuclear dyads significantly reduce conflict escalation between states in terms of level of conflict…."[14] This is likely due to symmetrical relationships promoting significant caution and both parties preferring to seek de-escalation of the conflict. Does this stability hold when the adversaries are unbalanced in nuclear ability? The same investigation shows that it does not. The tension between asymmetric adversaries is considerably less as the non-nuclear country only has conventional means at its disposal. This in turn, can reduce the value of nuclear deterrence as the non-nuclear country may assume as long as limited objectives are pursued, the nuclear power is unlikely to respond with nuclear weapons in fear of international outrage.[15] For example, it has been argued as one of the factors for Argentina's invasion of the Falkland Islands as the Junta did not expect England to intervene militarily, and if so, that they would only do so in a limited way.[16]

Conversely, in an asymmetric dyad, the nuclear armed country may act more forcefully towards a non-nuclear entity as there is limited fear of reprisals. When the US invaded Panama to capture Manuel Noriega, they did so without the fear of potential

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[13] James F. Pasley, "Chicken Pax Atomica:The Cold War Stability of Nuclear Deterrence," *Journal of International and Area Studies*, Vol. 15, No. 2, 2008. 22.

[14] *Ibid.*, 32.

[15] *Ibid*., 33.

[16] Richard Ned Lebow, "Miscalculations in the South Atlantic: The Origins of the Falkland War," *Journal Of Strategic Studies* 6, no. 1, 1983, 7.

nuclear reprisal.[17] Potentially an invasion would not have occurred if Panama was a nuclear power.

Finally the study suggests symmetric dyads of non-nuclear countries are more likely to escalate in conflict dependent on their closeness in military capability. In these conventional instances, neither side is deterred and escalation will continue as both sides deem they have the potential to prevail. This escalation is not seen in symmetrical nuclear dyads as escalation would invariably lead to both sides losing.

This study demonstrates that the existence of nuclear deterrence amongst nations does not imply greater conflict. It does suggest though that when both nations are nuclear deterred that there is a reduced potential for conflict. It is important though to understand the other factors, outside of the immediate relationships of two states that are part of this debate.

REDUCING THE BOMB

Ban Ki Moon in 2008 as United Nations Secretary General identified weapons of mass destruction as "one of the greatest challenges facing international peace and security."[18] There is an ongoing concerted effort in creating a nuclear arms free world, achieving "Nuclear Zero". The current world, filled with nuclear *haves* and *have-nots* is unbalanced and can lead to instability. This paper will now discuss three key arguments that suggest why a world without nuclear arms would be safer and more stable. The first is that as the nuclear armed nations continue to hold nuclear weapons as deterrence, this breeds proliferation and additional instability in the form of potential arms

[17] James F. Pasley, "Chicken Pax Atomica:The Cold War Stability…, 33.

[18] Erik Gartzke, and M Kroenig, "Nuclear Posture, Nonproliferation Policy, and the Spread of Nuclear Weapons," *Journal Of Conflict Resolution* 58, no. 3 (April 2014), 396.

races and conflict. Second, there is an increased potential of terrorists managing to procure a nuclear weapon and unleashing it on the world the longer nuclear weapons remain a part of this global community. Finally, there is a perception that the US main form of strategic deterrence, its nuclear arsenal, is a bluff and thus not truly a deterrent to conflict whatsoever. It is important before discussing these issues to first discuss the NPT.

Entered into force in 1970, the NPT provides the core of the nuclear nonproliferation regime. The 190 state signatories aim at prohibiting the proliferation of nuclear weapons to non-nuclear weapon states (NNWS) and Article VI seeks to ensure nuclear states "pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament…"[19] This treaty has sought to provide stability and significantly arrest the proliferation of nuclear weapons. Brazil, Argentina and South Africa stopped their weapons programs and joined the NPT in the 1990s as NNWS and Belarus, Ukraine and Kazakhstan gave up the former Soviet weapons on their soil and joined as well.[20] The NPT is not complete in its coverage as four states remain outside of its umbrella; Israel, India, Pakistan –who never signed- and North Korea who signaled its withdrawal in 2003.[21]

The NPT though is an unusual document, as it preserves in international law the dichotomy of two sets of signatory states: those with and those without nuclear arms - and a very different set of rules for each. This in itself creates an imbalance in the world order and an inherent instability. One of the reasons there is such a push to disarm the nuclear weapon states (NWS), and have them "politically" live up to Article VI of the treaty –as

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[19] Department for Disarmament Affairs, United Nations, "Non-Proliferation of Nuclear Weapons (NPT)," last accessed 10 May 2014, http://www.un.org/en/conf/npt/2005/npttreaty html.

[20] Amy Woolf, Paul Kerr, and Mary Nikitin, "Arms Control and Nonproliferation…, 28.

[21] *Ibid.*

legally the text of the article is slightly ambiguous- is that this will reinforce the responsibilities of the NNWS to adhere to the treaty and not seek any type of nuclear weapons.

US Policy officials have pushed on both sides in the question of nuclear disarmament. Henry Kissinger, as well as a number of other officials of note has supported nuclear abolition due to the primary concern of continued proliferation. They argue the US needs to realize that "continued reliance on nuclear weapons as the principal element for deterrence is encouraging, or at least excusing, the spread of these weapons, and will inevitably erode the essential cooperation necessary to avoid proliferation."[22] Threatening tones in the US Nuclear Review also lead to potential instability as when George W. Bush contemplated using nuclear weapons preemptively on adversarial nation's chemical or biological weapon sites.[23]

Preemptive strikes are conducted against a rival nation, where both combatants possess nuclear warfare (or similar) capability. The aim of a preemptive strike is to attack before the rival nation attacks. There is also opportunity for rival countries to conduct preventive strikes during the nascent development stages when a country has started nuclear development but is unable to make an atomic weapon, or when the country is in an advanced stage and it is uncertain if the country has nuclear weapons or not. The aim of a preventive strike is to attack before the rival nation is even capable of attacking.

The first instance of a preventive strike in terms of nuclear warfare was in 1981, when Israel attacked Iraq's nuclear facility. Overall this measure is seen as having not

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[22] George P. Shultz, *et al*, "Deterrence in the Age of Nuclear Proliferation," *Wall Street Journal*, March 7, 2011.

[23] George Bunn, and J Preez, "More Than Words: The Value of U.S. Non-Nuclear-Use Promises," *Arms Control Today* 37, no. 6 (July 2007), 18.

been effective as Israel's actions have only made Iraq and other Arab states more determined in developing a nuclear weapon and their subsequent attempts would be all the more secretive.[24] This was shown to be true when it was discovered before the 1991 Gulf War how close Saddam Hussein came in developing a nuclear weapon.[25] Since then, further preventative strikes in Syria[26] and cyber-attacks in Iran have been conducted to slow the pace of nuclear proliferation. These attacks are much less likely to occur in the later stages of development though, when a preventive attack could lead to an escalation of conflict and counter attack of nuclear proportions.

There are many that believe that the continued use of this arsenal breeds proliferation as other countries attempt to rebalance the power differential. This development, routinely done in secret, is a catalyst for instability and sabre rattling. In the two recent cases of Iran and DPRK, the global community has enforced sanctions and delivered threats to prevent continued development of either a nuclear capability or the capability to launch that nuclear weapon against an adversary. It was Israeli President Benjamin Netanyahu speaking at the United Nations in 2012 who clearly articulated the potential danger posed by a nuclear Iran.[27] He suggested that in the eyes of the Ayatollahs, mutually assured destruction is not a deterrent, but an inducement.[28]

Arms races are another instigator of conflict. There was a measure of increased tension in South East Asia as the regional powers developed nuclear arsenals. India, concerned with the growing power in China due to its nuclear arsenal, refused to sign the

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[24] Kenneth Waltz, "The Spread of Nuclear Weapons: More may be Better…, 16.
[25] Christopher A Ford, "The NPT Regime and the Challenge of Shaping Proliferation Behavior," *Over the Horizon Proliferation Threats*, (California:Stanford University Press, 2012), 195.
[26] *Ibid.*, 194.
[27] Benjamin Netanyhu (speech, General Assembly of the United Nations, New York, USA, September 2012).
[28] *Ibid.*

NPT and produced a nuclear capability. In turn, Pakistan, already hesitant from the superior conventional forces held by India, achieved a nuclear capability soon after India. These arms developments were both facilitated by nuclear powers. While conflict has not exploded in that area, the potential for catastrophe in nuclear detonation is now a reality.

These examples demonstrate the inherent instability caused by nuclear weapons and their use as deterrents. Whether it is a perceived existential threat or an attempt to re-establish a power balance, nations are inclined to seek these weapons and in turn cause conflict and other destabilizing actions. Now having discussed the instability drawn from nuclear states and proliferation, this paper will consider nuclear terrorism and the threat it is to the global community.

Black-market Concerns

Nuclear terrorism is an ongoing global concern. President Obama in an April 2009 speech in Prague stated that the attainment and use of these weapons by terrorists is "the most immediate and extreme threat to global security."[29] The US is particularly concerned as Al Qaeda has attempted to procure such material and expertise multiple times. In 2002, the son of a Pakistani nuclear scientist reported to the Associated Press that his father had met with Osama Bin Laden on numerous occasions before the September 11 attacks. These discussions were about "making nuclear weapons."[30] In 2002-2003, other US reports expose that Al Qaeda was negotiating to purchase three objects they believed to be "nuclear devices." Intelligence suggested Al Qaeda leadership

[29] "Remarks by President Barak Obama," Prague, 5 April 2009; last accessed 28 April 2014. http://www.whitehouse.gov/the_press_office/Remarks-By-President-Barack-Obama-In-Prague-As-Delivered

[30] David Albright, and Holly Higgins. "A bomb for the Ummah," *Bulletin Of The Atomic Scientists* 59, no. 2 (March 2003), 53.

were given the authority to purchase these items once a Pakistani expert –unnamed- confirmed them to be genuine.[31]

As well as attempts of terrorist organizations to procure completed devices, there have also been instances of material being stolen. Based on reports from the International Atomic Energy Agency (IAEA), there have been eighteen cases of either plutonium or highly enriched uranium (HEU) being lost or stolen.[32] Included in that was the 2006 discovery of 100 grams of HEU – enriched to 89 percent – offered for sale to an undercover operative in Georgia. The Russian citizen offering the sample promised that he had another two to three kilograms.[33] Over the span of one year, from June 2007 – 2008, the IAEA reported 243 cases of nuclear material either having gone missing or been illegally trafficked.[34]

These reports suggest consistent efforts into the acquisition of nuclear material or devices for their use by terrorist organizations. Treaties and sanctions may provide cooperation or deterrence amongst nations, but these are ineffective towards non-state actors. If a terrorist organization were to acquire this threat, even without its detonation, there is serious concern of global turmoil. As the aim of terrorists is to strike terror, the ongoing threat of a potential detonation would have serious consequences and could lead to conflict and severe instability.

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[31] Rolf Mowatt-Larssen, "Al Qaeda WMD Threat: Hype or Reality?" Belfer Center for Science and International affairs, Kennedy School of Government, Harvard University (January 2010); last accessed 28 April 2014, http://belfercenter ksg harvard.edu/files/al-qaeda-wmd-threat.pdf

[32] Reshmi Kazi, "The Correlation Between Non-State Actors and Weapons of Mass Destruction," *Connections* 10, no. 4 (September 2011), 4.

[33] Michael Bronner, "100 Grams (And Counting): Notes From the Nuclear Underworld," Project on Managing the Atom, Harvard University (June 2008); last accessed 28 April 2014. http://belfercenter ksg.harvard.edu/files/100-Grams-Final-Color.pdf

[34] International Herald Tribune, "Keeping Tabs on Nuclear Material," (2 October 2008); last accessed 28 April 2014, http://www.nytimes.com/2008/11/02/opinion/02iht-ednukes.1.17444367 html?_r=0

Nothing behind the Curtain

It has been argued by some, that there would not be an instance when the US would actually use its nuclear weapons towards another nation. The US has the most advanced, and robust conventional forces on the planet. This powerful force would easily respond to a rogue nation that attacked the US or one that aided a terrorist organization in doing so. The US, as well as many other first world countries follow the laws of armed conflict, and the large scale destruction of civilian populace either through immediate detonation of a nuclear device or the fallout afterwards is not something that the US could ever contemplate. If this is true, this relegates nuclear deterrence as no more than a bluff, and a national defence strategy should not be based on a bluff.[35] This same argument was offered by Robert McNamara, Secretary of Defence under both Presidents Kennedy and Johnson, in a *Foreign Affairs* magazine published in September of 1983. He insisted that NATO abandon the threat of nuclear weapons as their threat was "totally useless" and "serve no military purpose."[36] He further admitted that in private conversations with President Kennedy and Johnson, he had recommended that nuclear weapons could not have been used "under any circumstances", and wrote "I believe they accepted my recommendation."[37] If the US continues to base their defensive strategy, and that of its allies on a bluff, they are baiting eventual attack and considerable instability in the world.

Having considered these three areas of potential instability due to continued reliance on nuclear weapons and their strategic deterrence, this paper will now discuss how these are actually maintaining global stability.

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[35] Dr Walter Dorn, conversation with author at the CF College, Toronto, Canada, 28 April 2014.
[36] "Too Powerful to Be Used." *Time* 122, no. 13 (September 26, 1983), 22.
[37] *Ibid.*

MAINTAINING A NUCLEAR DETERRENCE

States exist in a world of anarchy. Self-help is the common principle for each state to maintain its security and prosperity. When do states use force? When it is required to achieve the desired end and the cost of war is relatively low in relation to the potential gains. Nuclear arms play a significant role in this equation as they make the cost of war significantly higher than what conventional arms could do. Stable nuclear deterrence relies on three operational requirements. These include secure forces to reduce the incentive for enemies to launch a first strike, a second strike capability, and a suitable command and control structure to prevent inadvertent launches.[38]

Since the first military use of atomic weapons in 1945 on Japan, nuclear weapons have spread to a dozen additional countries. In the span of 69 years, nuclear weapons have not been used again. Kenneth Waltz, in his *The Spread of Nuclear Weapons: More May be Better,* describes the heightened cautiousness of nuclear states and the deterrent effects nuclear weapons have on conflict. He argues that "the likelihood of war decreases as deterrent and defensive capabilities increase. Whatever the number of states, a nuclear world is tolerable if those states are able to send convincing deterrent messages."[39] Adversarial nuclear nations are more cautious in dealings with one another. Upon entering the Whitehouse in January 1961, the Kennedy Administration was confronted with a previous administration's policy of nuclear deterrence as the ability to conduct a first strike nuclear counterforce attack on a Soviet conventional attack into Western Europe. Further evaluation of the policy led to a report revealing that the "counterforce

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[38] Zachary Zwald, "The Credibility Problem: Why Nuclear Proliferation is What States Make of It," *Conference Papers -- International Studies Association* (2009 Annual Meeting 2009), 2-3.

[39] Kenneth Waltz, "The Spread of Nuclear Weapons: More may be Better," *Adelphi Papers*, No. 171 (London:International Institute for Strategic Studies, 1981), 8.

strategy was deemed ineffective because even a highly destructive first strike by the U.S. would not prevent the Soviet retaliatory strike from killing over 60 million American people."[40] This in turn led the U.S government in moving towards a nuclear deterrence policy based on a credible second strike to achieve unbearable losses to the Soviet Union.

Additionally, during the Cuban Missile Crisis of October 1962, the administration debated over whether to pre-emptively strike by conventional means the Soviet missiles in Cuba .Those for the pre-emptive strike felt it would show strength and expected only a retaliatory attack to the U.S missiles based in Turkey or Berlin. Finally though the Secretary of State, National Defence Advisor and the President rejected the preemptive strike as they believed the risk of escalation too high.[41]

Limiting the use of nuclear arms was a decision made early in the Korean war as well. Originally considered as a means to equalize against massed Chinese attacks, it was decided that there were not any targets in Korea that were not susceptible to conventional munitions and use of nuclear weapons against supporting Chinese or Soviet bases could initiate a global war.[42]

In some circumstances, U.S. was supportive in the proliferation of nuclear weapons. Even after the signing of the NPT, President Carter approved shipment to India of nuclear fuel despite India's refusal to accept all the safeguards required by the treaty. In his request to congress to not oppose his decision, he stated "We must do all we reasonably can to promote stability in the area and to bolster our relations with States there, particularly those that can play a role in checking Soviet expansionism."[43]

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[40] Zachary Zwald, "The Credibility Problem: Why Nuclear Proliferation…, 30.
[41] *Ibid.*, 31.
[42] Stephen M. Younger, "MADness…, 47.
[43] Kenneth Waltz, "The Spread of Nuclear Weapons: More may be Better…, 10.

Kenneth Waltz argues that Iran's pursuit of the nuclear bomb is not for irrational conflict, but is a demonstration of the continued assertion of the Middle East to restore the balance of power that was lost in the 1960s when Israel became a nuclear state. In no other region is there an unchecked nuclear state that holds such a monopoly. While the US may be identified as an example of this, it is checked by those states –USSR and China- who can reach the US mainland. Contrary to the pundits and policy makers who argue a Nuclear Iran would be quick to either unleash their arsenal or support a terrorist organization in a nuclear attack, Waltz argues first: the Iranian regime is not irrational, and as other rational governments who have characteristically demonstrated caution once becoming nuclear states, Iran will do the same. Their intent is to provide for its own security. Recently Iran threatened to block the Strait of Hormuz after threats of additional sanctions. While verbose in their threats, they did not go ahead with their threats, likely concluding the US would have responded swiftly and overwhelmingly.[44]

Extended deterrence is an important consideration of the NPT and how NNWSs are provided security and nuclear deterrence by proxy. While not included in the NPT, many bilateral agreements have extended a "security umbrella" from the NWS to the NNWS as additional incentive against developing their own integral nuclear capability.[45] The US continued support was a strategic policy goal in the Quadrennial Defence Review of 2001. It proclaimed that "the Nation will honor [sic] its obligations and will be a reliable security partner. Through its willingness to use force in its own defense and that

[44] Kenneth Waltz, "Why Iran Should get the Bomb," *Foreign Affairs*, Jul/Aug 2012, Vol. 91 Issue 4, 3.
[45] David S. Yost, "Assurance and US extended deterrence in NATO," *International Affairs* 85, no. 4 (July 2009), 757.

of others and to advance common goals."[46] This extended deterrence, which includes positioning nuclear arms in foreign countries, achieves a number of goals. In South Korea, nuclear deterrence:

> …protects South Korea and Japan from nuclear attack, discourages their nuclear weapons development, reassures their leaders that the USA will not "decouple" its forces from the region, deters DPRK [Democratic People's Republic of Korea] nuclear alliance with third parties, compels the DPRK to return to denuclearization talks, and buttresses US power projection capabilities.[47]

This "nuclear umbrella," if put at risk through poorly planned disarmament could have unintended consequences. As voiced by Keith Payne, a defence analyst and member of the George W. Bush administration:

> The presumption that United States movement toward nuclear disarmament will deliver nonproliferation success is a fantasy. On the contrary, the United States nuclear arsenal has itself been the single most important tool for nonproliferation in history, and dismantling it would be a huge setback.[48]

The potential repercussions could be as the nuclear umbrella fades, those states that have been sheltered will lose the security provided by it. That in turn could start their own development of a nuclear deterrent dependent on any existential threat, regional or global that state may have to counter.

In many ways nuclear deterrence maintains the status quo and discourages conflict due to the catastrophic risk of escalation. Now the fears of global terrorism should be considered from a different point of view.

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[46] Department of Defense, *Quadrennial Defense Review Report* (Washington, DC: U.S. GPO, September 30,2001), 11.

[47] Richard Tanter, and P. Hayes, "Beyond the Nuclear Umbrella: Re-thinking the Theory and Practice of Nuclear Extended Deterrence in East Asia and the Pacific," *Pacific Focus* 26, no. 1 (April 2011), 10-11.

[48] Jeffrey Knopf, "Nuclear Disarmament and Nonproliferation," *International Security* 37, no. 3 (Winter2012 2012), 106.

The Black-market is Empty

Another routinely discussed threat to global stability is the non-state actor and the potential for a nuclear device to fall into their hands. There are limited mechanisms in how this would occur. An "atomic terrorist" would either need to procure a complete device either with assistance from a nuclear state or steal one, or the terrorist organization would need to procure the component parts and build it themselves. Stephen Younger, the former head of nuclear weapons research at Los Alamos National Laboratory says "regardless of what is in the news, all nuclear nations take the security of their weapons very seriously."[49] An attempt to steal a device would be immediately noticed and measures including "finished bombs have been outfitted with devices that will trigger a nonnuclear explosion that will destroy the bomb if it is tampered with"[50] have been conceived to protect these devices from getting into the wrong hands. States assisting terrorists is unlikely to occur as nuclear forensics, a rapidly developing science, would likely be able to trace the material back to its source even after a nuclear explosion.[51] Initially there was great fear that the breakup of USSR would leave unprotected devices in Ukraine, Kazakhstan and Belarus. The US Department of Defence in 1991 diverted funds to support these countries in the transport and dismantlement of these weapons.[52] Residual risk from these sources of nuclear weapons is now extremely low, as those

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[49] Stephen M. Younger, *Endangered Species: How We Can Avoid Mass Destruction and Build a Lasting Peace* (New York: Ecco, 2007), 93.

[50] John Mueller, "The Atomic Terrorist," Chapter 8 from *Nuclear Proliferation and International Order*, (New York:Routledge, 2011), 129.

[51] *Ibid.*, 128.

[52] Amy Woolf, P. Kerr, and M. Nikitin, "Arms Control and Nonproliferation…, 20.

"…bombs, all built before 1991, are difficult to maintain and have a lifespan of one to three years after which they become radioactive scrap metal."[53]

Stealing the components of a device for eventual construction is an extremely challenging feat as well. Two main constituents of the process, uranium and plutonium require complex preparatory machining processes. Younger explains that uranium is "exceptionally difficult to machine," and "plutonium is one of the most complex metals ever discovered, a material whose basic properties are sensitive to exactly how it is processed."[54] The knowledge and equipment to manufacture these devices are also generally well controlled. Even Pakistan, synonymous with "terrorism" maintains a close watch on all of its nuclear scientists, even after their retirements.[55]

The protective measures put in place by nuclear states and the technological requirements to build a bomb make the risk of instability resulting from a non-state actor extremely low. Now the final consideration is that of the "bluff" and what kind of deterrent it is.

Conventional versus nuclear thinking

Pessimists consider the threat of use of the US nuclear arsenal a bluff. This hypothesis is based on conventional thinking. In a conventional world, states may attack another when the expectation of success is probable. In a nuclear world though, states are only likely to attack if success is certain. It is the *potential* that retaliation may occur that deters the aggressor. So this creates an all or nothing situation where states are hesitant to attack when their success cannot be assured. This nuclear deterrence rings true for the smaller or relatively weaker nuclear powered states as well. In these cases, with a smaller

[53] John Mueller, "The Atomic Terrorist…, 128.
[54] *Ibid.*, 133.
[55] *Ibid.*, 132.

conventional force, the nuclear deterrence is even more so believable as their conventional forces could be lost so quickly. They are more prone to use their nuclear arsenal to ensure their survival, thus increasing the deterrence to would be attackers.[56]

CONCLUSION

It is nuclear weapon's significant punitive nature that makes it easy to understand why they are commonly thought of as that of a deterrent. The goal of deterrence is to dissuade an adversary from initiating an action through threatening a both highly credible and punishing response. [57] This paper has discussed a number of the arguments for and against the US maintaining nuclear deterrence as one of the mechanisms to promote stability in the world.

Many suggest that the continued use of nuclear weapons by the NWS promote proliferation and instability. That many nations, perceiving an imbalance in power, will work to re-establish that power difference through the development of nuclear weapons. This paper has shown though that the NPT has significantly slowed proliferation, and it has only been those nations, tangentially supported by NWS that have achieved a nuclear arsenal. This slow spread of nuclear arms has not developed into serious inter-state conflict, and the continued use of extended deterrence has kept many other nations from developing nuclear weapons. Thus this use of nuclear weapons *has* maintained stability amongst nations.

There is also the wide spread concern that terrorist organizations are seeking weapons of mass destruction and will not be dissuaded by nuclear deterrence as rational

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[56] Kenneth Waltz, "The Spread of Nuclear Weapons: More may be Better…, 22.
[57] James F. Pasley, "Chicken Pax Atomica:The Cold War Stability…, 26.

nation states are. This is a valid concern that the intention exists to achieve this terrible action. That there have been instances of stolen nuclear material, attests to the veracity of this concern. It is the safeguards emplaced though by cautious nuclear nations and actions by international agencies that makes the likelihood of a terrorist organization ever getting their hands on a functioning device, that they can initiate, so very negligible. Continued dedication in safeguarding the devices, material and knowledge of the use of nuclear arms is paramount to maintain security.

Finally the idea that the US would never actually use nuclear weapons either in retaliation to an attack, existential or not, is only a theory. That the conditions have not yet occurred to force the requirement for the US to act in that way does not mean it could not happen. It is that *unknown*, that uncertainty, that differentiates nuclear thinking from conventional thinking. Only absolute certainty in a complete successful attack would overcome the nuclear discouragement that deters all other eventualities. This deterrence, extended over the allies of the US, and towards all NNWS signatories of the NPT support the continued stability of the world.

These cases point to a continued requirement for the US to maintain a nuclear deterrent in the 21st century. The continued work to continue the reduction of the global number of nuclear weapons must be closely synchronized with all NWS, and other conventional deterrents must be found to provide the security nuclear weapons currently offer is this world is to move to a “Nuclear Zero”.

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