RETHINKING THE OPTIMISTS' VIEWS: THE UNDESIRABILITY OF THE ELIMINATION OF NUCLEAR WEAPONS

*Wazeer Murtala, Researcher of International Relations and Defense Studies, Antwerpen 2000, Belgium. wazeerr@gmail.com

Abstract:

This essay is a moderate attempt to understand some of the conflicting and complementary positions on nuclear weapons. It argues that the attempt to eliminate nuclear weapons deserves a rethought and may be counter-productive due to the nature of international politics. It posits that to maintain the delicate stability or avoid global wars where capitals of super and great power states will be besieged, nuclear deterrence is the only option we have. It goes further to stress that apart from the strategic usefulness of nuclear weapons, its dual usefulness is also noteworthy – a function that is largely dismissed by pessimists of nuclear Weapons even if it is seen to be of less importance than the former.

Key words: Nuclear Weapons, Neo-realism, Deterrence, Strategy and International Security

Introduction:

Several thematic positions have emerged over the course of the seven decades since the first and last nuclear weapons were actively used in a warfare. There is the school of thought that calls for the abolition of nuclear weapons due to its sheer destructive capability and the long term

impacts it holds for the whole of humanity (Schell, 1982) or because the presumed benefits of nuclear deterrence is a "myth" (Ward, 2008 and Mueller, 1988) and more recently, due to humanitarian initiatives (Sauer and Pretorius, 2014). Those who believe a nuclear-free world is achievable and in fact, should be desirable routinely argue that it poses a lot of danger. The opposing view is that, nuclear weapons as a weapon of deterrence is beneficial for the international system and in fact, nuclear deterrence is credible because it removes uncertainty about the cost of victory in a total war (Waltz, 1995).

Professor Sauer (1998) puts it more elaborately in what appears to be an attempt to bridge the two conflicting arguments above when he avers that "in some cases nuclear weapons may bring about a stabilizing effect… nuclear deterrence may also promote instability. In any case, nuclear weapons are no universal remedy to prevent violent conflicts." (Sauer, P. 62).

Identifying these various positions may appear easy, yet we should be careful to understand the complexities of these various positions. Among those who campaign for a nuclear weapons-free world are those who see it as a desirable, but difficult to achieve and somewhat unfeasible. There are others still within this camp, who think eliminating nuclear weapons is achievable and we should focus on nuclear regimes that will eventually and totally ban the abominable weapon. Some of those who hold this view have cited South Africa as an example of how nuclear weapons can be dismantled, and the continent of Africa as a role model in having a nuclear weapons-free world[1]. These two sub-sets of similar schools of thought may be classified as motivated by *idealism* as the guiding principle of the international system. At the opposing end are those who argue for maintaining nuclear weapons due to *realist* considerations such as deterrence. While this is a simple way to describe the paradigm, I take a different theoretical approach as will be seen under the next sub-heading.

[1] For a detailed understanding of the treaty that ensures Africa became a nuclear-weapons-free zone, see the treaty of Pelindaba.

Theoretical Framework

This research is rooted in the two variants of political realism as they are currently delineated. it combines between classical realism and neo-realism. From the former, as popularly explained by Morgenthau (1948); the very nature of humans and the natural state of being that encourage competition for scarce resources have made the need for power an important requirement for survival and maintenance of interests. Political leaders across the world are motivated by competition for dominance and access to resources. To ensure their survival, it is important to maintain a credible power status relative to other competitors.

Structural realism focuses on the nature of the international system as the first motivation for states to maintain credible power because the international system is anarchical. In a world, where the interests of states clash, it is important for states to use credible power or force to enhance their safety and to ensure protection whether defensively as noted by Kenneth Waltz (1990) or offensively as popularised by John Mearsheimer (2001). Generally, "the idealists will be satisfied by disarmament; the realists, by deterrence" (Wieseltier 1985). More explicitly, eradicating nuclear weapons has been described as *idealistic* by Peter Wilson (2011).

I posit that maintaining the nuclear arsenals of states in an otherwise anarchical international system as explained through neo-realism will help us to create a stable world. The fear of mutual nuclear destruction will force the political actors to work together via institutions because international actors are largely rational and would not pursue their interests at the expense of their survival which is made possible at the moment by nuclear weapons and second-strike capabilities. In other words, the (neo-) realist position can be used as an instrument to achieve the institutionalists' *ideal* world. Contrarily, without nuclear weapons and deterrence, we are wont to face industrial scale wars.

Why a Nuclear Weapon-Free World may be Undesirable?

A discussion that sees the elimination of nuclear weapons as undesirable might seem cynical to traditional idealists in their understanding of

international relations. However, the maintenance of the weapon serves various positives beyond what anti-nuclear weapons analysts might envisage. For convenience purpose, I have classified the merits of nuclear weapons into two broad parts. These are:

(i) Military/Strategic purposes and
(ii) non-strategic dual (use) purposes

The Strategic Importance of nuclear weapons

The strategic importance of nuclear arsenals focuses on the military aspects of the weapon and all the advantages attached to it. The most significant of these strategic advantages is nuclear deterrence. Deterrence generally has been one of the natural balances in how states relate politically among themselves from the periods of classical city-states to the modern period. Deterrence can be described essentially as a situation whereby an actor prevents being harmed by another actor through a display of credible threats of reprisals (Morgan, 2003).

The phrase 'nuclear deterrence' became popular after the second world war when Brodie *et al*. (1946) wrote their *The Absolute Weapon: Atomic Power and World Order.* It has since been more refined and explained by other scholars. Accordingly, nuclear deterrence can be explained as the capacity to stop another state from initiating an attack by maintaining a nuclear arsenal that would make the aggressor consider the potential damage they may suffer if such attacks were carried out[2]. Hence, the possibility of initiating an attack becomes unlikely. Nevertheless, nuclear deterrence has come under attacks by pessimists. Invariably, scepticism about nuclear deterrence as expressed by Ward (2008) who calls nuclear deterrence a 'myth' can also be arguably extended to all forms of deterrence with conventional weapons which they seem to have no problem with. Nuclear deterrence works like all other forms of deterrence, but with additional capabilities and leverages and of course, more values and risks.

[2] This type of asymmetrical nuclear deterrence is a situation whereby one of the two sides have nuclear capability while the other does not.

In retrospect, the (un)usefulness of the weapons in Hiroshima and Nagasaki, and in the light of new evidence, I concede that a number of factors are responsible for the surrender of Japan in the second world war and it would be an analytical error to think that nuclear weapons alone would have been responsible for the victory against Japan. As such, a mono-causal explanation that portends that nuclear weapons won the war against Japan is exaggerative on the part of early optimists.

While we can talk about international institutions as playing good roles in sustaining peace, we should not be too quick to downplay the roles of nuclear weapons in this stability especially between potentially belligerent great power or medium power states. The very fact that we have had series of talks surrounding reduction of nuclear weapons through bilateral treaties between USA and USSR/Russia indicates the strategic importance of nuclear weapons in their political relations and reinforces the idea that states are rational actors. It demonstrates that, in extreme security cases like the famous Mutually Assured Destruction (MAD) understanding, states would be willing to work together – a situation that may not be possible with conventional weapons. Essentially, we may ask that if nuclear weapons have not played significant roles, why then have they been at the centers of certain talks to the extent that, there was a direct hotline and contact between the USA and USSR in the wake of the 1962 Cuban missile crisis? Nuclear weapons and the sophisticated deployment systems that allow for second-strike capability have raised the costs of war today. The stakes of a major global war are just too high, and the possibility of senseless military adventures is low except where the costs are expectedly cheap.

The Perceived Failures of Nuclear Deterrence vs Conventional Weapons

When we look at the 'failure' of deterrence between nuclear states and non-nuclear states, it is instructive to also analyse them through the types of strategic objectives that are involved – or based on the general assumptions embedded in the rational choice theory. Hence, the perceived failure of nuclear deterrence should be linked to the strategic objectives to

be achieved and how important these strategic objectives are to the two sides. For the purpose of a simple analysis, we can identify three broad types of strategic military objectives as done below:

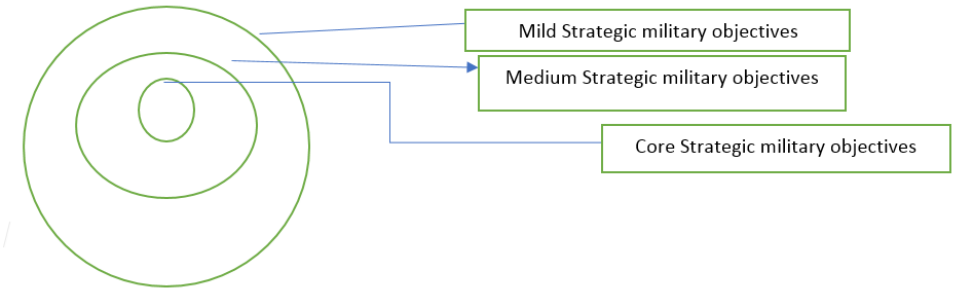


Fig.1 Classification of military objectives into three main typologies.

Mild strategic objectives: are military objectives that are desirable, but not central to the existence of a nation states, but merely contribute to their prestige and standing in the system. For example, it would not be strategically possible for the United States to deploy or use nuclear weapons to advance democracy abroad or to enforce regime change in Syria under Bashar Assad even though they might send troops for limited operations. Whereas, for the regimes, they would continue to resist the United States despite her nuclear strength because their regime survival represents a core strategic value to them. Largely, this is based on the rational assumption that states are primarily concerned with their own survival and not necessarily concerned with other desirable objectives that do not constitute a threat to their immediate existence, but somewhat prestigious.

Medium Strategic objectives: are military objectives that are stronger than mild strategic objectives. They may trigger war in some cases but are not strong enough to lead to a deployment of nuclear weapons. For example, the annexation of Crimea by Russia would not be expected to lead a deployment of nuclear weapons by the United States of America.

Core Strategic objectives: are military objectives that are highly likely to lead to nuclear strikes as the last resort. Examples may include an attack on the capital of another nuclear-state by an aggressive nuclear state or non-nuclear state. In principle, this level of analysis assumes that North Korea would not strike at the mainland United States pre-emptively. However, if there is a danger such as a land invasion towards Pyongyang, the North Korean leadership would resort to nuclear exchanges (this is hypothetical scenario is highly unlikely due to nuclear deterrence, but possible with conventional weapons e.g. the invasion of France by Germany in WW2, and the invasion of Saddam's Iraq in 2003).[3]

In an asymmetrical war fare, nuclear diplomacy may not have found usefulness in trying to avert further hostilities or achieve other strategic means. For example, pessimists have argued that maintaining nuclear weapons did not coerce or deter Vietnam (second Indo-China war) and Argentina (Falkland war) from fighting against their nuclear-armed adversaries. Professor Sauer (2018) for example states:

> There are several historic examples of nuclear armed states (Israel, India, the UK) that have been attacked by non-nuclear or nuclear armed states, at times more than once. These are categorical failures of nuclear deterrence theory and practice. Believing in the effectiveness of nuclear deterrence is just that: a belief or even a religion (nuclearism as Robert Lifton called it).

The perceived failure of nuclear deterrence in asymmetric war situations; where non-nuclear states have engaged in wars against nuclear states can be analysed if we factor the military objectives into different categories of strategic importance as I have tried to assess above. For example, the risk of defending a mild strategic objective such as regime change in Syria

[3] These classifications are just an analytical attempt to understand the perceived failure of nuclear deterrence. They are areas of analysis that could be explored further.

(Bashar Assad) or Venezuela by Russia (Nicolás Maduro) against the United States of America (Juan Guaidó) in the recent crisis is highly unlikely to lead to the deployment of nuclear forces because the overall strategic objectives are not worth the stakes as we would adjudge under the principle of rational choice theory. The same can be said in terms of defending foreign territories such as England in the Maldives, and USA during the Chinese civil war[4] or enforcing compliance with certain international laws as situations that would not rationally lead to deploying nuclear weapons. When the non-nuclear weapon states recognise this phenomenon, they would not feel deterred for three main reasons:

(i) the objective to be achieved by them is a core strategic objective while
(ii) it is a mild strategic objective for the invading nuclear power and
(iii) the possibility of nuclear states using nuclear weapons in low stakes situation is limited because of the enormous costs it involves and the element of proportionality.

In fact, Mao Zedong seemed to have understood this strategic dilemma when he referred to USA's possibility of a nuclear strike on the communist forces as a "paper tiger" attempt. Conversely, Mao Zedong would not have doubted the possibility of a nuclear strikes on his forces, if he was to have initiated a direct attack on Washington – a core strategic objective under the classification above.

Absence of Global Wars

It is traditional for states in the international system to seek to advance their interests through cooperation when there is power symmetry or confrontation when there is power asymmetry, but nuclear symmetry has made the likelihood of total wars between two nuclear-armed states very impracticable thereby placing a restraint on the likelihood of wars. For example, there may be armed skirmishes between China and USA in the

[4] "*....the cost of an all-out effort to see Communist forces resisted and destroyed in China...would clearly be out of all proportion to the results to be obtained*" See: note by George Marshall, the US' Secretary of State (January 30, 1948)

future, but the likelihood of either of the two invading each other's capital is improbable unlike how Hitler invaded Paris in the Second World War. The credibility of the idea that deterrence through nuclear weapons is desirable is somewhat supported by the absence of major or direct wars between the two nuclear power states as evidence in the politics of cold war between the USSR and USA. Instead, as rational actors (according to the neo-realist perspective), the two super-powers invested their diplomatic energies in bilateral talks to avoid a direct confrontation due to the realisation that an outright nuclear war may lead to a lose-lose situation for the two sides.

Even, in the heat of the near-collision of the cold war-era, when Mao Zedong referred to USSR as chickening and bowing out to the 'imperialist' USA's paper tiger weapon, Kruschev replied, "…the paper tiger has a nuclear teeth" (Madera Tribune, 1962: 1). In essence, the two sides were forced to avoid direct confrontations because a war of such magnitude would have been too expensive and the goal is not worth it. Consequently, there was the initiation of a series of bilateral agreements such as SALT, SALT II and START between the United States of America and the Soviet Union which gives more credibility to the idea that states are rational actors despite the *reality* of the international system being anarchical. Using a relevant type of game theory, we can understand the lack of the possibility for a nuclear war and its usefulness in maintaining relative global peace which would not have been possible without it.

Actor A

Actor B	Lose, Lose	Win, Win
	Win, Win	Lose, Lose

Nuclear deterrence where countries with second strike capabilities are involved

Fig. 2

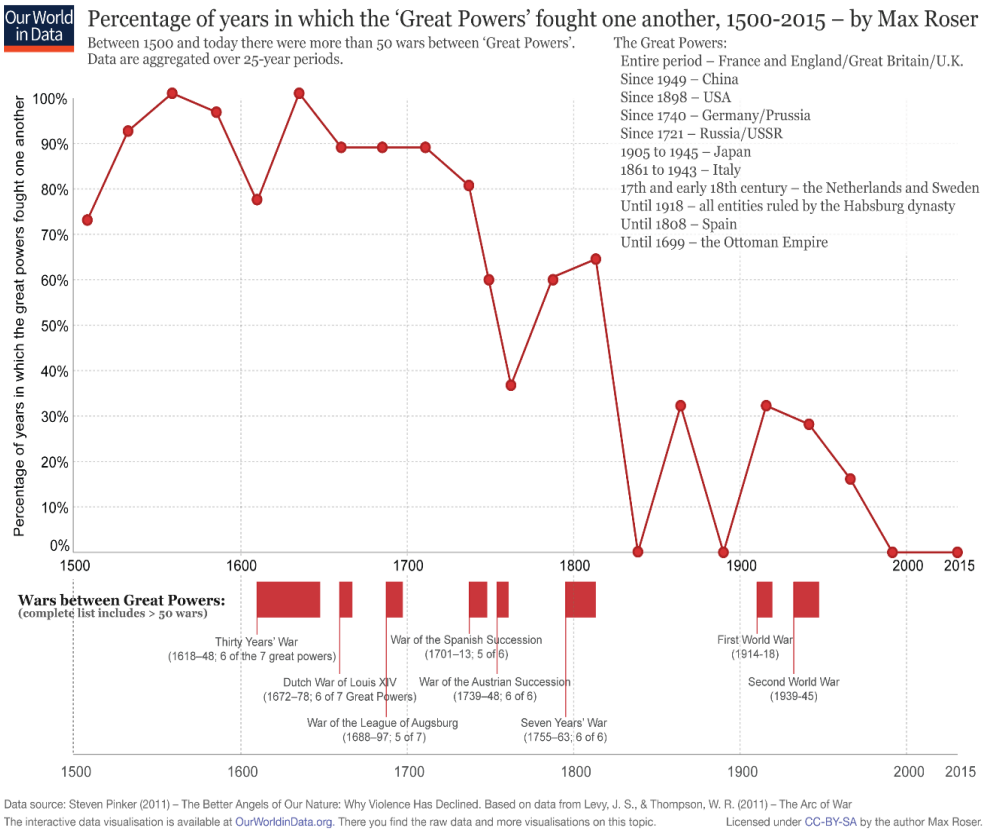
The traditional (conventional) balance of power through alliance system in Europe has been extensively discussed by many historians as

both a condition that guaranteed peace and had the potential that could lead to wars. While it was able to preserve peace in some cases, it was unable to maintain peace in the periods leading to the first and second world wars. One of the primary reasons for this maybe the chances of states turning the chances of victory around by re-allying with other states or by increasing their military might through conventional assets, with nuclear weapons, and a minimum capability, there would be no need for such alliance system thereby giving us more stability without collective alliance.

With the dawn of nuclear weapons and the breakthroughs in missile system which make second-strike capabilities possible, the traditional BOP can be seen as evolving into has been referred to as the balance of terror as was the case between USSR and USA during the cold war. In principle, the price of initiating a war simply became too costly. With this, military adventurism that could lead to a total war became impossible among nuclear states. The absence of a total global war among great powers since the nuclear age may support the postulation that nuclear-weapons among other factors like diplomacy, international institutions and collective security have helped to support a relatively stable system.

What Could a World Without Nuclear Weapons look like?

What inter-state relations in a world without nuclear weapons might look like can already be assessed based on a comprehensive analysis of the rise and fall of states prior to the second world war. Despite the fact that the League of Nations existed, the *institution* still failed to stop the outbreak of the second world war. This failure of the League of Nations suggests that international institutions alone may not guarantee peace among states with significant asymmetry in terms of power. Contrarily, total wars among great powers have not occurred considerably well since the dawn of the atomic age even though there have been proxy wars and a pocket of other conflicts.



Source: Stephen Pinker (2011)

Another question that pops up is 'would it have been easy for the USA-led coalition to invade Iraq and depose the regime, thereby creating a haven for terrorists, if Iraq had the capability to enforce deterrence through limited nuclear weapons?' This is a big question to answer. In a simple class survey, I asked fellow postgraduate students[5] two questions that were

[5] These are postgraduate students who are sufficiently informed about the subject of proliferation and nuclear disarmament.

aimed to gauge their views about nuclear weapons and its deterrence value based on the 2003 invasion of Iraq. The survey questions are:

I. Do you think the USA would have invaded Iraq in 2003 despite the disapproval from the United Nations if Iraq had nuclear weapons with ICBM delivery capability that is enough to reach Washington?

II. Do you think the collapse of Saddam's regime is one of the major reasons for the current instability in the region
? (emergence of a group like ISIS and other post-Saddam skirmishes)

Do you think the USA would have invaded Iraq in 2003 despite the disapproval from the United Nations if Iraq had nuclear weapons with ICBM delivery capability that is enough to reach Washington?	Yes	No
Result	41.67%	58.33%

Do you think the collapse Saddam's regime is one of the major reasons for the current instability in the region?	Yes	No	Unanswered
Result	75%	20.83%	4.17%

Table. 1.

41.67% of the total respondents think the United States of America would have still invaded Iraq even if the country had the capability to lunch a successful counter-attack against Washington. One of the significant observations here is that, these individuals could be seen as believing the view that nuclear deterrence has no importance. In contrast, a majority of the respondents, at 58.33% think that nuclear deterrence would have been credible enough to dissuade the United States from attacking Iraq in 2003. This latter view is consistent with the theoretical position and understanding of nuclear deterrence as having a positive value for

stability. In the second question, 75% of the respondents think that, there would not have been a chance for instability by ISIS in Iraq if Saddam Hussain had not been toppled by the USA, while 20.83% of them think that the current instability does not have to do with the vacuum created by the toppling of Saddam Hussain.

Non-Strategic Use of Nuclear weapons (Dual Use)

For simplicity 'dual-use' can be described as "items with both civil and military applications" (Filippo et al. 2018). The idea that nuclear weapons can indeed be brought into the dual usefulness discourse may appear somewhat controversial, but nonetheless considerable[6]. This is due to their potential for other usefulness outside the traditional military engagements with or without elaborate reconstruction of the weapon systems.

Although there have been various debates surrounding the strategic and military use of nuclear weapons as moderately discussed above, surprisingly, the dual usefulness of the weapon has not received a lot of attention. The reason for this is due to it being secondary in nature and the potential existence of alternative means that serve the same purposes. However, this does not mean that we should overlook other dual functions of nuclear weapons.

The dual usefulness has been discussed under the Peaceful Nuclear Explosion program (PNE) of the United States of America and under the Soviet Union's Nuclear Explosion for National Economy.

Stimulating hydro-carbon production: One of the civil uses of nuclear weapons is for stimulating hydro-carbon production. Patented by Nordyke

[6] Other commentators may object to this idea by arguing that nuclear weapons, like (nuclear-capable) missiles for example cease to be 'weapons' the moment they are deployed for non-war related operations such as for meteorite deflection as projected by NASA. to counter this argument in this regard, it is expedient to note that even though the primary function of nuclear weapons is for military purposes, using them for meteorite deflection for example does not seem to require an elaborate redesign. As such, they can be safely still referred to as weapons. In this case the importance here largely has to do with their explosive capacity.

in the United States of America, the procedure allows for blasting of resource rich areas to stimulate production of petroleum. The idea is to "… provide a method for stimulating production of petroleum hydrocarbons from a low-permeability formation wherein a plurality of nuclear explosives devices are emplaced in a single borehole and are generally detonated sequentially to increase the permeability of the formation". (Nordyke, 1972:4). In 1965, the Soviet Union was able to explode 2.3 kiloton of nuclear weapon to the same effect of inducing oil flow and it succeeded. In 1976, Project Neva on the Sredne-Botuobinsk gas field by the Soviet Union was successful, but the programs were largely cancelled due to risks, economist costs and socio-political resentments.

Although several of the PNE projects were abandoned for various reasons, it would be naïve and defeating to suggest that there may not be other potential peaceful uses for nuclear weapons in the future given the continuous expansion of human creativity and scientific enquiries.

*Terraforming***:** Another daring suggestion for the usefulness of nuclear weapons is the possibility of terraforming other planets such as Mars. Although the project has been theoretically assessed by many scientists as risky in some ways and less likely, it nevertheless represents one of the potential alternatives uses of nuclear weapons. According to some experts, the technic is to induce an atmospheric change through nuclear-winter that will eventually lead to stimulating friendly atmosphere that could support life.

Particle Accelerator: In the field of physics, scientists such as Russia's Andrei Sakharov, United States of America's James Van Allen among other prominent scientists have proposed how nuclear explosions could be used to create particle accelerators and mitigate earthquakes[7] as well in the understanding of Earth's magnetosphere.

[7] For technical and scientific explanations, see: Sakharov, A. D. (1966). "Magnetoimplosive Generators". Soviet Physics Uspekhi. 9 (2): 294–299. doi:10.1070/PU1966v009n02ABEH002876

Nuclear Explosion for Propulsion: The potential use of nuclear explosion for propulsion[8] is also under research. When this becomes successful, propulsion from nuclear blasts would be pivotal in deep space probing which would be admirable feats for humanity.

Asteroid Impact Avoidance: Another proposed usefulness of nuclear explosion is asteroid impact avoidance. The basic idea behind this proposal is to use nuclear weapons and its sheer explosive capability to avert potential collision of asteroid on earth. According to NASA (2017), "Nuclear standoff explosions are assessed to be 10–100 times more effective than the non-nuclear alternatives" in the case of destroying or mitigating the impacts of a potential asteroid on our planet – a potentially precarious situation.

Conclusion

Achieving peace through nuclear proliferation is admittedly a type of uneasy peace, but that is the only peace we must manage for now due to the *realistic* nature of political leaders and the nature of the international system with its chaotic history. Nuclear weapons and delivery methods of second-strike capabilities have created a level-playing ground for states that would not have had a chance with conventional weapons in an anarchic international system. To take nuclear weapons off the table while others continue to enjoy capabilities in other strategic areas such as power projection, missiles and space race is like denying a Cobra of its venom while the Mongoose keep its non-venomous sharp teeth – it is unfair for the latter. Similarly, nuclear weapons are the only way to ward off hegemonic unilateralism that would not have been stopped by multilateralism or institutions. The Bush doctrine of 'if you are not with us, you are against us' or the shredding of the of the Iranian nuclear deal by Donald Trump and the continuous expansion of NATO into Russia's buffer states are all recent indicators of the failure of multilateral institutions in the face of US hegemony.

[8] For a more detailed explanation, see: General Dynamics Corp. (January 1964). "Nuclear Pulse Vehicle Study Condensed Summary Report (General Dynamics Corp.)" (PDF). U.S. Department of Commerce National Technical Information Service

Admittedly, new found peace and prosperity in an economically integrated Western Europe of the 21st century and the absence of a major global war since 1945 cannot be single-handedly attributed to the presence of nuclear weapons, but as alluded to earlier, nuclear weapons have played a stabilizing role in some cases. Since international politics is not predictable, it is safe to suggest that nuclear weapons could still play strategic roles in the future. In a way, for medium power states, eliminating nuclear weapons would not make the prospect of wars less likely, if anything, it makes them vulnerable to potential hegemonic aggression on trump-up allegations and pretexts. The unilateralism of the USA is worrisome and its strategic advantage in terms of dominance with conventional weapons makes the need for nuclear weapons more attractive.

Finally, of all the arguments against the contemporary relevance of nuclear weapons, the humanitarian position is the strongest. Nevertheless, it does not look credible enough due to the many failures of our multilateral institutions which have been called "toothless" (Falode, Yakubu & Britto, 2018:24).

References:

Adamsky, V., & Smirnov, Y. (1994). Moscow's Biggest Bomb: The 50-Megaton Test of October 1961.*Cold War International History Project Bulletin*, *4*(3).

Doyle, J. E. (2013). Why Eliminate Nuclear Weapons?. *Survival*, *55*(1), 7-34.

Hans M. Kristensen and Matt Korda (2019) Section VI Nuclear Weapons Effects Technology II-6-28. Federation of American Scientists.

King, R. R. (2018). A "Libyan Model" for North Korean Denuclearization? *Centre for Strategic and International Studies.* Retrieved from https://www.csis.org/analysis/libyan-model-north-korean-denuclearization.

Mary Martin and Jim Drennan (1962, December 12,). "VS. Tiger Has Atomic Teeth' Khrushchev Blasts Chinese" *Madera Tribune*, Volume 71, Number 150,

Mearsheimer, J. J. (2001).*The Tragedy of Great Power Politics*. New York: WW Norton & Company.

Morgan, P. M. (2003). *Deterrence now*. (Vol. 89). Cambridge [England] ; New York: Cambridge University Press.

Morgenthau, H. J. (1948). *Politics Among Nations: The Struggle For Power and Peace fifth edition, revised*. New York: Alfred A. Knopf Inc.

Mueller, J. (1988). The essential irrelevance of nuclear weapons: Stability in the postwar world. *International Security*, *13*(2), 55-79.

National Aeronautics and Space Administration (NASA) (2007). *Near-Earth Object Survey and Deflection Analysis of Alternatives Report to Congress*. Retrieved from https://www.nasa.gov/pdf/171331main_NEO_report_march07.pdf

Nordyke, M.D. (1972). *Nuclear Explosive Method for Stimulating Hydrocarbon Production from Petroliferous Formations.* United States Atomic Energy Commission. *Patent No. 3,688,843*. Washington, DC: U.S. Patent and Trademark Office.

Sauer, T. (1998). *Nuclear arms control: Nuclear deterrence in the post-cold war period*. London: Macmillain Press LTD.

Sauer, T. (2016) 'Missile defense as an alternative to nuclear deterrence ?', In: Sverre Lodgaard, *Stable Nuclear Zero: The Vision and Its Implications for Disarmament Policy*. Taylor & Francis. pp.95-110.

Sauer, T. (2018). Whether you like it or not, the Nuclear Ban Treaty is here to stay: a reply to Brad Roberts. *European Leadership Network (ELN) commentary*.

Sauer, T., & Pretorius, J. (2014). Nuclear weapons and the humanitarian approach. *Global Change, Peace & Security*, *26*(3), 233-250.

Schell, J.(2000). *The Fate of the Earth and The Abolition*, Stanford University Press.

Sevini, F., Charatsis, C., Novau, X. A., Stringa, E., Barrero, J., Lequarre, A. & Michel, Q. (2018). Emerging Dual-Use Technologies And Global Supply Chain Compliance. *IAEA Symposium on International Safeguards*.

Yakubu, M., Falode, A. J., & Britto, R. (2018). 'The Pitfalls of Unilateralism: The United States in Syria' - *Global Journal of Human-Social Science. F Political Science*, *18*(5), 8-17.

Waltz, K. N. (1995). More may be Better'in Scott D. Sagan and Kenneth N. Waltz. *The Spread of Nuclear Weapons: A Debate*.

Wilson, W. (2008). The myth of nuclear deterrence. *Nonproliferation Review*,*15*(3), 421-439.

Zedong, M. (1946). Talk with the American Correspondent Anna Louise Strong. *Selected Works of Mao Tse-tung*, *4*, 97-101.