Nuclear capability, bargaining power, and conflict

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AN ABSTRACT OF A DISSERTATION

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Abstract

Traditionally, nuclear weapons status enjoyed by nuclear powers was assumed to provide a clear advantage during crisis. However, state-level nuclear capability has previously only included nuclear weapons, limiting this application to a handful of states. Current scholarship lacks a detailed examination of state-level nuclear capability to determine if greater nuclear capabilities lead to conflict success. Ignoring other nuclear capabilities that a state may possess, capabilities that could lead to nuclear weapons development, fails to account for the potential to develop nuclear weapons in the event of bargaining failure and war. In other words, I argue that nuclear capability is more than the possession of nuclear weapons, and that other nuclear technologies such as research and development and nuclear power production must be incorporated in empirical measures of state-level nuclear capabilities. I hypothesize that states with greater nuclear capability hold additional bargaining power in international crises and argue that empirical tests of the effectiveness of nuclear power on crisis bargaining must account for all state-level nuclear capabilities.

This study introduces the Nuclear Capabilities Index (NCI), a six-component scale that denotes nuclear capability at the state level. Through an annual, monadic examination of 193 states over 72 years, this study endogenously describes state-level nuclear capability and exogenously compares those results to dyadic conflict depicted in the Militarized Compellent Threat (MCT) and International Crisis Behavior (ICB) datasets, to determine whether a finer examination of nuclear capabilities would yield different results. This study found that higher NCI states, whether challenger or target, are victorious in four of every five conflicts and that higher NCI states are twice as prone to initiate conflict.

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List of Acronyms

AEC	Atomic Energy Corporation
AEET	Atomic Energy Establishment, Trombay
ANC	African National Congress
CIRUS	Canada-India Reactor, United States
CIR	Canada-India Reactor
CTBT	Comprehensive Test Ban Treaty
DMZ	Demilitarized Zone
DS	Delivery System
FNLA	National Front for the Liberation of Angola
GDP	Gross Domestic Product
HEU	Highly Enriched Uranium
HRC	Highly Enriched Uranium Refinement Capability
IAEA	International Atomic Energy Agency
IAEC	Indian Atomic Energy Commission
ICBM	Intercontinental Ballistic Missile
ICB	International Crisis Behavior
IDF	Israeli Defense Force
IPFM	International Panel on Fissile Material
ISI	Inter-Service Intelligence Agency
JeM	Jaish-e-Mohammed
LiT	Lashkar-i-Toiba
LOC	Line of Control
LTTE	Liberation Tigers of Tamil Eelam
MCT	Militarized Compellent Threat
MPLA	Popular Movement for the Liberation of Angola
NAM	Non-Aligned Movement
NCI	Nuclear Capabilities Index
NCTBT	Non Comprehensive Test Ban Treaty
NEFA	North East Frontier Agency

NNPT	Non Non-Proliferation Treaty
NPT	Non-Proliferation Treaty
NPP	Nuclear Power Plant
NRF	Nuclear Research Facility
NSSM	National Security Study Memorandum
NWP	Nuclear Weapons Program
NW	Nuclear Weapons and Testing
OAU	Organization of African Unity
PFLP	Popular Front for the Liberation of Palestine
PLDC	Palestine Land Development Company
PLO	Palestine Liberation Organization
PNE	Peaceful Nuclear Explosion
PPP	Purchasing Power Parity
RSA	The Republic of South Africa
SADP	South African Defense and Police
SAM	Surface-to-Air Missile
SLBM	Submarine-Launched Ballistic Missile
SQ	Status Quo
STEM	Science, Technology, Engineering, and Mathematics
SWAPO	South West African People's Organization
TIFR	Tata Institute of Fundamental Research
UK	United Kingdom
UNCIP	United Nations Commission for India and Pakistan
UNEF	United Nations Emergency Force
UNGA	United Nations General Assembly
UNIFIL	United Nations Interim Force In Lebanon
UNITA	National Union for Total Independence of Angola
UNSC	United Nations Security Council
UN	United Nations
U.S.S.R	Union of Soviet Socialist Republics
U.S.	United States of America

Acknowledgements

Dedication

For Madeline, Thayer, and Sam

Chapter 1 - Introduction

The use of nuclear threats as a means to deter international crises has been an important topic of international relations research for over seven decades. In the early days of nuclear activity, many historians and political scientists alike argued that nuclear weapons, by their mere presence, made traditional strategy obsolete.[1] Throughout the Cold War, scholars rarely deviated from this original argument, except to add levels of destructive potential these devastating weapons could cause. After the Cold War ended, those scholars were left wondering just what role nuclear weapons play in statecraft. It was clear that scholars thought they contributed to deterrence and a fragile peace, but it wasn't clear how.

In the meantime, deterrence theory progressed further than our understanding of the role nuclear weapons have in geopolitics. On the one hand, this is likely due to the advent of rational choice models tied to decision making, which have provided theorists a foundation to consider the conditions under which conventional deterrence is likely to succeed or fail. On the other hand, and fortunately, we lack empirical evidence on the use of nuclear weapons to test hypotheses about their effectiveness in achieving foreign policy goals. Therefore, we have had to focus on other variables to "reverse engineer" the value of nuclear weapons. Despite thousands of books and articles on the topic, the role of nuclear weapons in modern political society remains unclear. Although none of the original debates have been settled, emerging scholarship seems to suggest that nuclear activity does deter and influence state behavior, that

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[1] Waltz, Kenneth N. *Nuclear Myths and Political Realities*. The American Political Science Review. Vol. 84. No. 3. 1990. 738.

nuclear strategy and posture matter more than previously thought, and that nuclear weapons can affect aspects of international politics more than previously expected.[2]

Since the end of the Cold War, there has been a lack of vigorous and substantive debate regarding nuclear weapons. Normative arguments abound that assume nuclear weapons provide an advantage to the states that control them. These arguments suggest that whether the advantage is military, political, or a combination of both, nuclear weapons allow their controllers to benefit. However, the empirical data is unclear on just what this advantage entails, if any advantage exists at all. Some scholars argue that the quantity of nuclear weapons matters with respect to the level of international security. Others argue that the value of nuclear weapons lies in the bargaining leverage it confers on its possessors.[3] Still others suggest that since nuclear weapons have not been used since 1945, it is impossible to prove whether nuclear weapons themselves led to deterrence being effective. Despite these and other positions, neither interstate nor intrastate warfare has ceased to exist since the advent of nuclear weapons. What then is the role of nuclear capability with respect to foreign policy and conflict in general?

Rational deterrence theorists have traditionally focused on four themes to explain these conditions: the balance of military forces, crisis bargaining and costly signaling behavior, reputation/resolve, and interests at stake. This research will examine the first two concepts to determine how nuclear activity contributes to deterrence. Over the past several decades, dozens of researchers have tested propositions from rational deterrence theory, using both statistical and comparative case study methods. The general consensus of the empirical evidence is that

[2] Gartzke, Erik and Kroenig, Matthew. *Nukes with Numbers: Empirical Research on the Consequences of Nuclear Weapons for International Conflict*. Annual Review of Political Science. 2016. 19: 399

[3] Gartzke, Erik and Jo, Dong-Joon. *Bargaining, Nuclear Proliferation, and Interstate Disputes*. Journal of Conflict Resolution. 2009. 53: 209.

nuclear weapons contribute to deterrence and do not contribute to compellence. One theoretical challenge in this study is accounting for potential nuclear capability of a state. After years of examination of his Correlates of War project, David Singer recognized that very gap in our understanding of state power, but was unable to reconcile it. This study gives credit to states for building potential to develop a nuclear weapons program by giving them credit for nuclear power plant production, nuclear research facilities, and so on. An additional theoretical challenge is the literature is showing a tangible link between a capability and deterrence. It is widely assumed that nuclear weapons are positively correlated with deterrence, but difficult to prove. This study will look at the components of a nuclear program and assess their value to conflict resolution and conflict onset. A limitation of previous studies is that they all compared the advantage gained by states with nuclear weapons to those without nuclear weapons. This study will compare "apples to apples" and show that nuclear activity other than weaponization provides benefit to a state, and corresponds to an increased probability to win in crisis situations.

In order to investigate the notion that nuclear activity, other than but also including weapons, confers bargaining advantage to states in achieving foreign policy goals, I create a Nuclear Capabilities Index (NCI) that describes and explains the level of nuclear activity within each state. The NCI is comprised of six measures of nuclear activity for each state. The corresponding index provides a nuclear activity score for each state, between 1945 and 2016, and therefore allows for comparison of their corresponding nuclear activity. Then, I compare the nuclear activity scores of states involved in international crises to determine whether a higher nuclear activity score correlates with the initiation and outcome of those international crises.

Two methods for evaluating the influence of nuclear capability on foreign policy crises are employed in this research. First, I use an established dataset, the Militarized Compellent

Threat (MCT) dataset, to examine the effects of nuclear capability beyond the possession of weapons on crisis initiation and outcomes. Second, I conduct three in depth case studies of South Africa, Israel, and India to trace changing nuclear capability and foreign policy within the target states. To understand these cases better, I use data from the MCT dataset, data from the International Crisis Behavior (ICB) dataset, and several dozen historical sources that outline conflict in these states.

This study uses structured, focused comparison method of case analysis. While the typography of case studies includes hypothesis-generating cases, probability probes, and others, this research will use a blend of hypothesis-testing and idiographic case study methods, which seeks to describe and explain the outcomes of similar cases with respect to the outcome of observed variable interaction, based upon hypotheses generated from two primary research questions. While ideographic cases are often comprehensive, and these case studies are not comprehensive in every sense, they seek to be comprehensive in that they each examine all relevant aspects of nuclear capability and apply those capabilities, through a composite score, to the two hypotheses. These cases trend to the analytic, rather than the purely descriptive, as they attempt to be structured and focused along simple analytic lines, based on capability scores. They also seek to be hypothesis-testing cases, as they attempt to generalize beyond the available data by establishing a relationship of the nuclear capability scale that can be used to generalize outcomes of state conflict.[4]

Case studies can develop causal explanations "based on a logically coherent theoretical argument that generates testable implications".[5] In this work, the testable implications became

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[4] Levy, Jack S. *Case Studies: Types, Designs, and Logics of Inference.* Conflict Management and Peace Sciences. 25:1. 2008. Page 5.

[5] Ibid. Page 2.

the two primary research questions that lead to the development of the variables used in this study. The three cases selected in this work each include sixty-nine observations on the same variable set, which is the relationship between the NCI of the aggressor state (challenger) and the NCI of the target state (target). As the main theoretical task is to reassemble diverse arguments into a coherent theory, this study will show how the sixty-nine observations are indicative of the value of examining state level conflict through the use of such an index.[6]

This research also process-traces specific observations from each of the cases and combines them with generalizations to make causal inferences.[7] As described in detail in chapter three, this research explores two hypotheses: first, whether a higher nuclear capability index leads to more conflict victories, and second whether a state with a higher nuclear capability index initiates conflict more often. One such process-tracing test is the "hoop test", which demands that a certain piece of evidence must necessarily be present for a hypothesis to be valid.[8] In the case of this research, that evidence is a greater NCI score. There are two causal inferences this research is trying to ascertain: whether a state with a greater NCI score than the target state enjoys more conflict victory and whether a state with a greater NCI score than the target state initiates conflict more often.

Using the "hoop test" on the first hypothesis, case one shows a result of 100%, case two shows a result of 80%, and case three shows a result of 54%. Individual observations within cases failed the hoop test, as not all states with greater NCI score were victorious, however each case individually did pass the hoop test, as did combining non-parity conflict result for all three

[6] Fearon, James D. *Rationalist Explanations for War*. International Organization. Vol. 49. No. 3. 1995. Page 382.

[7] Mahoney, James. *The Logic of Process Tracing Tests in the Social Sciences*. Sociological Methods & Research. 41:4. 2012. Page 570.

[8] Ibid.

cases (a 79% support rate), thus hypothesis one passes the hoop test. Using the "hoop test" on the second hypothesis, case one shows a result of 94%, case two shows a result of 44%, and case three shows a result of 43%. For hypothesis two, individual observations within cases failed the hoop test, as well as did two of the three cases. However, combining non-parity conflict result for all three cases, we see a 60% support rate for hypothesis two, which passes the hoop test.[9]

According to the MCT and ICB datasets, during that time period the Republic of South Africa (RSA) was involved in 19 conflicts, Israel was involved in 31 conflicts, and India was involved in 20 conflicts. In this research, each of these conflicts was described in terms of challenger and target, a brief historical summary of the conflict provided a description of the tactical and strategic actions during the event, and outcomes were described in terms who won and which objectives were met. The NCI score of each incident showed which state within the directed dyad has the greater nuclear activity at the time of the conflict. There was also a discussion of whether the UN condemned the incident, whether nuclear activity was overtly signaled during the conflict, and whether the status quo changed in any appreciable way as a result. The resulting research in chapters six, seven, and eight clearly showed who initiated conflict, which side won, and which had the higher NCI score.

The qualitative findings in this research may have additional utility. Through an examination of NCI scores and conflict, the state with the higher NCI score wins 79% of all conflicts. Specific to the case studies, the RSA had a higher NCI score in all 18 conflicts it participated in during the nuclear age and won 17 of them. Of the 31 conflicts Israel fought during the nuclear age, it won 28 times and had a higher NCI score in 19 of those conflicts. Of the 20 conflicts India fought in the nuclear age, it won 18 times and had a higher NCI in seven

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[9] Ibid. Page 575-6.

conflicts. Challenging states with NCI parity won twice as often as they lost, supporting the claim that challenger states win more often than target states. In general, the qualitative case studies show support to both hypothesis one and two, though in some instances, the results were mixed.

In terms of quantitative results, this research first replicates the results of Sechser and Fuhrmann's *Crisis Bargaining and Nuclear Blackmail*, and then modifies three of their variables to incorporate the NCI. The replicated results matched, showing no errors in data coding in the Sechser's work, however, after substituting variables with Lafleur's modifications, the results were different. For example, in table 5.3, while the statistically insignificant and negatively correlated "nuclear challenger" coefficient in regression fifteen suggests that there is no support for the argument that a nuclear-armed challenger is able to make more effective compellent threats, in regression sixteen Sechser finds a statistically significant coefficient for "nuclear challenger", implying mixed results. In a different example, in regression sixteen, neither Sechser's interaction term nor the Lafleur modification is statistically significant, opposite the results in regression two and also in regression thirty where just the Lafleur modification was statistically significant. In several of these cases, the Lafleur modification has the opposite correlation to the Sechser result (negative rather than positive, or vice versa). In model 2, the Sechser variable "nuclear target" was positively correlated and statistically significant, while the Lafleur replacement variable "target NCI" was also positively correlated but statistically insignificant. The greater specificity of nuclear capability in states in the Lafleur modification offers different findings than Sechser in terms of nuclear target significance, probably since most target states score a zero in that variable. However, these findings do not support the argument that nuclear weapons have no value regarding compellence, since conflict amongst nuclear

capable states continued throughout the nuclear age. Keeping in mind that Lafleur hypotheses are different than Sechser's hypothesis, these findings suggest that a more holistic nuclear capability index may shed additional light on whether compellence is affected by nuclear capability.

Finally, regarding NCI levels, nearly 70% of all states have no nuclear capabilities, yet some of those states are non-compliant regarding international nuclear regimes, such as the nuclear non-proliferation treaty and the comprehensive test ban treaty, and many are not members of the IAEA. Of the remaining 60 states, those at levels one through four largely comply with international nuclear regimes, and are all IAEA member states. Many states between NCI-level two and NCI-level four are good examples of non-confrontational states with powerful economies.   However, NCI-level five and NCI-level six states do not generally comply with international nuclear norms. Nuclear capability level data suggest that states at the middle levels (NCI-levels 2-4) are less prone to conflict.

This dissertation consists of eight chapters exclusive of the introduction. Chapter two, literature review, focuses on six key areas: reviewing realist and game-theoretic literature on nuclear deterrence, describing essential elements of deterrence theory, describing research on the role of nuclear weapons deterrence, discussing why states choose to develop nuclear weapons, describing why states seek nuclear technology and weapons as goals, and a review on the literature discussing the consequences of nuclear weapons.

Chapter three, theory, focuses on three key areas: first, it will explain and describe signaling and bargaining in foreign policy, how nuclear activity affects deterrence and compellence, and how the sum of nuclear activity in a state is a better measure of state bargaining power than solely measuring nuclear weapons. Next, I will introduce the Nuclear

Capabilities Index that explains a scale of nuclear activity at the state level. I will then introduce two hypotheses: whether a state with greater nuclear activity initiates more conflicts than a state with lesser nuclear activity and whether a state with greater nuclear activity wins more conflicts than does a state with lesser nuclear activity.

Chapter four, research design, consists of an explanation of the methods used to develop the NCI and to apply it to pre-existing datasets such as the MCT and ICB datasets. It will also describe the components used to develop the NCI and how they are coded. It will then describe the theoretical maximum nuclear activity that a state could score in a given year and why that is important. Next, the first use of the quantitative data will be examined: the results of the monadic examination of state nuclear activity. After that, the second and third use of the quantitative data will be examined: to determine whether a state with a higher NCI initiates more conflict and whether a state with a higher NCI wins more conflict. Finally, it will describe the state-level cases that this research will examine and the methods by which they are examined.

Chapter five, quantitative data, consists of a replication of Todd Sechser's dataset with the addition of the NCI. Six tables help to explain how the addition of the NCI puts a finer point on understanding how the phenomenon of nuclear activity relates to conflict onset and success. The tables include a replication of Sechser's original results, and several adjustments to his analysis to include relaxing the use of force, allowing for partial success, excluding certain observations, and dropping the resolve variable.

Chapters six through eight (cases) will conduct a qualitative examination of several states in crisis, the RSA, Israel, and India, to determine crisis outcome. Critical to the examination of each case is an applied qualitative determination, using quantitative NCI results specific to that case, of who was the challenger, who was the target, what goals the states had when they entered

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conflict, and whether they accomplished their objectives. After a short narrative for each conflict incident, the NCI between the dyad will be compared and analyzed. This research is considered additive, in that it does not so much introduce new evidence to the historical record of the crisis incidents, rather it introduces the NCI as a tool to consider when describing and explaining outcomes of crises, however in the case of the RSA, this research will go further.

During the conduct of this research, a continuing observation kept coming up: that state leadership rarely publically signaled development of expanded nuclear capability, either to potential adversaries or to their own polity. Maintaining an advantage in the private information space was most likely the reason, but there may have been opportunities lost by doing this. In the RSA case, this research strove to discover how well-known RSA nuclear capability development was, by not only examining key speeches by state officials, but also speeches by the special representative of the African National Congress (ANC) to the United Nations and other statesmen and scientists during the height of RSA nuclear capability increase and the time period where the majority of the eighteen conflicts in the nuclear age were fought. To better describe why RSA state officials did not reveal changing their nuclear status, details from a revealing article from the Journal of South African Studies help explain the strategic approach that RSA officials took to maximize their security in the face of near world-wide approbation to the Apartheid regime. While this level of detail could not be applied to each case due to the strict time constraints of this project, there seems to be some utility in this approach in that it helps explain how RSA leadership attempted to maximize the political value of increased nuclear capability.

Chapter nine, findings, will examine the validity of the NCI and suggest a way ahead for future research.

Chapter 2 - Literature Review

In this chapter, I first describe the deterrence research program broadly, and then more narrowly focus upon the literature about nuclear weapons capability and foreign policy. The first section reviews realist and game-theoretic literature on nuclear deterrence. The second section outlines research on the role of nuclear weapons deterrence. The third section reviews the literature on why states choose to develop nuclear weapons as state security goals. This chapter will also introduce signaling and bargaining literature, which will be discussed in more depth in chapter three.

Deterrence

Paul K. Huth defines deterrence as "the use of threats by one state to convince an aggressor state to refrain from initiating a course of action"[10]. Huth explains that the deterring party must have the ability to impose increased costs on the deterred party, should the initial course of action be taken, which then causes the deterred party to not execute that course of action. In simple terms, State A threatens an action against State B; State B signals that it is able and willing to apply a greater magnitude of state power against State A if the action is initiated. State A does not initiate the action because it does not want to bear the cost signaled by State B. State A is deterred.

Many things are required for successful deterrence. First, State B must know what course of action State A intends. Second, State B must signal a credible response that it is willing to take against State A, should that initial course of action be taken. Third, State B's credible response must cause State A to suffer greater costs than State B would incur by the initial course

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[10] Huth, Paul K. *Deterrence and International Conflict: Empirical Findings and Theoretical Debates.* Annual Review of Political Science, 1999, 2: 26.

of action. Credible deterrence assumes both states possess the power to impose the costs they intend. Deterrence is complicated and the scholarship about it has evolved over time.

There have been four waves of deterrence scholarship over the past 70 years. In the first wave, early deterrence theorists such as Waltz, Sagan, Kissinger, Brodie, Schelling, and Kahn focused on questions of nuclear strategy and the credibility of threats to prevent conventional war in Europe[11]. Key to understanding that nuclear deterrence was a stable system was the work by Schelling in 1960 that described the leverage nuclear states had over each other through the exploration of mutual assured destruction and second strike capability.[12] By the 1960s, nuclear deterrence theory had become central to U.S. international relations scholarship, focusing on how to prevent attacks on the U.S. and its interests abroad and also how to describe and gain bargaining advantages over the Soviet Union.[13] These discoveries led scholars to treat deterrence like a math problem, focusing on number and yield of nuclear weapons, often referred to as strategic calculus, to keep courses of action from being implemented. At that time, the literature did not adequately explain why deterrence was successful or whether there were rules involved in this state level behavior, primarily because the first wave deterrence scholars were unconvinced that deterrence could be examined empirically. This is because deterrence, when successful, prevents something that would have happened, which is impossible to observe. The failure of deterrence, however, can be measured, and that is what the second wave of deterrence scholars did.

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[11] Gartzke, Erik and Kroenig, Matthew. *Nukes with Numbers: Empirical Research on the Consequences of Nuclear Weapons for International Conflict*. Annual Review of Political Science. 2016. 19: 399

[12] Friedan, Jeffry A. and Lake, David A. *International Relations as a Social Science: Rigor and Relevance*. Annals of the American Academy of Political and Social Science, Vol. 600, July 2005, 139

[13] Ibid.

The Role of Nuclear Weapons Deterrence

In the second wave, scholars such as Russett, Questor, George, Smoke, and Jervis broadened the examination of deterrence to include both nuclear and conventional military power. Initially, these discussions added more military materiel to deterrence calculations and escalation, but later sought to combine both nuclear and conventional threats in a more general theory of deterrence. Scholars such as Morgan classified deterrence in four categories, depending on its purpose. The four categories are direct-immediate deterrence, direct-general deterrence, extended-immediate deterrence, and extended-general deterrence, and this is consistent with how many Cold War historians without a political science background categorize deterrence as well.[14] Second wave deterrence theorists aligned outcomes with deterrence type. For example, escalation to war is a failure of immediate deterrence, whereas concessions made by a defending state to an aggressor is a failure of general deterrence. The logic behind the second wave deterrence scholarship implies that the earliest deterrence scholars were correct in their assumption that deterrence is a math problem; the side with the greater force will gain concessions commensurate to the ratio of power they hold over the defending force. At that time, Jervis and Powell were convinced that will, or resolve, was the key factor in determining which nuclear state could be deterred; resolve was never clearly defined or measured except in the proof of the negative, meaning if an action did not occur, but could have, one might conjecture that the attacking state lacked the resolve to initiate.[15] That introduced the question of private information; the state with the greater access to the decision-making structure and

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[14] Huth, Paul K. *Deterrence and International Conflict: Empirical Findings and Theoretical Debates*. Annual Review of Political Science. 1999. 2:27. Also see Morgan 1977.

[15] Friedan, Jeffry A. and Lake, David A. *International Relations as a Social Science: Rigor and Relevance*. Annals of the American Academy of Political and Social Science. Vol. 600. July 2005. Page 140.

measures of the opponent would have a decisive advantage. Both Jervis and Powell clarified

Schelling's argument regarding both nuclear states concern over reprisals, which led to a greater

understanding about private information, resolve, and options that were not considered in

previous scholarship. This led to a surge of literature on crisis bargaining and costly signaling.

The third wave of deterrence scholarship examined deterrence outcomes as ranging along

a success/failure continuum.[16] As an empirical tool, this was a step forward in examining why

past deterrence failures might have occurred, but since each action was unique, the analysis that

third wave deterrence scholars sought could not be generalizable. They wanted to know how

much force would be required to deter an action. This proved to be difficult, since it implied all

the variables involved in the aggressive act could be known, to include willingness to use force.

The third wave of deterrence scholarship sought to reduce the complexity of state actions into a

mathematical formula to determine how much force was required to deter. At this time,

bargaining theory had developed to the point where scholars believed it could explain state and

sub-state violence as the product of private information with incentives to misrepresent and

problems of credible commitment.[17] Now war was considered a bargaining failure that leaves

both sides worse off than if they would have been able to negotiate an efficient solution to

[16] Huth, Paul K. *Deterrence and International Conflict: Empirical Findings and Theoretical Debates*. Annual Review of Political Science, 1999, 2:28

[17] Friedan, Jeffry A. and Lake, David A. *International Relations as a Social Science: Rigor and Relevance*. Annals of the American Academy of Political and Social Science, Vol. 600, July 2005, 146

redistribute benefits.[18] But, there was still no explanation for why states choose war over a negotiated settlement, other than each side incorrectly valuing its private information.[19]

After the third wave of deterrence scholarship, rational choice and game-theoretic models of decision making were applied to situations where deterrence seemed present in order to show how military threats would reduce the attacker's expected utility for using force and thus persuade the attacker that the outcome of a military confrontation would be both costly and unsuccessful.[20] Fearon, Powell, Jervis, Huth, and others could then compare relative conventional and nuclear weapons power in one state against another aggressor state to determine likelihood of success and potential cost of the endeavor, should deterrence fail. States that had a high score of conventional and nuclear weapons power would be highly likely to deter aggressive actions, as the cost to the aggressive state would be greater than the benefit gained by successful aggression. However, deterrence theorists could not agree on which military capabilities could deter, which interests at stake mattered, and how resolve would affect aggressive actions.

In a general sense, historians of the Cold war, such as John Lewis Gaddis, Walter LaFeber, and Lawrence Freedman describe the same sort of premises that the political scientists argue in the paragraphs above when discussing nuclear strategy development. Regarding the Cuban Missile Crisis, LaFeber remarked that the Soviet Union took advantage of a skewed

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[18] Fearon, James D. *Rationalist Explanations for War*. International Organization. Vol. 49. No. 3. 1995. Also Friedan, Jeffry A. and Lake, David A. *International Relations as a Social Science: Rigor and Relevance*. Annals of the American Academy of Political and Social Science, Vol. 600, July 2005, 146. Also Powell, Robert. *Stability and the Distribution of Power*. World Politics. Vol. 48. No. 2. 1996. 240.

[19] Bueno De Mesquita, Bruce and Morrow, James D. *Sorting Through the Wealth of Notions*. International Security, Vol. 24. No. 2 (1999), 67

[20] Huth, Paul K. *Deterrence and International Conflict: Empirical Findings and Theoretical Debates*. Annual Review of Political Science, 1999, 2:29

correlation of forces, including location and capability, to achieve short-term, opportunistic

gains, rather than seek long-term status quo adjustments. This would suggest that deterrence

translates to political gains, not an end in itself. Gaddis, in his book *Strategies of Containment*

and throughout a 2010 speech at Columbia University, described the linkage between

Clausewitz' notion that war is a means to a political end, never an end in itself, to Kennan's

statements that nuclear weapons can deter and threaten retaliation, limiting war from expanding

to the absolute.[21] Lawrence Freedman, in *The Evolution of Nuclear Strategy*, describes the ever-

changing nature of the discovery of the rules that govern nuclear weapons, again harkening back

to Clausewitz and that in a rational society, military means exist to achieve political ends.[22] One

key difference regarding many historians' views on nuclear weapons is that there is no

agreement whether possessing more nuclear weapons provides a greater deterrent effect than

possessing fewer nuclear weapons; there is a general sense that there should be a way to

determine this, but it hasn't yet been discovered.[23] However, none have considered whether

possessing no nuclear weapons, but a robust nuclear capability suite, provides a greater deterrent

effect than possessing no nuclear weapons and a less-robust capability suite. Historians, it

seems, have been just as focused on the weapons themselves as the political scientists.

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[21] Gaddis, John Lewis. *Strategies of Containment*. Oxford UP. 1982. Also see speech given at Columbia University
        on nuclear deterrence, August 12, 2010 accessed at https://www.youtube.com/watch?v=xL3u2nZnWWM

[22] Freedman, Lawrence. *The Evolution of Nuclear Strategy*. Palgrave McMillan. London. 1983. Page 209.

[23] The Waltz/Sagan argument, begun in the 1970s, set the terms of the debate on whether greater or fewer nuclear
weapons would lead to a global stability. This debate has not yet been resolved. Proponents of greater nuclear
weapons argue that the threat of mutual assured destruction would prevent interstate conflict from escalating to the
level of nuclear exchange. Hence Waltz argues for no restrictions on information or technology sharing between
nations, as more nuclear proliferation leads to greater stability. Sagan, on the other hand, argues for UN control of
all nuclear weapons so no state could escalate to the level of nuclear exchange. In his view, nuclear weapons must
be controlled so that no actor sees their use as a way to achieve political objectives.

Why States Choose to Develop Nuclear Weapons

The latest developments for deterrence scholarship place far more emphasis on the technical development of nuclear weapons programs (NWP), the effect nuclear weapons have on the security environment, and the advantages states would gain in bargaining situations should they develop nuclear weapons than previous scholarship did. For example, Beardsley and Asal argue that the pursuit of nuclear weapons programs provides a security threat for potential opponents and could cause multiple nuclear arms races to offset the substantial bargaining leverage gained by the original NWP pursuing state.[24] They also suggest that nuclear weapon states are more likely to gain concessions and end crises sooner when in conflict with non-nuclear weapon states.[25] But even with this development, current scholarship continues to treat nuclear weapons as dichotomous; either a state has nuclear weapons or it does not.

Continuing the debate that Waltz and Sagan began in the 1970s about whether nuclear weapons are a stabilizing or a destabilizing force in international security, Gartzke and Jo assert that nuclear weapons increase state bargaining power without affecting the likelihood of conflict.[26] This finding would likely encourage many states to consider NWP development if there were not such a high cost in terms of money, international opprobrium, and availability of fissile material. To gain a better understanding on how states acquire nuclear weapons, Jo and Gartzke examine the requirements a state must have in order to pursue a NWP.[27] One

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[24] Beardsley, Kyle and Asal, Victor. *Nuclear Weapons Programs and the Security Dilemma*. 340.

[25] Beardsley, Kyle and Asal, Victor. *Winning with the Bomb*. Journal of Conflict Resolution. 2009. 53: 284

[26] Gartzke, Erik and Jo, Dong-Joon. *Bargaining, Nuclear Proliferation, and Interstate Disputes*. Journal of Conflict Resolution. 2009. 53: 209

[27] Jo, Dong-Joon and Gartzke, Erik. *Determinants of Nuclear Weapons Proliferation*. Journal of Conflict Resolution. 2007. 51: 181

requirement, opportunity, has four components, one of which demands that a state have latent

nuclear weapons production capability, which itself has seven sub-components (uranium

deposits, metallurgists, chemical engineers, nuclear engineers/physicists/chemists,

electronic/explosive experts, nitric acid production capacity, and electricity production

capacity).[28] This attempt to understand the challenges a state would have to overcome is

important, if in fact nuclear weapons confer bargaining leverage.

But what if nuclear weapons in themselves do not confer bargaining leverage, or cannot

compel other states, for that matter? One might then argue that Waltz was correct when he said

nuclear weapons are useless for fighting wars.[29] Sechser finds that compellent threats from

challengers with nuclear weapons against non-nuclear weapons targets were much less likely to

work when compared to threats issued by states without such a nuclear weapon advantage.[30]

However, Sechser recorded all states as either nuclear weapons or non-nuclear weapons states.

As many of those non-nuclear weapon states could be conducting other nuclear activity, recoding

from a dichotomous variable to an index could change the outcomes of Sechser's compellent

threat analysis significantly.

In the next chapter, I develop a theoretical argument to improve our understanding of the

role of nuclear weapons development and nuclear activity in foreign policy. Specifically, I argue

that nuclear technology, research, and development should be incorporated in empirical

measures of nuclear capabilities. In other words, nuclear capability is more than the possession

of nuclear weapons and empirical tests of the effectiveness of nuclear power on crisis bargaining

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[28] Ibid. 173

[29] Waltz, Kenneth N. *Thoughts about Virtual Nuclear Arsenals*. The Washington Quarterly. 20:3. 154

[30] Sechser, Todd S. *Militarized Compellent Threats, 1918-2001*. Conflict Management and Peace Science. 2011. 28: 390

should account for the potential to develop nuclear weapons in the event of bargaining failure and war.

Chapter 3 - Theoretical Approach

Nuclear weapons have long been considered the ultimate deterrent force because it is possible that, if challenged, a state possessing nuclear weapons could retaliate and escalate conflict against a non-nuclear challenger and bring about regime change, collapse, or massive concessions from the non-nuclear challenger. However, nuclear activity is far broader than nuclear weapons, and consists of activities such as nuclear research for medical advancements, nuclear power production, fissile material excavation, generation, and refinement, production of delivery systems for strategic weapons, and weapons production. These activities can be measured and will provide a better baseline for analysis of the role of nuclear capability in foreign policy crises.

There are several theories on the security dilemma, the value of international organizations, signaling, and crisis bargaining that help political scientists better understand the phenomenon of conflict. Those theories will be briefly described below as well as their application to three ideas developed throughout the remainder of this research. The first is the idea that increased nuclear technology allows a challenger to communicate a credible threat to a potential target, gaining benefit through the use of a coercive threat. Second is the idea that increased nuclear technology allows a potential target to communicate a credible threat to a challenger, deterring the challenger state from initiating a conflict. The third idea is that a state with greater nuclear capability may initiate conflict more often against states with lower nuclear activity. In order to examine each of these three ideas further, a short discussion of the security dilemma and arms races, the value of international organizations, signaling and bargaining is required to complete setting the theoretical framework for the remainder of this research.

The Security Dilemma and Arms Races

States choose to develop a nuclear program for a number of reasons, not solely defense related. Other reasons include pursuing clean, renewable, and nearly limitless energy or creating breakthrough medical advancements. But if a state did choose to develop a nuclear weapons program, it would be to increase deterrent capability, to increase coercive ability, or to increase international standing. This is consistent with Sagan, who asserts that a state would "build a bomb" for one of three reasons: to increase national security against foreign threats, to use as a domestic political tool to advance parochial interests, or to provide an important normative symbol of a state's modernity and identity.[31]

Of course, most states that increase their nuclear activity do not develop nuclear weapons. There are only 8 states that currently possess nuclear weapons, but a much larger number, 52 more, that display some type of nuclear activity, from conducting nuclear research in academic or scientific facilities to running nuclear power plants to provide energy. Nuclear activity of any kind is still relatively uncommon, as fully 133 of 193 states display no marked nuclear activity at all.

But if a state were to develop a nuclear program, that action could cause a spiral into what is known as the security dilemma, in which states continually increase defense spending to gain an advantage over an adversary, causing a rapid build up of military capability, often to the detriment of other state spending. This is also known as an arms race. An arms race involves simultaneous abnormal rates of military growth of two or more nations, gaining decisive

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[31] Sagan, Scott D. *Why Do States Build Nuclear Weapons: Three Models in Search of a Bomb.* International Security. Vol. 21. No. 3. 1996. 55

advantage to achieve state security goals.[32] While this normally happens between two states,

when technology changes drastically and access to that technology becomes ubiquitous and

cheap, arms races can include dozens of states.   Regarding nuclear weapons, whether tools of

influence or weapons of mass effect, the efforts some states make to acquire these devices

suggest that they are useful in both statecraft and in war.[33]

According to Robert Powell, there is a natural linkage between bargaining theory and

arms races.[34] The military balance as described by other scholars, such as Mearsheimer, Huth,

and Glasner & Kaufmann, determined that a defending state requires conventional military

capacity to respond rapidly and in strength to a range of military contingencies, and thus be able

to deny the attacking state its objectives.[35] This stemmed from the balance of power school,

which determined that war is least likely when there is an even distribution of state power.[36]

Supporting this theory, Powell asserts that the more powerful a state is, the harder other states

will try to counter or balance against it in order to assure stability.[37] According to Paul K. Huth,

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[32] Wallace, Michael D. *Arms Races and Escalation: Some New Evidence*. The Journal of Conflict Resolution. Vol. 23. No. 1. 1979. 5

[33] Gartzke, Erik and Kroenig, Matthew. *Nukes with Numbers: Empirical Research on the Consequences of Nuclear Weapons for International Conflict*. Annual Review of Political Science. 2016. 19: 398 and 401.

[34] Powell, Robert. *Bargaining Theory and International Conflict*. Annual Review of Political Science. 2002. 5: 13

[35] Huth, Paul K. *Deterrence and International Conflict: Empirical Findings and Theoretical Debates*. Annual Review of Political Science. 1999. 2:30. See Mearsheimer (1983), Huth (1988), and Glasner/Kaufmann (1998)

[36] Powell, Robert. *Bargaining Theory and International Conflict*. Annual Review of Political Science. 2002. 5: 12 also Reed, William, Clark, David H. Nordstrom, Timothy, and Hwang, Wonjae. *War, Power, and Bargaining*. The Journal of Politics. Vol. 70. Issue 4. October 2008. 1204.

[37] Powell, Robert. *In the Shadow of Power: States and Strategies in International Politics*. Princeton UP. 37.

several empirical studies have found the balance of military power is an important determinant of deterrence success/failure; the level of success depends on the goals of the aggressor state.[38]

Sagan suggests that states that develop nuclear technology could opt to develop a NWP if they face a significant military threat to their security.[39] This has likely happened/is happening in the cases of the RSA, India, Pakistan, Israel, and the Democratic People's Republic of Korea, and seems likely that it could continue. Sagan further argues that a state that does not face such a threat will willingly remain non-nuclear. Waltz argues that a state will continue to improve its security, implying states will transition from non-nuclear to near nuclear as soon as possible, but we haven't seen such a transition in nearly 25 years.

While it was formerly believed that arms races in general lead to conflict, arms races among rivals are more likely to lead to conflict, so should a rival gain nuclear technology and the ability to develop a NWP and choose to expand their benefits at the rival's expense, it seems clear that other rival states would seek nuclear status.[40] It is unclear when a dispute occurs in relation to an arms race, meaning there could be a time lag between gaining the upper hand in terms of military technology and the implementation of a course of action as an aggressor state, so more research in this area is necessary to clarify this claim.[41]

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[38] Huth, Paul K. *Deterrence and International Conflict: Empirical Findings and Theoretical Debates*. Annual Review of Political Science, 1999, 2:35

[39] Sagan, Scott D. *Why Do States Build Nuclear Weapons?: Three Models in Search of a Bomb*. International Security. Vol. 21. No. 3. 1996. 54

[40] Diehl, Paul F. and Crescenzi, Mark J. C. *Reconfiguring the Arms Race-War Debate*. Journal of Peace Research. Vol. 35. No 1. 1998. 114

[41] Sample, Susan G. *Arms Races and Dispute Escalation: Resolving the Debate*. Journal of Peace Research. Vol. 34. No. 1. 1977. 17

International Organizations and Nuclear Activity

In the anarchic space of international relations, international organizations were created to address problems that cannot be solved by one state alone. Regarding nuclear weapons, several international organizations, such as the International Atomic Energy Agency, were established to address problems about nuclear exploration, development, and proliferation. The value of membership within such an international organization is two-fold: first, it shows the international community that member states have made the strategic choice to abide by group norms and the rule of law established by the organization that address issues about nuclear exploration, development, and proliferation, and second to net the benefits as well as accept the constraints imposed on states that would desire a different outcome.[42] The litmus test of an international organization is how well it meets the problems that it was designed to address, and in terms of nuclear development, the vast majority of states accept the benefits and constraints. However, several powerful states, each of who possess nuclear weapons, do not.[43]

Recent scholarship regarding membership in international organizations suggests that here are two basic schools of thought regarding membership in international organizations: rationalist and constructivist. Rationalists focus on the causal mechanisms that make international organizations valuable, such as providing information to members and reducing transaction costs of member-states, where constructivists focus on the convergence of ideas between member-states within an international organization, seeking to show that their interests

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[42] Martin, Lisa and Simmons, Beth A. *Theories and Empirical Studies of International Institutions*. International Organization. Vol. 52, No. 4, pp. 729.

[43] India, Pakistan, Israel, and North Korea

are made more similar over time.[44] In the course of this research on international nuclear

regimes, both schools of thought help explain why certain states join and why others do not. If

the key question regarding international organizations is how are they able to influence the

behavior of autonomous state actors, uncovering both the primary causal mechanisms through

which international organizations are able to influence state behavior and whether those

mechanisms are effective in changing member-state behavior are essential to understanding the

value of membership.

Central to constructivism is the argument that institutions shape member-state behavior

through a process known as international socialization and convergence, the process by which

members acquire different identities that will lead to new interests, through regular and sustained

interactions with other members within the broad social structure of the regime, followed by

their ideas and interests becoming more similar to those of the group. Constructivists suggest

that the more often states interact on a regular and sustained basis, the more their ideas and

interests will converge.[45] Central to rationalist thought regarding international organizations is

that the edicts and dictates coming from the organization by way of rules, norms, and laws are

proxies for state power at the international level of analysis.[46]

When there is a strain between member-states regarding goals and outcomes from the

organization, as is the case with India, Pakistan, Israel, and the Democratic People's Republic of

Korea, it is unclear whether convergence or divergence will dominate. It makes sense that if the

stronger bloc demands convergence, there remains the potential for dissolution of the

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[44] Bearce, David H. and Bondanella, Stacy. *Intergovernmental Organizations, Socialization, and Member-State Interest Convergence*. International Organization, Vol. 61, No. 4, p. 703.

[45] Ibid. Pages 704-6.

[46] Ibid. Page 708.

organization. In the case of international nuclear regimes such as the CTBT, the strain caused by

the exclusion of newly nuclear states from the benefits of the original five nuclear powers caused

several major powers to relinquish membership in the organization. This supports the rationalist

school of thought, as states will either renege or cheat when there is a mismatch over how to

divide organizational benefits. Regarding the NPT, a state that fails to comply risks exclusion

from collective fissile material stores, technology transfer, and international regulatory

assistance.

Signaling

Signaling is an action a state takes to inform decision makers in another state that actions

they might take, whether aggressive or defensive, are credible. The central problem for a state

that seeks to communicate a credible deterrent threat through diplomatic and military actions is

that all defending states have an incentive to bluff.[47] Bluffing typically has two components: a

physical one and a psychological one. This is akin to what Gartzke and Jo refer to as opportunity

and willingness. All the physical actions a state takes regarding nuclear activity leads to an

assessment of what military or political actions a state could do during conflict and those actions

describe the range of opportunity a state has to achieve state objectives. As public transparency

of the level of nuclear activity of a state increased, it would become more and more difficult for

such a state to bluff the ability to employ capabilities that do not exist. Willingness is also less

likely to be bluffed, because willingness is the likelihood that decision makers will agree to take

a certain action when they possess the ability; if it were public knowledge that they do not

possess the ability, rhetoric can be ignored at no cost. Without available capabilities, and with

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[47] Huth, Paul K. *Deterrence and International Conflict: Empirical Findings and Theoretical Debates.* Annual Review of Political Science, 1999, 2:30

public knowledge thereof, decision makers cannot credibly bluff. Therefore, a clear

understanding of nuclear activity in each state, coupled with transparency, will dramatically

reduce the ability of a state to bluff, meaning that communicating a credible threat through

known nuclear activity levels is not just possible, but likely.

Costly signals, as defined in literature examined by Schelling, Jervis, Powell, and Fearon,

are those actions that increase the risk of military conflict and/or increase the cost of backing

down from a threat, thereby revealing information about the actual commitment of a state to

defend against an attack.[48] Costly signals help the aggressor state determine the interests of the

defending state and therefore the determination of specific state interests will be central for each

of the three case studies examined in this research.[49] Because, as Huth and Russett examined in

their 1984 study, concluding that past behavior of the defending state bears no impact on future

deterrence outcomes, it is not clear whether an examination of state interests will lead to fruitful

generalizable outcomes.[50] However, with more information regarding nuclear activity becoming

public information, costly signals will start to look like good policy decisions, rather than

rhetoric, bluffing, or brinksmanship. While a pessimist might say that public information

regarding nuclear activity removes those three arrows from a politician's quiver, other scholars

would argue that this better aligns strategy, as ways and means to achieve ends are now far more

clear and much more accountable to the selectorate.

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[48] Ibid. Also see Fearon, James D. *Signaling Foreign Policy Interests: Tying Hands versus Sinking Costs.* The Journal of Conflict Resolution. Vol. 41. No. 1. 1997. 73.

[49] Ibid. Page 37

[50] Huth, Paul and Russett, Bruce. *What Makes Deterrence Work? Cases from 1900 to 1980.* World Politics. Vol. 36. No. 4. July 1984. 502-3

Combining costly signaling and bluffing can lead to miscalculation, which in the case of a high nuclear activity state, could lead to severe conflict escalation. With nuclear activity as public knowledge, any attacking state must know the potential for retaliation may be steeper with targets that have a higher nuclear activity score. This knowledge may reduce the frequency of conflict, as the cost of the initial aggressive act becomes too high to bear. It is possible that increasing awareness about the utility of nuclear activity, and making nuclear activity public knowledge, could reduce conflict, and make overtly aggressive actions more transparent to global scrutiny.

Crisis Bargaining

Understanding crisis bargaining literature is important to understanding the value of nuclear weapons regarding deterrence because crisis bargaining failure is described as the way conflicts begin.[51] In a world with perfect public information about all aspects of state power, states as rational actors would know the costs and benefits of every possible action and could therefore reach an agreement on any such matter without going to war. However the lack of perfect public information leads states to overvalue their own capabilities, undervalue their opponent's capabilities, overvalue the benefit of victory, or fail to take other critical pieces of information into account. All this leads to bargaining failure and conflict.

According to James Fearon, the main puzzle about war is that they are costly, but they recur.[52] There are three basic explanations for this recurrence: people are sometimes irrational, leaders enjoy the benefits of war without personally paying the costs, or there is a mismatch between benefits and cost that leaders miscalculate. Fearon expands the third basic explanation

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[51] Powell, Robert. *Bargaining Theory and International Conflict*. Annual Review of Political Science. 2002. 5: 1

[52] Fearon, James D. *Rationalist Explanations for War*. International Organization. Vol. 49. No. 3. 1995. Page 379.

into five arguments: anarchy, expected benefits greater than expected costs, rational preventive war, rational miscalculation due to lack of information, and rational miscalculation or disagreement about relative power. He further explains that these arguments are still missing a central point – that they do not explain what prevents leaders from avoiding such costly miscalculations.[53]

Fearon describes these ways that opposing sides in a conflict fail to reach a compromise without using military force quite precisely.[54] Because of the lack of clarity of information, war is costly and bargaining is inefficient. Bargaining requires the challenger state to determine if it can achieve its aims prior to expending too much wealth for those aims to be worth it.[55] This assumes the outcome of a conflict is the redistribution of allocated wealth, not the distribution of unallocated wealth, and also assumes all conflict outcomes can be equated with a sense of value. It is generally in the challenger state's best interest to achieve its aims as soon as possible, because war is costly, so much of the success of the endeavor depends on what capabilities the aggressor state thinks the defending state will be willing to commit to the conflict. This establishes a framework for a bargaining range pre-conflict, which is continually adjusted throughout the conflict as more information becomes public.[56]

Therefore, Fearon suggests three possible rationalist explanations for war. The first is withholding private information about relative capabilities or resolve and incentives to misrepresent such information. Second, leaders may not be able to reach negotiated settlements

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[53] Ibid.

[54] Ibid. Page 392.

[55] Ibid. Page 379. Also, see Powell, Robert. *Bargaining Theory and International Conflict*. Annual Review of Political Science. 2002. 5: 3 and 10. Powell discusses the Nash Equilibrium, Pareto efficient outcomes, and zero-sum bargaining here.

[56] Powell, Robert. *War as a Commitment Problem*. International Organization. Vol. 60. No. 1. 2006. 171.

due to commitment problems, which means that one or more state would have a strong incentive to renege on the agreement at some point in the future. Finally, the third explanation is that leaders might not be able to reach negotiated settlements due to problems of indivisibility, which means that they refuse to compromise on certain matters, such as abortion, ideology, or territory.

According to Fearon, the rationale behind the decision to go to war can be thought of as a "costly lottery", which roughly equates to the value of victory expressed as a probability, minus the cost of fighting. In extremely simple terms, if the value of victory of going to war is 1000 units and "State A" has estimated it has a 70% chance of winning, and it will cost "State A" 400 units to wage the war, the "costly lottery" equation would be 1000 units times .7, minus 400, or +300 units. Therefore, "State A" should go to war because it is likely to gain +300 units by doing so. Clearly, not all wars are unwanted, as if challenger states believe that their expected utility of going to war (benefits minus costs) is greater than the expected utility of remaining at peace, as rational actors they will do so.[57] "State B's" job is to increase the cost of war to the point where "State A" does not gain benefit by waging it.[58] As it is a function of both "State A" and "State B's" power that inflict costs and adjust probability of victory regarding crises, this research will further discuss how nuclear capabilities affect state bargaining power. Two sources of state bargaining power will be discussed: nuclear capability and public information.

Nuclear Capability and Crisis Bargaining Power

Throughout the nuclear age, nuclear weapons have been considered a deterrent capability, the threat of which has allowed states to achieve goals and prevented conflict escalation. As it is extremely difficult to prove a deterrent capability, this statement remains an

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[57] Fearon, James D. *Rationalist Explanations for War*. International Organization. Vol. 49. No. 3. 1995. 386.

[58] Muthoo, Abhinay. *A Non-Technical Introduction to Bargaining Theory*. World Economics. Vol. 1. No. 2. April-June 2000. 146

assertion, but one that is believed to be valid by many policymakers. Since there are so few

states with nuclear weapons, and none have been employed since the dawn of the nuclear age,

how then are we to place a value on a state's nuclear capability using weapons alone? Also,

measuring solely nuclear weapons ignores the potential a non-nuclear state has to develop

nuclear weapons in the event of bargaining failure and war. Many previous studies of interstate

conflict, including J. David Singer's Correlates of War Project, have concluded that

measurement of potential development of capability or power must be included in the model or it

risks such inaccuracy as to be invalid.[59] This came about slowly, as the original Composite

Index of National Capability (CINC) that was developed in 1963 only examined six different

components of state power, to include broad categories of demographics, economic measures,

and military strength. In the military strength component, Singer only examined three major

indicators, which were iron/steel production, military personnel, and military expenditure. In

industrial-age armies, these were probably complete enough to describe the range of capabilities

a state needed to gain bargaining leverage over another state, but those categories are not

adequate to describe information-age armies. So expanding the dichotomous capability of

"nuclear weapons" to a wider array of "nuclear capabilities" could improve accuracy and provide

more utility when comparing state versus state pre-crisis decision-making.

That said, previous research that measured nuclear capability through a dichotomous

variable might have produced a specification error in the model, biasing the coefficient on a

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[59] There are several recent cases of a state developing enhanced technology during conflict, for example in the recent operations in Iraq, insurgent forces developed Improvised Explosive Devices (IED) to thwart detection. As detection means improved, insurgent forces changed their tactic to embed such devices into the walls of homes, carcasses of animals, and buried under roads to continue to achieve the desired effect. In a similar way, copper rod technology was introduced to penetrate the depleted uranium armor of main battle tanks with a two-staged explosive device that did not exist previous to conflict. Adversaries will adapt to remain relevant; wealthier and more technologically advanced states may develop increased nuclear capability during conflict in the same way. The Six Day War (1967) comes to mind.

nuclear weapons variable due to this measurement error. As a result, past hypothesis tests may have given unreliable results. What is needed is an index denoting a range of nuclear capabilities that are available to all states, the value of that range of capabilities clearly measured, and the value of that range of capabilities clearly observed in the outcome of crises to examine the possible measurement error in previous tests of the influence of nuclear capability on bargaining outcomes.

Increasing Information Transparency and Crisis Bargaining Power

Another aspect of state power involves information transparency. As mentioned previously, greater information transparency should lead to a better understanding of the capabilities a state possesses, as well as the capabilities of potential targets. Less information transparency leads to an increase in private information, which would likely force decision makers to speculate about type, number, and intent of rival capabilities, as well as the likelihood a rival will employ them in conflict. These information failures often lead to miscalculation during conflict, when a challenger state overestimates benefits and underestimates costs, however sometimes information failures lead to successful behaviors, such as bluffing. States can often successfully bluff capability type, number, and even intent, and Departments of State/Ministries of Foreign Affairs often do this routinely as a matter of standard practice.

Because bargaining leverage is obtained from information asymmetry, often times bluffing provides an initial advantage, but once that private information becomes public the bluffing state loses credibility, which can emboldens the rival.[60] Because nuclear activity is expensive, visible, and highly regulated, it is extremely difficult to keep this information private.

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[60] Powell, Robert. *War as a Commitment Problem*. International Organization. Vol. 60. No. 1. 2006. 170 and Powell, Robert. *Bargaining Theory and International Conflict*. Annual Review of Political Science. 2002. 5: 10 and Fearon, James D. *Rationalist Explanations for War*. International Organization. Vol. 49. No. 3. 1995. 381.

With an expanded nuclear capability index, the rules of bluffing may change. The state that conducts less nuclear activity loses bargaining power, as it is extremely difficult to bluff the lack of known and transparent capability types. Making private information public reduces uncertainty, likely leading to better-informed decisions about conflict initiation and termination. If the target state has higher nuclear activity, public knowledge about nuclear activity can reduce the utility for the challenger by increasing aggressor costs to achieve its aim.[61] As it will be more difficult to bluff nuclear activity, frequency of conflict should decrease. It is likely that credible nuclear deterrence and private information are negatively correlated. If indeed all states want to align their benefits with their capabilities, one can assume as a state increases nuclear activity it would attempt to expand its benefits. Public knowledge of nuclear activity will make it more difficult for states to seek additional benefits by bluffing about this type of military capability.[62]

Now that the foundations of the security dilemma and how international organizations strive to maintain an international balance to the SQ in a recognized anarchic system, along with a foundation of signaling and bargaining dynamics have been introduced, it remains to examine the three theoretical challenges to which this research seeks to provide a greater understanding. The examination of the current state of political science literature in this area has been shown to lack a compelling explanation for two important questions regarding nuclear activity. The first one is whether nuclear activity is correlated with deterrence or compellence and the second is whether nuclear activity is correlated with conflict onset. Because the likelihood of conflict and

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[61] Muthoo, Abhinay. *A Non-Technical Introduction to Bargaining Theory*. World Economics. Vol. 1. No. 2. April-June 2000. 157

[62] Huth, Paul and Russett, Bruce. *What Makes Deterrence Work? Cases from 1900 to 1980*. World Politics. Vol. 36. No. 4. July 1984. 499

information uncertainty is most likely positively correlated, exploring nuclear transparency is a goal of this research.[63] This research seeks to clarify the position between these decades-old arms race debates on the utility of nuclear weapons by expanding the aperture and examining not only nuclear weapons status but also the full spectrum of state-level nuclear activity.

The first theoretical challenge is the idea of nuclear technology allowing a challenger state to communicate a credible threat to a target, potentially gaining benefit through the use of a coercive threat. The second theoretical challenge is the idea of nuclear technology allowing a target state to communicate a credible threat to a challenger state, potentially deterring the challenger state from initiating a conflict. If nuclear capability is public knowledge, then states with greater nuclear capability than an adversary may enter crises more boldly. More information about the capabilities of each state pre-crisis should lead to a lower probability of bargaining failure, resulting in less miscalculation. Putting these two thoughts together leads us to the first hypothesis:

Hypothesis 1: Challengers with greater nuclear capability will be more successful in foreign policy crises than challengers with less nuclear capability.

This leads to the final of the three theoretical ideas, which was whether a state with higher nuclear activity is emboldened by their greater nuclear status that they initiate conflict more often against states with lower nuclear activity.

Hypothesis 2: Challengers with greater nuclear capability will initiate conflict more often than challengers with less nuclear capability.

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[63] Powell, Robert. *Bargaining Theory and International Conflict*. Annual Review of Political Science. 2002. 5: 24

So, based on the discussion above, this research seeks to establish a modification of structural realist theory that implies that the relative power advantage the higher NCI score possesses should lead to favorable outcomes.[64] In chapters 6-8, this research will use the congruence method, a type of plausibility probe that will compare the cases in all respects but one, in order to explain congruence between the cases. The relation between the variance in the dependent variable for hypothesis one, which is conflict victory, and the independent variable (dyadic NCI score) will be shown, and in the case of this research, I surmise that victory is positively correlated with higher NCI score within a dyad. For hypotheses two, the dependent variable is conflict onset and the independent variable remains the same (dyadic NCI scores), and similar to the first hypothesis, I surmise that conflict onset is positively correlated with higher NCI score within a dyad.

Within the framework of "structured, focused comparisons", the "structure" in this research is the method of accounting for and compiling the NCI score for each state from 1945 to 2016. The "focus" in this research is to examine conflict in the form of Compellent threats using the MCT dataset and an additional examination of conflict described in the ICT dataset. The "comparison" in this research is to examine like outcomes for congruence, after asking the same two questions of each example from each case: "did the higher NCI initiate conflict?" and "did the higher NCI win?" As Alexander George and Andrew Bennett remark, "it is only by asking the same general questions of each case that systematic comparison becomes possible".[65] A deeper understanding of state-level decision making is possible with an answer to the following question: "If the higher NCI initiated conflict, was there evidence of the state leader being

[64] George, Alexander L. and Bennett, Andrew. *Case Studies and Theory Development in the Social Sciences*. BCSIA Studies in International Security. MIT Press. Cambridge, MA. 2004. Page 201.

[65] Ibid. Page 195.

emboldened due to that NCI score", but the lack of such an answer does not invalidate the claim of whether the higher NCI score initiated or won.

The amount of consistency between hypothesis one's prediction that the higher NCI state will initiate conflict more often than a lower NCI state and the results in this research validate hypothesis one. In addition, the degree of consistency between hypothesis two's prediction that the higher NCI state will win more often than a lower NCI state is an important indication of the explanatory power of hypothesis two. These results will be described in chapters 6-8.

If such a nuclear capability scale existed, one could examine past conflict and report on whether the challenger or target had a higher nuclear activity score, the frequency with which a state with the higher nuclear activity score won, and how often a state with the higher nuclear capability score initiated conflict. As previously stated at the beginning of this chapter, in order to address these and other theories on nuclear technology, signaling, and bargaining in foreign policy, a scale of nuclear activity must be developed to examine whether states with greater nuclear activity are more or less successful as a defender in conflict, more or less successful as an instigator of conflict, and more or less likely to initiate conflict than states with less nuclear activity. The development of such a scale is the subject of the following chapter in this research.

Chapter 4 - An Index of Nuclear Capability

Prior to this research, nuclear weapon status was considered a dichotomous variable when political scientists compared nuclear states to the other 188 UN members. Exclusively focusing on nuclear weapons, rather than on the expanded nuclear capabilities of a state, has potentially skewed how scholars have viewed conflict. What is absent from current literature is an index to account for nuclear activity at the state level. Therefore, this research will develop a nuclear capability index to better understand state power regarding nuclear activity. This research seeks to determine whether increased nuclear activity leads to bargaining advantage. Hypothesis one is that in a conflict, the state with greater nuclear activity will win more often than a state with less nuclear activity. Hypothesis two is that in a conflict, the state with greater nuclear activity will initiate conflict more often than a state with less nuclear activity. The dependent variables for these hypotheses are conflict outcomes (victory) and conflict initiation, described in the Militarized Compellent Threat (MCT) and International Crisis Behavior (ICB) datasets, respectively. To build this index, I first had to develop a concept for nuclear capability.

Concept formation plays an important role in social science, because all researchers should seek clarity and parsimony to keep their ideas from being misunderstood.[66] As an example, in this research, the concept of "capability" refers to the presence or absence of six characteristics of nuclear development. The eight demands that Gerring describes as essential for concept formation are used in this research in the following way. First is coherence and this research displays coherence by grouping all states by NCI score. This research seeks to uncover two dichotomous, therefore parsimonious and easily operationalized, findings: first, whether a state was victorious or not and second, whether a state initiated conflict or not. The concepts of

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[66] Gerring, John. *Social Science Methodology: A Critical Framework.* Cambridge University Press. 2001. Page 35.

conflict initiation and victory are measured through published findings in established datasets, so are currently accepted by the field. That these findings may influence how states behave regarding conflict onset is potentially useful in deterring conflict, as if a greater NCI score leads more probably to victory, states with lower NCI scores will more probably be deterred from attacking them.

To actualize my concept of nuclear capability, I adopt a pooled cross-section time-series dataset for the period 1945-2016 and constructed a quantitative dataset called the Nuclear Capabilities Index (NCI). The NCI is a nominal index that provides a score between zero and six that denotes the nuclear activity of any given state in any given year; the higher the number, the more nuclear activity the state possessed in a given year. Five of the six components are dichotomous and one of the six components is categorical, ranging from zero to one in intervals of .25. For each state, adding the results of all six NCI components translates to its NCI score, which is used to compare two states in conflict to see which had the greater score, whether the state with the higher score won more conflicts (H1), and whether the state with the higher score initiated more conflicts (H2). The NCI score is also used to pool states to identify generalizable, state-level behavioral trends.

Components of the Additive Nuclear Capability Index

Section 1: Nuclear Research Facilities and Power Plants.

There are three different components of the NCI involved regarding nuclear power plants (NPP): research facilities or power plants under construction, operational power plants, and number of power plants.[67] I give credit to states with any nuclear activity at all, even very small

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[67] I also considered a fourth variable associated with power plant planning, which would give states such as Saudi Arabia more credit for being forward-thinking in terms of nuclear energy, but research has shown that planned NPP

research programs, but I give additional credit to states with nuclear power plants, and even more credit to states with an abundance of power plants.[68]

NCI component one: Nuclear power plant status. This is probably the strongest indicator that a state is routinely conducting nuclear activity, and a precursor for other, more advanced types of nuclear activity, because it shows that a state has access to adequate nuclear technology, both hardware, software, and wetware, which could lead to the development of a nuclear weapons program. Distinguishing between states with no nuclear power program and states with a nuclear power program creates the baseline for nuclear activity beyond general exploration. This component is called NPP1 and a state is scored one for having one or more operational nuclear power plants in a given year, and zero for none.

NCI component two: Nuclear power plant quantity. For this component, I measure the degree to which states invest money and time in developing and improving nuclear technology. States that do so are more comfortable using nuclear power and nuclear activity is more visible to the general public, causing increased scrutiny, safety, and security. In addition, it is logical that the volume of fissile material used and produced in multiple NPP is greater than that used and produced in one NPP, which could contribute to the establishment of a nuclear weapons program. Accounting for quantity allows more robustly nuclear states, such as France or the United States, to receive additional credit on the nuclear scale. This component is called NPP2 and a state is scored one for having ten or more operational nuclear reactor units in any

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are often postponed indefinitely due to lack of funding and fall into the category of nuclear rhetoric rather than action.

[68] The International Atomic Energy Agency website and individual country atomic energy agency websites supply the raw information needed to code this component of the Nuclear Activity Index. Nuclear power plant location, capacity, groundbreaking, on-line status, and shut down status is open source and unclassified.

given year, and zero for states with less than ten operational nuclear reactor units in any given year.

NCI component three: Nuclear Research Facility (NRF) or Nuclear Power Plant (NPP) under construction. NCI component three gives credit to states that have nuclear research facility (NRF) or nuclear power plants (NPP) under construction.   As mentioned before, *planning* to build nuclear power plants is not enough to demonstrate increased nuclear ambition, as experience has shown that many planned projects are cancelled when the extreme cost becomes evident, or when a regime changes. While NPP under construction does not give a state additional immediate power, it does indicate positive momentum in terms of establishing a modern nuclear program. Nuclear research facilities, while typically only producing a small yield of fissile material, demonstrate that a state is interested in exploration and application of fissile materials. When considering all three aspects of nuclear power or research production, states can achieve credit by having both types of facilities, an abundance of facilities, or just one type of facility. Describing nuclear power manipulation in such a way projects a more accurate assessment of the range of nuclear states. This component is called NPP3 and a state is scored one for having one or more NRF or NPP under construction or in operation and zero if there are no nuclear research reactors or NPP under construction or in operation.

 Section 2: Components of Nuclear Weaponization.

Refinement of highly enriched uranium (HEU), strategic delivery systems, and nuclear weapons/testing comprise the weaponization process for nuclear energy. Possessing the ability to refine HEU could lead to a nuclear weapons program, but could also be used to fuel nuclear power plants and research reactors. Developing strategic delivery systems capable of carrying a nuclear payload could also be used to deliver conventional high explosives.

NCI component four: HEU refinement capability (HRC).

Having the ability to produce and refine HEU indicates that a state is displaying more advanced

nuclear activity. Although the primary purpose of HRC is to prepare fissile material for medical

use and for NPP fuel, having an HRC is an important step in converting LEU or uranium mined

from other sources into "weaponizable" fissile material. This component is called HRC and a

state is scored one if they have a HRC in a given year and zero if they don't. The key source of

information regarding states that possess HRC comes from the 2015 Global Fissile Material

Report by the International Panel on Fissile Materials (IPFM). In the main report, there are

eleven states that have HRC, but in an appendix to the report, three additional states are noted as

having this capability. Therefore in this research, fourteen states are given credit for HRC. It

comes as no surprise that the additional three states are India, Pakistan, and the Democratic

People's Republic of Korea. Due to a lack of data from a reliable source on when this capability

began, further research may shed additional light on when these three states first developed this

capability.[69]

NCI component five: Delivery Systems.

Military systems that deliver high explosive payloads are not new to warfare, however the notion

that these systems can reach strategic distance, as well as carry a nuclear payload, is a relatively

recent phenomenon. There are three types of strategic delivery systems that a state could use to

employ nuclear devices: long-range aircraft, intercontinental ballistic missiles (ICBM), or

submarine delivered ballistic missiles (SLBM). Most states possess missiles of some type, but in

order to be a strategic asset, these missiles must be capable of ranging in excess of 3,000 miles

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[69] I was unable to determine why this information was omitted from the GFMR main report and relegated to an appendix. I gave credit to the additional HEU producing states starting from 2015, the year of inclusion in the GFMR, even though they are omitted in the main report and even though it is likely that they produced HEU for the nuclear weapons they possess much earlier than 2015. In India's case, this could be as early as 1970. Since the data was not available to corroborate that assumption, NCI scores for those three states may be underrepresented.

through the air, or be delivered much nearer to the target in a stealth mode (i.e. submarine delivered munitions). A state that possesses all three types of delivery systems is said to possess the "nuclear triad". States develop delivery systems to maintain a "second strike" retaliation capability in the face of nuclear attack. The idea of a second strike led to the strategy of mutually assured destruction, which formed the fragile peace during the decades of the Cold War. This research does not account for unconventional manners in which a nuclear device could be employed, such as on a transport aircraft, a fighter-bomber, a civilian or merchant marine vessel, a navy surface vessel of any type, a non-nuclear type submarine that is rammed into a port structure, or a cargo delivery system such as rail or truck.[70]

This component is called DS and a state is scored one for possessing all three strategic delivery systems in a given year, .5 for possessing two of three strategic delivery systems in a given year, .25 for possessing one of three strategic delivery systems in a given year, and zero if they do not possess any strategic delivery systems in a given year. The reasons I coded this component categorically, is to first account for the versatility within different types of delivery systems, and second to record when each state chose to develop a type of delivery system. In terms of military prowess, delivery system versatility is an incredibly potent tool. Multiple types of delivery systems provide a marked advantage to a state in both offense and defensive capability, as a potential challenger would have to defend against each type when considering retaliatory power of the target. Each of the several types of current targeting and tracking

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[70] The most likely scenario from this list, employing high explosives or a nuclear device on a fighter-bomber such as an MIG 29, JF-17, SU-22, F-15, F-16, F-22, F-35, Tornado, or Mirage 2000N, is an effective tactic used by several states, however these aircraft are considered regional delivery systems and thus do not provide a state with strategic range. Strategic bombers include aircraft such as the TU-16, TU-160, TU-22, TU-95, IL-28, B-52, B-1, B2, and H6K. Intercontinental ballistic missile systems include the Jericho III, LGM-30G, Minuteman III, SS-18, SS-19, SS-25, SS-27, SS-29, DF-5, DF-31, DF-41, CSS-10, JL-2, Hwasong, and Agni. States that possess a type 092 or 094 submarine, Triumphant, Trident, Typhoon, Redoubtable, Zulu, Delta, Borei, Vanguard, Ohio, George Washington, or Arihant class submarines have achieved a leg of the "nuclear triad".

systems are able to deal with only one leg of the nuclear triad, so a state would need to develop several types to defend against multiple delivery system types from a potential opponent. Cutting edge targeting and tracking systems are expensive to develop, easy to locate, and difficult to employ, making effectively stopping multiple types of delivery systems a key to successful defensive posture.

NCI component six: Nuclear weapons and testing.

Most experts would agree that a nuclear weapon is the combination of a nuclear device and a delivery system.[71] The key reference for this component is the nuclear testing tally, updated in September 2017, on the Arms Control Association webpage. For the past 70 years, this has been the determining factor in a state being considered a nuclear power. In each case, a state overtly declared possession of nuclear weapons directly after conducting a nuclear "weapons" test. There are currently zero cases of a nuclear "weapon" test of any type that has not led directly to a state declaring it possesses nuclear weapons in that same year. Nuclear weapons tests are an unambiguous indicator that a state has established a successful nuclear weapons program and wants to signal that it possesses the means to employ nuclear devices. Prior to this research, this variable was the one considered when comparing nuclear to non-nuclear states. This component is coded NW, and a state is scored one for possessing nuclear weapons in a given year and zero if they do not possess nuclear weapons in a given year.

International Nuclear Regimes

A key question regarding international organizations concerns how they influence the behavior of autonomous state actors. Uncovering both the primary causal mechanisms through

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[71] Albright, David. Revisiting South Africa's Nuclear Weapons Program: Its History, Disarmament, and Lessons For Today. Institute for Science and International Security. Washington DC. 2016. Page 85.

which international organizations are able to influence state behavior and whether those mechanisms are effective in changing member-state behavior is essential to understanding the value of membership. International nuclear regime membership is important to this research because of the costs and benefits a state accrues through membership, such as access to fissile material, access to nuclear technology, assistance in developing nuclear power plants to include funding, and international nuclear legitimacy. As certain behaviors regarding nuclear activity at the state level trend against international norms, international nuclear regime membership, or lack thereof, could indicate propensity to initiate conflict. Membership in international nuclear regimes does not translate into state level nuclear capability, per se, but it is possible that lack of membership in these regimes is correlated with conflict onset and may lead to state bargaining success.

There are three primary international nuclear regimes: The IAEA, the NPT, and the CTBT. In the case of the IAEA, member-states are given access to private goods that they require in order to further nuclear ambitions, whether for energy or medical research. These private goods primarily include technology transfer and refined fissile material, mainly plutonium and highly enriched uranium to power nuclear plants. Within the organization, private goods such as fissile material are actually more like public goods at the member-state level, as there is such an abundance of plutonium and uranium reserves under IAEA control that, under peaceful conditions, no member-state could possibly exhaust them. Membership allows access to the amount needed to conduct the peaceful use of the material. It is possible for a non member-state to develop sufficient nuclear technology on their own and to refine raw materials through their own efforts, but these hardships are avoided by joining the IAEA, which makes

available fissile material at a stable market cost to power nuclear plants managed by member-states.

When considering the proliferation regimes, member-states avoid coercive effects imposed by the collective membership by adhering to the regime, which provides incentive for most states to join – this is a different reward structure from IAEA membership. Whereas membership in the IAEA provides a positive nuclear technology enhancing effect for member-states, the proliferation regimes (non-proliferation treaty and comprehensive test ban treaty) sought to establish an international norm by providing a powerful negative effect for non-member states in the form of international condemnation, demarches, sanctions, embargoes, and freezing of assets. By design, joining the regimes provides a technological boost and assures international respect for members, while shunning the regimes threatens economic hardship and international condemnation. However, when powerful states choose to shun an international regime, they threaten to change the international status quo. In the case of the CTBT, powerful states such as India, Pakistan, China, Iran, the Democratic People's Republic of Korea, and Israel, knowing full well they could not change those organizations and the status quo from within, defied these international organizations by quitting the regime when omitted from nuclear state status.

Another factor when considering international nuclear regimes is to note whether a state is compliant, non-compliant, or reluctantly compliant with international norms. As the mean time for a state to ratify the NPT was 9.4 years, a state is considered "compliant" if it ratified the NPT in 9 years or less, "reluctant" if it ratified the NPT in 10 years or more, and "non-compliant" if it did not ratify the NPT. As a frame of reference, 188 of 193 states (97%) are currently NPT members. As the mean time for a state to ratify the CTBT was 8.7 years, a state is

considered "compliant" if it ratified the CTBT in 8 years or less, "reluctant" if it ratified the CTBT in 9 years or more, and "non-compliant" if it did not ratify the CTBT. As a frame of reference, 163 of 193 states (84%) are currently CTBT members.

International Atomic Energy Agency (IAEA) membership. Established in 1957, the International Atomic Energy Agency is the international governing body for nuclear norms. Independent of the UN, but reporting to the UN General Assembly as well as the UN Security Council, the IAEA seeks to control, monitor, and provide data on all overt nuclear activity on the planet. States that belong to the International Atomic Energy Agency are more "nuclear minded" than a state that has not joined the IAEA. By joining the IAEA, even states without nuclear weapons, NWP, NPP, uranium reserves, or other nuclear research facilities are considering how nuclear energy affects them because they have formed a state level agency to interact with the IAEA. As a frame of reference, 168 of 193 states (87%) are currently IAEA members.

Non-Nuclear Non-Proliferation Treaty (NNPT) member. Opened for signature in 1968 and in effect in 1970, the Nuclear Non-Proliferation Treaty identified five nuclear weapon states, forbade transfer of nuclear weapon technology and materials that could contribute to additional nuclear weapon states emerging, and enacted a promise from each signatory state to only pursue peaceful use for nuclear power.[72] States that do not belong to the NPT are overtly signaling that they are taking measures to become more nuclear. In the case of India and Pakistan, they are nuclear states, but not considered part of the original five nuclear states that, under the NPT, are free to continue to develop new weapons technology.

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[72] See appendix B

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Non-Comprehensive Nuclear Test Ban Treaty (NCTBT) member. The CTBT is considered one of the most successful international treaties to date. Opened for signature and ratification in September 1996, the CTBT went one step further than the partial test ban treaty of 1963, which prohibited nuclear testing in the atmosphere, space, and sea, by also banning underground nuclear testing. The idea here is similar to the non-NPT component, in that if a state fails to sign and ratify this international regime, it is sending an overt signal that it chooses to retain the option to further nuclear ambitions. This signal shows that such a state is "more nuclear" in that if it chooses to weaponize nuclear energy, it may require weapons testing to do that.[73]

NCI Theoretical Maximum. The NCI is developed along the lines of a theoretical maximum, in which the maximum score in any given year is known. Determining the earliest possible year to attain a score other than zero in the NCI matrix for each of the six components and the three regimes led to the development of the theoretical maximum. For example, one of the components is IAEA membership, which must be a zero prior to 1957 (the year the IAEA was founded) and may be either zero or one after 1957. The earliest possible year where a score above zero is possible for each of the six components and three regimes is listed below:

Component	Name and Short Title	Year where a score above 0 is possible
1	NPP3 (Nuclear Research Facility)	1945
2	NPP1 (Nuclear Power Plant)	1954
3	NPP2 (10 Nuclear Power Plants)	1962
4	HRT (HEU Refinement Capability)	1945
5.	DM (Delivery Means)	1952, 1959

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[73] Also see appendix B

6	NWT (Nuclear Weapons Testing)	1945
R1	IAEA (IAEA membership)	1957
R2	NNPT (Non-member of NPT)	1970
R3	NCTBT (Non-member of CTBT)	1996

The theoretical maximum (TM) NCI score a state could have in a given year, including points for non-compliance with international nuclear regimes, is as follows:

Year	TM NCI	TM NCI w/nuclear regimes (R1, R2, R3)
1945-1951	3	3
1952-1953	3.25	3.25
1954-1956	4.25	4.25
1957-1958	4.25	5.25
1959-1961	5	6
1962-1969	6	7
1970-1995	6	8
1996-present	6	9

The NCI by year for each state is applied to the theoretical maximum NCI by year to produce a graph that shows how closely to the theoretical maximum score that state has. The data produced by the NCI can be used to show how much nuclear activity each state has in any given year. This data is used in this research in three ways. First, it is used to describe the level of nuclear activity that each state has in a target year.   Second, it is used to compare conflict outcomes from the MCT and ICB datasets to determine whether a state with a higher NCI score wins more crises. Third, it is used to compare conflict outcomes from the MCT and ICB datasets to determine whether a state with a higher NCI score initiates more crises.

NCI level may also be important because the data showed that states at one level behaved quite differently from a state at another level, yet states within the same level behaved similarly. This may be useful if a pattern emerges after determining which NCI level state initiated conflict more often and which won more conflicts. The remainder of this study will employ the 6-point NCI scale to determine two things: first, to replicate the study on nuclear blackmail to test hypotheses one and two to see if there is any variation in those earlier findings, and second, to examine international crisis behavior, using the NCI, to see if state nuclear capability level is generalizable.

Chapter 5 - Quantitative Data

The primary use of the quantitative data is to compare conflict outcomes from the MCT dataset and subsequent work by Sechser and Fuhrmann entitled *Crisis Bargaining and Nuclear Blackmail* to determine whether a state with a higher NCI score wins more crises and whether a state with a higher NCI score initiates more crises. This chapter will replicate previous analyses and then replace the limited measure of nuclear weapons with the NCI index. The first section describes two problems with existing studies about the effects of nuclear weapons and conflict that Sechser and Fuhrmann identified and strived to correct. The second section describes the variables that Sechser and Fuhrmann thought were critical for a comprehensive examination of the effects of nuclear weapons and conflict, as well as how this research has replaced two of those key variables with the NCI, thereby allowing an examination of nuclear capabilities rather than solely nuclear weapons. The third section describes the statistical analysis using different criteria to achieve a better understanding of the effects of nuclear capabilities on international conflict. The last section will describe limitations and counterarguments that could stem from this quantitative research.

Two Problems with Previous Studies Regarding Nuclear Weapons

There seems to be two problems with existing studies regarding nuclear weapons and coercion. The first problem consists of research designs that solely examine nuclear weapon states where nuclear weapons seemed to play a critical role, which could lead to case selection bias, and the second problem stems from conflating different types of conflict, in which states may or may not gain bargaining value from the possession of nuclear weapons. These problems make it difficult to determine the value of nuclear weapons in conflict situations in a general

sense.

First, in previous research, a common approach to evaluating the effectiveness of nuclear coercion was to conduct case studies of crises in which nuclear weapons played a significant role, almost always involving the United States. While these studies often concluded differently, their methodological assumption to focus on nuclear crises was similar. It may be risky to conduct this kind of research design, because focusing exclusively on nuclear crises does not allow us to generalize about the relative benefits of nuclear possession. In other words, this approach cannot help us learn whether coercive threats from nuclear states are more effective than threats from nonnuclear states. Without first establishing a non-nuclear basis for comparison, we cannot ascertain whether nuclear possession conveys an advantage during crisis bargaining. So studying only crises in which nuclear weapons appear to have been threatened might not offer an adequate measure of their utility.

Second, recent research has revealed problems with data sets that do not actually contain many coercive threats. If one believes that nuclear weapons act differently depending on the type of threat, this becomes a problem. Sechser specifically identifies the ICB dataset, which will be examined in the qualitative chapters of this research, as mixing several types of conflict. This research seeks to understand the utility of nuclear capability in all types of conflict, so the quantitative results will solely focus on coercive threats and will compare to Sechser's results, while the qualitative results will relax that conflict restriction and include all international crises that three given states engaged in during the nuclear era. Thus, two examinations of nuclear capability and crises will allow a structured, focused comparison of the effect of nuclear capability.

Sechser also notes that the ICB dataset fails to distinguish conflict outcome types, conflating strictly military solutions with diplomatic solutions and vice versa. The MCT dataset seeks to develop a typology for conflict outcome. This is problematic, as many scholars would argue that there couldn't be a typology for conflict outcome; it simply does not make sense. That is because conflict outcome is always a combination of diplomatic, informational, military, and economic means, means that themselves are combinations of many types of state power. This research does not seek to establish such a typology, nor will it concede that such a typology can ever exist, but will nevertheless utilize both ICB and MCT observations to establish the utility of nuclear capability in both nuclear and non-nuclear crises. This variation is essential because it allows us to address a central question in the study of nuclear coercion: do nuclear challengers succeed more often than non-nuclear challengers? Studies that examine nuclear crises alone cannot answer this question because they have no baseline against which nuclear states can be compared.

A Closer Examination of Sechser's Key Variables

For the foundation of their work on crisis bargaining and nuclear blackmail, Sechser and Fuhrmann use the MCT dataset, over 240 cases of militarized compellent threats from 1918 to 2001.[74] In that dataset, they introduce several variables to explain the value of nuclear weapons in compellent scenarios. Before diving into results of the quantitative data analysis, a closer

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[74] Sechser, Todd S. and Fuhrmann, Matthew. *Crisis Bargaining and Nuclear Blackmail*. International Organization, vol. 67 (2013), pp. 174.

examination of these variables is in order to see why this research is an improvement on the previous study.

This research makes several improvements on measuring nuclear capability over Sechser's work. First is an improvement on the measurement of a 'nuclear challenger', a variable where a state scores a one if the challenger in the dyad possesses at least one nuclear weapon in a given year and zero otherwise. The same holds true for Sechser's 'nuclear target' variable. This research will replace both of these dichotomous variables with the NCI for the challenger and the target. The NCI will expand the number of states that possess some nuclear capability beyond possession of nuclear weapons, to provide additional weight to the level of state nuclear capability. Because the NCI provides a range from zero to six, it will increase the reporting accuracy regarding the nuclear capability of challenger and target states. Next, I replace the nuclear challenger and nuclear target interaction term with a similar variable using the NCI index for the challenger and target, which is used to show that coercive power is diminished when both challenger and target possess nuclear weapons.

Sechser also uses several control variables to test for robustness in the model. 'Capability ratio' measures the proportion of non-nuclear material capabilities controlled by the challenger in each dyad. Regarding the object of the conflict, Sechser attempts to measure this with the variable 'stakes', which differentiates between 'high stakes' (leadership or territory) versus other stakes, which is reparations, policy, or a category called 'other'. In Sechser's work, 'Stakes' is a dichotomous variable where a challenger scores a one if that state made a demand over leadership or territory and a zero if otherwise. While a noteworthy attempt to distinguish value, these categories report nonsensical results, such as 53 percent of demands made by nuclear challengers in the sample are 'high stakes' compared to 71 percent for non- nuclear

challengers. There is no scale that shows why territory is a higher stake than policy and there never will be; stakes will always be based on conditional factors, never categorical.

'Resolve' is a dichotomous variable where a challenger scores a one if that state employed demonstrations of force or conspicuous military mobilizations during an incident. Sechser places great value on this variable, however it seems to give far more credit than it deserves, as demonstrations or mobilizations may be strong signaling devices, but do not impose a physical change to the status quo. 'Dispute history' measures the total number of militarized interstate disputes that the challenger and target experienced over the previous fifteen years. Sechser uses the dichotomous variable 'Nuclear superiority' that is scored a one if a challenger has more nuclear weapons than the target and zero otherwise. This may help to account for the nuclear balance in his study, but neither credits non-nuclear states nor did it achieve statistical significance in his study. 'Nuclear ratio' measures the proportion of nuclear weapons controlled by the challenger in each dyad. This measures quantity of nuclear weapons, which has never been proven to effect bargaining power in any published study.

Finally 'Difference in arsenal size' measures how many more (or fewer) nuclear weapons the challenger possesses than the target. Because it could be the case that the size of a state's nuclear arsenal influences compellent threat outcomes, Sechser used this variable to measure nuclear weapon quantity. This variable is replaced by the NCI, which offers a different assessment of state nuclear capability.

Empirical findings

Sechser and Fuhrmann analyzed ten models, five of which will be replicated in this research and then modified to see the impact that the NCI can make on those results. Again, the

analysis in this study replaces the dichotomous variables of 'nuclear challenger', 'nuclear target', and 'Difference in arsenal size' with the NCI. Tables 5.1 through 5.5 contain the results of multivariate statistical tests designed to estimate the effect of nuclear weapon possession on compellent threat outcomes.

Table 5.1: Compellent Threats, Nuclear Weapons, and Nuclear Capability[75]

Model 1	Sechser	Lafleur	Sechser	Lafleur
	1	1	2	2
Nuclear Challenger	-0.29		-0.459	
	0.252		0.253	
Challenger NCI		-0.031		-0.16
		0.052		0.071
Nuclear Target			-0.505	
			0.84	
Target NCI				-0.127
				0.163
Nuclear Challenger x Nuclear Target			1.547	
			1.146	
Challenger NCI x Target NCI				0.135
				0.05
Challenger Arsenal Size				
Nuclear Superiority				
Nuclear Ratio				
Difference in Arsenal Size				
Stakes	0.022	0.029	0.002	-0.009
	0.2	0.201	0.203	0.208
Nuclear Challenger x Stakes				
Capability Ratio	-0.311	-0.385	-0.374	-0.498
	0.397	0.396	0.398	0.43
Dispute History	-0.032	-0.035	-0.044	-0.06
	0.023	0.023	0.022	0.023
Resolve	1.108	1.09	1.11	1.1
	0.25	0.251	0.254	0.259
Constant	-1.029	-0.983	-0.919	-0.757
	0.399	0.396	0.395	0.409
N	236	236	236	236
Pseudo R2	0.103	0.1	0.116	0.136

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[75] Sechser, Todd S. and Fuhrmann, Matthew. *Appendices for Crisis Bargaining and Nuclear Blackmail* updated January 22, 2013. Page 2.

Table 5.1 replicates Sechser's model one, but of the seven trials in model one, table 5.1 only shows regressions one and two. This is because the results in regressions three through seven match the Lafleur results exactly since the variables were identical. Hence, these results will not be shown in this study.

First off, the replication of table 5.1 in both regressions one and two is an exact match of Sechser's results, confirming the data interpretation in his work *Crisis Bargaining and Nuclear Blackmail*. Second, while the statistically insignificant and negatively correlated "nuclear challenger" coefficient in regression one suggests that there is no support for the argument that a nuclear-armed challenger is able to make more effective compellent threats, in regression two Sechser finds a statistically significant coefficient for "nuclear challenger", implying mixed results overall. Third, in regression two, Sechser's interaction term "nuclear challenger x nuclear target" is statistically insignificant, but the Lafleur modification "challenger NCI x target NCI" was found to be statistically significant. This is likely due to the non-zero result many of the targets now receive for displaying some nuclear activity. Both were positively correlated. Both the Sechser variable "nuclear target" and the Lafleur replacement variable "target NCI" were negatively correlated and not statistically significant.

The negatively correlated control variable "dispute history" was found to be statistically significant in regression two for both Sechser and Lafleur's results, but not in regression one. The positively correlated control variable "stakes" and the negatively correlated control variable "capability ratio" were not statistically significant in both regressions one and two. The other controls are generally not statistically significant, with the exception of dispute history, which is significant and negative in some regressions, suggesting that threats within high-conflict dyads may be less likely to succeed. Finally, the coefficient for resolve was found to be both positively

correlated and highly statistically significant ($p < 0.01$) in regressions one and two for both

Sechser's and Lafleur's results. The effect of resolve is also substantively significant: based on

the findings, challengers who signal their willingness to use force during a threat episode are

nearly five times as likely to succeed as states that do not.

Table 5.2: Compellent Threats, Nuclear Weapons, and Nuclear Capability: Limited use of force permitted: Sechser's table compared with Lafleur modifications[76]

Model 2	Sechser	Lafleur	Sechser	Lafleur
	8	8	9	9
Nuclear Challenger	-0.299		-0.549	
	0.244		0.249	
Challenger NCI		-0.036		-0.158
		0.05		0.068
Nuclear Target			5.629	
			0.63	
Target NCI				0.125
				0.153
Nuclear Challenger x Nuclear Target			-4.28	
			0	
Challenger NCI x Target NCI				0.08
				0.047
Challenger Arsenal Size				
Nuclear Superiority				
Nuclear Ratio				
Difference in Arsenal Size				
Stakes	0.144	0.15	0.146	0.108
	0.195	0.196	0.202	0.202
Nuclear Challenger x Stakes				
Capability Ratio	-0.66	-0.728	-0.55	-0.651
	0.403	0.401	0.415	0.437
Dispute History	-0.042	-0.044	-0.052	-0.063
	0.024	0.023	0.022	0.022
Resolve	1.148	1.13	1.13	1.11
	0.234	0.235	0.239	0.244
Constant	-0.624	-0.581	-0.653	-0.506
	0.406	0.404	0.409	0.406
N	236	236	236	236
Pseudo R2	0.139	0.136	0.165	0.167

[76] Ibid. Page 5.

Table 5.2 replicates Sechser's model two, which relaxes the conditions for use of force ("success 2"). Whereas the original coding scheme for the dependent variable defined a successful threat as one that achieved compliance with no military force, Sechser and Fuhrmann created a new dependent variable that reclassified compellent threats as successful even if the challenger used limited military force, as long as the target suffered fewer than 100 fatalities.[77] Of the seven regressions in model two, referred to in Sechser's work as regressions eight through fourteen, table 5.2 only shows regressions eight and nine where there are differences in model specification through the replacement of nuclear weapons variables with the NCI index.

Regression nine adds an interaction term, and attempts to answer the question whether the compellent effects of nuclear weapons depend on the target's nuclear status. While the statistically insignificant and negatively correlated "nuclear challenger" coefficient in regression eight suggests that there is no support for the argument that a nuclear-armed challenger is able to make more effective compellent threats, in regression nine Sechser finds a statistically significant coefficient for "nuclear challenger", implying mixed results overall. This is similar to the findings in table 5.1. In regression nine, neither Sechser's interaction term "nuclear challenger x nuclear target" nor the Lafleur modification "challenger NCI x target NCI" are not statistically significant. In this model, the Sechser variable "nuclear target" was positively correlated and statistically significant, while the Lafleur replacement variable "target NCI" remained negatively correlated but not statistically significant.

The negatively correlated control variable "dispute history" was found to be statistically significant in regression nine for both Sechser and Lafleur's results, but not in regression eight.

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[77] Ibid. Page 3.

This suggests that threats within high-conflict dyads may be less likely to succeed. The positively correlated control variable "stakes" and the negatively correlated control variable "capability ratio" were not statistically significant in both regressions eight and nine. Finally, the coefficient for resolve was again found to be both positively correlated and highly statistically significant (p < 0.01) in regressions eight and nine for both Sechser's and Lafleur's results.

Table 5.3: Compellent Threats, Nuclear Weapons, and Nuclear Capability: Limited use of force and partial success permitted: Sechser's table compared with Lafleur modifications[78]

Model 3	Sechser	Lafleur	Sechser	Lafleur
	15	15	16	16
Nuclear Challenger	-0.284		-0.531	
	0.243		0.245	
Challenger NCI		-0.031		-0.139
		0.049		0.066
Nuclear Target			5.759	
			0.699	
Target NCI				0.18
				0.149
Nuclear Challenger x Nuclear Target			-4.255	
			0	
Challenger NCI x Target NCI				0.062
				0.045
Challenger Arsenal Size				
Nuclear Superiority				
Nuclear Ratio				
Difference in Arsenal Size				
Stakes	-0.089	-0.078	0.002	-0.144
	0.171	0.173	0.203	0.177
Nuclear Challenger x Stakes				
Capability Ratio	-0.569	-0.65	-0.463	-0.532
	0.0378	0.377	0.388	0.402
Dispute History	-0.036	-0.04	-0.046	-0.054
	0.021	0.021	0.02	0.02
Resolve	1.006	0.994	0.981	0.956
	0.219	0.22	0.225	0.229
Constant	-0.283	-0.239	-0.289	-0.192
	0.34	0.338	0.339	0.344
N	236	236	236	236
Pseudo R2	0.105	0.102	0.134	0.13

[78] Ibid. Page 6.

Table 5.3 replicates Sechser's model three, which further relaxes the conditions for use of force and allows partial success ("success 3"). In this table, Sechser and Fuhrmann recoded the dependent variable using the above 100-fatality threshold as well as allowed a more lenient standard for target compliance, classifying threats as successful if the target complied with any of the challenger's demands.[79] Of the seven regressions in model three, referred to in Sechser's work as regressions fifteen through twenty-one, table 5.2 only shows regressions fifteen and sixteen where there are differences in model specification through the replacement of nuclear weapons variables with the NCI index.

As with tables 5.1 and 5.2, the replication of table 5.3 in all seven regressions is an exact match of previous results, confirming the data interpretation in *Crisis Bargaining and Nuclear Blackmail*. While the statistically insignificant and negatively correlated "nuclear challenger" coefficient in regression fifteen suggests that there is no support for the argument that a nuclear-armed challenger is able to make more effective compellent threats, in regression sixteen Sechser finds a statistically significant coefficient for "nuclear challenger", implying mixed results overall. This is similar to the findings in tables 5.1 and 5.2. Lafleur hypothesis one does not refute Sechser's hypothesis, but these findings suggest that Sechser may want to modify his original hypothesis to focus on a more holistic nuclear capability suite to be able to determine whether compellence is affected. In regression sixteen, neither Sechser's interaction term "nuclear challenger x nuclear target" nor the Lafleur modification "challenger NCI x target NCI" are statistically significant. In this model, as in model 2, the Sechser variable "nuclear target"

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[79] Ibid. Page 3.

was positively correlated and statistically significant, while the Lafleur replacement variable "target NCI" was also positively correlated but not statistically significant. The greater specificity of nuclear capability in the Lafleur modification challenges Sechser's results in terms of nuclear target significance, probably since most target states score a zero in that variable.

The negatively correlated control variable "dispute history" was found to be statistically significant in both regression fifteen and sixteen for both Sechser and Lafleur's results, suggesting that threats within high-conflict dyads may be likely to succeed; again showing mixed results from earlier models. The control variable "stakes" and the negatively correlated control variable "capability ratio" were not statistically significant in both regressions fifteen and sixteen. Finally, the coefficient for resolve was again found to be both positively correlated and highly statistically significant ($p < 0.01$) in regressions fifteen and sixteen for both Sechser's and Lafleur's results.

Table 5.4: Compellent Threats, Nuclear Weapons, and Nuclear Capability: Pre-1945 observations omitted: Sechser's table compared with Lafleur modifications[80]

Model 4	Sechser	Lafleur	Sechser	Lafleur
	22	22	23	23
Nuclear Challenger	-0.171		-0.344	
	0.302		0.306	
Challenger NCI		0.018		-0.133
		0.066		0.087
Nuclear Target			-0.139	
			0.92	
Target NCI				0.121
				0.225
Nuclear Challenger x Nuclear Target			1.143	
			1.171	
Challenger NCI x Target NCI				0.1
				0.058
Challenger Arsenal Size				
Nuclear Superiority				
Nuclear Ratio				
Difference in Arsenal Size				
Stakes	-0.087	-0.071	-0.098	-0.142
	0.263	0.265	0.27	0.284
Nuclear Challenger x Stakes				
Capability Ratio	-0.259	0.486	-0.166	0.088
	0.553	0.568	0.596	0.708
Dispute History	-0.018	0.022	-0.033	-0.063
	0.024	0.023	0.022	0.027
Resolve	0.66	0.59	0.656	0.572
	0.336	0.34	0.345	0.363
Constant	-0.826	-0.703	-0.809	-0.888
	0.492	0.491	0.519	0.59
N	121	121	121	121
Pseudo R2	0.045	0.043	0.067	0.116

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[80] Ibid. Page 7.

It may be that considering observations prior to the advent of nuclear weapons conflates the value of nuclear weapons to compellence success with other reasons compellent threats may be successful, such as state arsenal size or state gross domestic product. Table 5.4 replicates Sechser's model four, which returns to the original success conditions ("success 1"), but limits the observation sample to include only the 121 post-1945 observations to focus on conflict in the nuclear age. Of the seven regressions in model four, referred to in Sechser's work as regressions twenty-two through twenty-eight, table 5.4 only shows regressions twenty-two and twenty-three, where there are differences in model specification through the replacement of nuclear weapons variables with the NCI index.

As with tables 5.1 through 5.3, the replication of table 5.4 in all seven regressions is an exact match of previous results, confirming the data interpretation in his work *Crisis Bargaining and Nuclear Blackmail*. The statistically insignificant and negatively correlated "nuclear challenger" coefficient in both regressions twenty-two and twenty-three suggest that there is no support for the argument that a nuclear-armed challenger is able to make more effective compellent threats. This is different than the findings in tables 5.1 through 5.3. In regression twenty-two, neither Sechser's interaction term "nuclear challenger x nuclear target" nor the Lafleur modification "challenger NCI x target NCI" are statistically significant. In this model, the Sechser variable "nuclear target" was negatively correlated but not statistically significant, while the Lafleur replacement variable "target NCI" was positively correlated and also not statistically significant.

The negatively correlated control variable "dispute history" was found to be statistically significant only in regression twenty-three for Lafleur's results. The negatively correlated control variable "stakes" and the control variable "capability ratio" were not statistically

significant in both regressions twenty-two and twenty-three. Finally, the coefficient for resolve

was again found to be both positively correlated and statistically significant for Sechser's results

in regressions twenty-two and twenty-three, but not in either of Lafleur's results.

Table 5.5: Compellent Threats, Nuclear Weapons, and Nuclear Capability: Resolve variable dropped[81]

Model 5	Sechser	Lafleur	Sechser	Lafleur
	29	29	30	30
Nuclear Challenger	-0.146		-0.324	
	0.243		0.242	
Challenger NCI		-0.002		-0.138
		0.051		0.072
Nuclear Target			-0.342	
			0.871	
Target NCI				-0.058
				0.17
Nuclear Challenger x Nuclear Target			1.464	
			1.172	
Challenger NCI x Target NCI				0.127
				0.051
Challenger Arsenal Size				
Nuclear Superiority				
Nuclear Ratio				
Difference in Arsenal Size				
Stakes	0.161	0.169	0.144	0.126
	0.197	0.197	0.199	0.203
Nuclear Challenger x Stakes				
Capability Ratio	-0.513	-0.585	-0.553	-0.628
	0.391	0.391	0.39	0.422
Dispute History	-0.029	-0.032	-0.041	-0.054
	0.022	0.022	0.021	0.022
Constant	-0.143	-0.115	-0.52	0.059
	0.348	0.347	0.344	0.369
N	236	236	236	236
Pseudo R2	0.28	0.027	0.042	0.065

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[81] Ibid. Page 8.

It could be the case that nuclear weapons embolden challengers to escalate crises after making threats, in which case the effects of nuclear possession might appear through the "resolve" variable. Table 5.5 returns to the original success conditions ("success 1"), but drops the "resolve" variable. Of the seven regressions in model five, referred to in Sechser's work as regressions twenty-nine through thirty-five, table 5.5 only shows regressions twenty-nine and thirty, where there are differences in model specification through the replacement of nuclear weapons variables with the NCI index.

As with tables 5.1 through 5.4, the replication of table 5.5 in all seven regressions is an exact match of earlier results, confirming the data interpretation in *Crisis Bargaining and Nuclear Blackmail*. While the statistically insignificant and negatively correlated "nuclear challenger" coefficient in regression twenty-nine suggests that there is no support for the argument that a nuclear-armed challenger is able to make more effective compellent threats. This is similar to the findings in earlier tables. In regression thirty, Sechser's positively correlated interaction term "nuclear challenger x nuclear target" is not statistically significant, however Lafleur's positively correlated modification "challenger NCI x target NCI" is statistically significant. Neither of the negatively correlated "nuclear target" or "target NCI" variables were significant.

The negatively correlated control variable "dispute history" was found to be statistically significant in regression thirty for both Sechser and Lafleur's results, suggesting that threats within high-conflict dyads may be likely to succeed; again showing mixed results from earlier models. Neither the positively correlated control variable "stakes" nor the negatively correlated

control variable "capability ratio" was statistically significant in either regression twenty-nine or thirty.

After examining these results, we see that Sechser's "nuclear" variables are of mixed statistical significance and mixed correlation, suggesting that nuclear weapons possession is not associated with more successful threats, but not offering clear evidence as to why. Sechser states that the correlation between the disturbance terms in the two equations is not statistically significant in all models, suggesting that Sechser's initial findings appear to be unbiased. However, Sechser's results may have bias due to oversimplifying the complexity of nuclear capability. Overall, Sechser's results indicate that states possessing nuclear weapons are not more likely than non-nuclear countries to make successful compellent threats, even when the factors that motivate states to issue demands in the first place are accounted for. These results suggest that neither nuclear possession nor nuclear superiority are associated with effective compellent threats, however, it is possible that this finding is due to a selection error. It could be the case that nuclear states tend to issue threats over more valuable issues, thus selecting themselves into crises in which threats are inherently less likely to work. If true, then the coercive benefits of nuclear weapons might be obscured in the crises observed in the MCT dataset.

In closer examination of the Lafleur modifications, we see that the "challenger NCI" variable, as well as the interaction term "challenger NCI and the target NCI", each display statistically significant results in two of the five models. However, the "target NCI" variable never displays statistical significance. These results are inconclusive and generally support Sechser's findings, however these discrepancies in results lend themselves to counterarguments and limitations within the data that must be addressed.

Counterarguments and limitations

The findings in tables 5.1 through 5.5 describe observations about the coercive limits of nuclear weapons, but these empirical findings do not mean that nuclear weapons have no value and they certainly don't mean that nuclear capability has no value. Sechser and Fuhrmann's analysis does not deny that nuclear weapons are indeed valuable tools of deterrence; they question the value of nuclear weapons regarding compellence. One of the key assertions in international relations research regarding coercive threats is that deterrence and compellence may value nuclear activity very differently, so conclusions about the utility of nuclear weapons in one coercive context therefore may apply to other forms of coercion with the same weight.

However, despite this assertion, scholars of international relations still may object to these findings on several grounds. First, because nuclear weapons were not directly employed in any of crises within in the MCT data set, one could argue that Sechser and Fuhrmann did not establish a reasonable test of their hypotheses. Because state-level leaders only very rarely explicitly threaten the use of nuclear weapons, and have never used nuclear weapons in a compellent threat, scholars may also object to a more relaxed hypothesis that explicit nuclear threats would be more likely to succeed than threats that do not mention nuclear punishment. This is also difficult to measure without evidence of explicit threats, a valid point of objection. It might well be the case that explicit nuclear compellent threats would be more effective, but Sechser and Fuhrmann lacked the data to test this hypothesis. However, this research is not limited to nuclear weapons use since it uses an index to denote nuclear capability. Because the states in all of the incidents in the MCT data set display some nuclear activity, direct employment of nuclear *capability* can be measured. Thus, this research further develops the argument regarding the value of nuclear capability vice solely nuclear weapons.

Second, Sechser and Fuhrmann results show that neither nuclear weapons possession nor nuclear weapons superiority enhances the effectiveness of compellent threats, but this is due to a self-imposed limitation regarding nuclear weapons themselves as a direct tool of compellence, not an indirect or potential one. As the theoretical discussion in the earlier chapter described, state power consists of both active as well as potential measures. Recent literature on nuclear coercion suggest that nuclear weapons could shape crisis outcomes even when a state is not threatened, and it is a short leap to expect all nuclear activity would do the same.[82] That particular limitation in Sechser and Fuhrmann's project is challenged by this research and warrants further exploration.

Third, while one could argue that while nuclear weapons may not help compellent threats succeed in all crises, under certain conditions they might be quite useful. For example, if the stakes were sufficiently high, such as regime survival, one might expect nuclear weapons to be more credible tools of compellence. This argument cannot be tested, as those conditions have not yet occurred, but the theoretical underpinnings of this argument should be further developed and used as a thought experiment that could be potentially useful for policy makers to consider.

Finally, one could argue that the examination of nuclear weapons as a dichotomous variable leads to flawed value regarding compellent threat victories. In the eyes of this research, that is the major limitation of Sechser and Fuhrmann's work and the Lafleur modifications to Sechser's original findings support this assertion that nuclear capability is indeed correlated with

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[82] Beardsley, Kyle and Asal, Victor. *Nuclear Winning with the Bomb*. Journal of Conflict Resolution, vol. 53 (2009), pp. 278-301.

conflict onset and conflict victory. This will bear out in the qualitative discussion in the next

three chapters, where specific case studies of state level conflict in the nuclear age examine

conflict onset and victory in light of nuclear capability.

Chapter 6 - Case Study: The Republic of South Africa

The first case that will be examined is conflict in the RSA. The RSA was chosen as a case study for two reasons. First, the RSA faced a Cold War proxy against communist forces linked to the nuclear weapon equipped USSR, and second, the RSA built nuclear weapons, possessed them for ten years, from 1982 to 1991, and then voluntarily gave them up. While other states, such as the Republic of South Korea, Taiwan, Argentina, and Brazil abandoned nuclear programs before they developed a weapon capability; the RSA was the only state to voluntarily dismantle nuclear weapons.[83] It did so for two reasons: first, the primary military existential threat to RSA from Angola was eliminated with the end of the Cold War, and second, the primary political existential threat, Apartheid, ended in 1991. In the nuclear age (1945-present), the RSA experienced conflict a total of 18 times. There were two distinct militarized compellent threat incidents, 12 distinct international crisis behavior incidents, and four shared incidents.

This case study will examine four different time periods. The first time period is from 1945 to 1974, when the Union of South Africa (pre-1961), and later the RSA, was a pre-nuclear weapon state. The second time period is from 1975 to 1980, after the time when the RSA decided to weaponize nuclear power, but before nuclear weapons were completed. The third time period is from 1981 to 1991, while the RSA possessed nuclear weapons. The final time period is from 1992 to present day, after the RSA decided to dismantle its nuclear arsenal. In each of the time periods, this research will discuss key facts that shaped the security and stability challenges of the RSA, an examination of RSA nuclear activity during that time, an examination

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[83] http://web.mit.edu/SSP/seminars/wed_archives01spring/albright.htm 14 March 2001. Accessed 18 September 2017.

of the incidents that occurred between the RSA and other states that led to security or stability

challenges, and finally a summary of the results from those incidents.

Historians and scholars that study the RSA, such as Esterhuyse, Mokoena, Guimaraes,

Bissell, Leonard Thompson, Pollack, and Carter, have broadly chronicled the social and military

conditions that led the RSA to develop a nuclear weapons program and some of their research is

displayed in this chapter. Albright, Weigert, and other scholars have argued that the RSA

developed nuclear weapons as a defensive deterrent measure because of the potential Soviet

threat, and this is corroborated by primary source documents in this research.[84] While many

scholars acknowledge Apartheid as the root cause of RSA domestic troubles during this time,

none directly state that RSA developed nuclear weapons to deter ANC sabotage. While beyond

the scope of this research, there is no clear evidence that nuclear weapons deter a terrorist

organization or any sub-state actor. State level deterrence is the only generally accepted reason

to develop nuclear weapons. These and other researchers have presented RSA actions regarding

the escalation of conflict in Angola as a reaction to an increase in the communist threat, however,

none had yet considered that the decision to begin development of nuclear capabilities, not the

weapons themselves, emboldened the RSA military to initiate conflict at a greater rate. The

expanding nuclear capability suite of the RSA, both real and perceived, emboldened RSA

strategy. In other words the RSA, emboldened by its decision to develop nuclear capability, as

well as the perception by adversaries of RSA nuclear capabilities and allies, both real and

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[84] Esterhuyse and Mokoena describe South African defense sector reform, which provides understanding of the security environment in South Africa as it transitioned from Apartheid to modern times; Leonard Thompson describes the critical period from 1979-1989 in chapter 7 of his book *A History of South Africa* Yale UP 2000. Both are supporting documents, but not directly cited in this dissertation. Regarding sources cited, with respect to Albright, I am referring to *Revisiting South Africa's Nuclear Weapons Program: Its History, Disarmament, and Lessons For Today* page 75 (see page 86 of dissertation for more). Regarding Weigert, I am referring to *Angola: A Modern Military History, 1962-2002* page 70 (see page 89 of dissertation for more). Regarding Polack, I am referring to *The Last Hot Battle of the Cold War: South Africa vs. Cuba in the Angolan Civil War*. These works are referenced and cited at appropriate times throughout this chapter.

perceived, emboldened RSA to initiate conflict against communist forces. Then, the increased

victory percentage of RSA victory from those conflicts emboldened RSA leadership to initiate

more conflict more frequently. Nuclear capability development (both real and perceived) led to

offensive military actions for the RSA, not purely defensive ones.

Current day RSA has a population of 57 million people with a GDP of 295 billion USD.

RSA remains burdened with a low purchasing-power-parity (PPP), due to a significant disparity

in wealth among its population. Today, the RSA is a peaceful and relatively prosperous African

nation, only spending 1.5% of its GDP on defense, and not having participated in an international

crisis behavior or militarized compellent threat in over 24 years, but in the 1980s, the merger of

economic disparity and political policy choices, primarily Apartheid, caused state stability

difficulties. These difficulties led to multiple crises. During the nuclear age, the RSA engaged

in conflict primarily with Angola and surrogate Soviet forces, most notably Cuba. It also

engaged in conflict with Zambia, Mozambique, Lesotho, Botswana, and Zimbabwe. The RSA

had zero conflicts prior to becoming a potential nuclear weapon state, seven conflicts while

developing nuclear weapons, ten conflicts while a nuclear weapon enabled state, and one conflict

since dismantling their nuclear arsenal. The RSA has never directly engaged in conflict with a

nuclear state, but engaged communist proxies in Angola eight times, three of which might have

escalated into a nuclear exchange with the U.S.S.R.

In this research, written and spoken statements by the president and prime minister are

used as evidence of overt signaling before, during, and after crises. This research employs those

statements, or lack of such statements, in each of the four time periods, to better understand state

behavior. In the case of the Union of South Africa, when the National Party came into

legislative power in 1948, under the rule of King George VI, the policy of Apartheid was put into

effect. After 1952, and until 1961, Queen Elizabeth II was the head of state, and a UK governor-general represented the monarch in the Union of South Africa. There was also a prime minister, who was responsible to the Union of South African parliament. After 1961, when the Union of South Africa left the Commonwealth and became the RSA, the office of state president was founded. Between 1961 and 1994, after which the term "state president" was changed to "president", there were six state presidents of RSA. After 1994, there have been an additional four presidents of RSA. Between 1961 and 1984, there were three prime ministers. The post of prime minister was abolished in 1984, and from then on, the president acquired all prime ministerial powers. Therefore, in this case study, written and spoken statements, or the lack of such statements by these individuals, will provide insight into RSA signaling before, during, and after crises.[85] In addition, statements from lead scientists and statesmen will shed additional light on the nuclear aspirations and conditions in the RSA.

In each case study, an examination was made of key speeches by prime ministers or presidents to determine whether growing nuclear capability emboldened that state to initiate conflict at a greater rate. During the course of this research, it was notable how few, if any, references were made by such officials to their growing nuclear capability and most notably, required a "reverse chronological" approach to make sense of RSA security policy during the Cold War. This means that only after nuclear weapons had been dismantled, did the public learn from government leadership in a 1993 speech that the RSA had definitively possessed nuclear weapons. Those few primary source references about nuclear weapons discovered during this

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[85] RSA state presidents include Charles Robberts Swart (1961-1967), Jacobas Johannes Fouche (1968-1975), Nicolaas Johannes Diederichs (1975-1978), Marais Viljoen (1979-1984), Pieter Willem Botha (1984-1989), and Frederik Willem de Klerk (1989-1994). RSA presidents include Nelson Mandela (1994-1999), Thabo Mbeki (1999-2008), Jacob Zuma (2009-2018) and Cyril Ramaphosa (2018-present). RSA prime ministers include Hendrik Frensch Verwoerd (1958-1966), Balthazar Johannes Vorster (1966-1978), and Pieter Willem Botha (1978-1984). 13 positions, but Botha served twice, so 12 distinct individuals.

research are included in the text, and then the "story" is reconstructed from supporting sources to determine how and why leaders from the RSA embarked on the course of nuclear weapons development.

Phase I: Pre-Nuclear Weapon State (1945-1974)

The Union of South African nuclear industry started in 1948 with the Atomic Energy Act, creating the Atomic Energy Board, the predecessor to the Atomic Energy Corporation (AEC), which controlled all nuclear matters within the country.[86] In the Union of South Africa, uranium mining began in 1951 as a by-product of gold and copper mining.[87] The Union of South Africa's nuclear program began during World War II with the discovery of major uranium deposits, ultimately claiming nearly six times the amount of uranium as the U.S., with 322,400 tons of known recoverable uranium compared to 62,900 tons in the U.S.[88] With help from the U.S. and the UK, the Union of South Africa built its first uranium extraction plant in 1952 and sold that extracted uranium to the U.S. and the UK until the mid-1960s.[89]

The Union of South Africa's first large-scale nuclear research and development project was initiated in 1959 under the AEB. The Union of South Africa then created a domestic nuclear

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[86] Albright, David. *Revisiting South Africa's Nuclear Weapons Program: Its History, Disarmament, and Lessons For Today.* Institute for Science and International Security. Washington DC. 2016. Page 1. Also, see http://www.world-nuclear.org/information-library/country-profiles/countries-o-s/south-africa.aspx accessed on 14 September 2017.

[87] ibid.

[88] http://www.world-nuclear.org/information-library/nuclear-fuel-cycle/uranium-resources/supply-of-uranium.aspx accessed on 7 September 2017.

[89] Albright, David. *Revisiting South Africa's Nuclear Weapons Program: Its History, Disarmament, and Lessons For Today.* Institute for Science and International Security. Washington DC. 2016. Page 1.

industry in cooperation with the U.S. *Atoms for Peace* program.[90] The Union of South African

nuclear site at Pelindaba began work shortly after its chief scientists returned from training in the

U.S. at Oak Ridge and the Argonne site in the U.S., acknowledged in a 1977 speech by A.J.A.

"Ampie" Roux, the father of the RSA nuclear program.[91] The first RSA nuclear reactor, named

Safari-1, went critical in 1965. At this time, the goal of the RSA nuclear program was to enrich

domestically harvested uranium and sell it to other countries as reactor fuel, a potentially

lucrative export.[92]

Later, as early as 1967, RSA leadership decided to develop a program to build nuclear

explosive devices for mining operations. By 1969, the RSA joined the U.S. and the U.S.S.R. in

considering the development of nuclear explosives for civil purposes. Called PNE, or peaceful

nuclear explosives, these devices could be used to create harbors, clear mountain passes,

facilitate gas exploration, or facilitate earth moving during mining operations. By 1971, the RSA

Minister of Mines approved the research and development work on PNE devices began. By

1975 the hardware was ready for use, but researchers did not have sufficient HEU to make them

work until 1979.[93]

During Phase I, state presidents include Charles Robberts Swart (1961-1967) and Jacobas

Johannes Fouche (1968-1975). Prime ministers include Hendrik Frensch Verwoerd (1958-1966)

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[90] http://www.world-nuclear.org/information-library/country-profiles/countries-o-s/south-africa.aspx accessed on 14 September 2017.

[91] Albright, David. *Revisiting South Africa's Nuclear Weapons Program: Its History, Disarmament, and Lessons For Today*. Institute for Science and International Security. Washington DC. 2016. Pages 2, 4-6

[92] Ibid. Page 7.

[93] Ibid. Pages 11-12 and 36. Also, from Harris, Verne, Hatang, Sello, and Lieberman, Peter. *Unveiling South Africa's Nuclear Past* on page 459, "De Klerk-era accounts also held that the official nuclear strategy's last resort was a 'demonstration through an underground nuclear test', however insiders admitted that there were at least two additional tests that had been envisioned should the underground test fail to signal its desired deterrent or coercive effect, including an above-ground nuclear demonstration followed by the threat of tactical use."

and Balthazar Johannes Vorster (1966-1978). There was no overt discussion about nuclear weapons development during this time period by RSA leadership and there were no security crises that RSA underwent, however there was one very interesting speech made by Prime Minister, B.J. Vorster in 1967 to the National Party Convention that would describe the changing course of RSA defense policy. This speech was linked to fears that Portugal, which was considered a stabilizing factor in Southern Africa by the RSA, may depart the Southern African region after Algeria obtained independence in 1963, and Lesotho gained independent in 1966, and therefore set the stage for a rapid increase in RSA defense spending.

The first of the three critical speeches, presented at Koffiefontein on August 11th, 1967, by B.J. Vorster, who was the prime minister at the time and later the third president of the RSA, became the outline of RSA security policy for the Cold War. Vorster did this by making three clear and distinct statements about RSA security intentions. The first statement was that

> "…the world is aware of the fact that we shall fight for what is ours. That as small as we are, we are well equipped should any nation in Africa or outside want to act so foolishly as to come and lay claim to what is rightfully ours."[94]

The second statement came shortly thereafter and said

> "No one will with impunity take what is ours…we have eradicated the Communists and subversive elements in South Africa; and whoever wants to stick his neck out in future will be dealt with in the same way."[95]

Finally, the third statement was

> "South Africa is so sound in the economic sphere and is so independent economically that it is in a position to withstand the onslaughts of sanctions, siege, or boycott."[96]

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[94] https://www.sahistory.org.za/archive/extract-speech-made-koffiefontein-11-august-1967 page 2. Accessed 3 January 2019.

[95] Ibid.

[96] Ibid.

These three statements described the security situation and outlined the policy the RSA would follow for the remainder of the Cold War. In this speech, Vorster used the words "stability" and "peace" five times each, the words "hostile" and "subversive" three times each, the words "struggle", "threat", and "communist" two times each, and the words "sanction", "siege", "boycott", "terrorist", and "enemy" once each, but did not say the words "security" or "nuclear" at all.[97]

Phase II: Potential Nuclear Weapon State (1975-1980)

It was not until 1975 when the RSA embarked on a nuclear weapons program. The RSA chose to develop a NWP because, at that time, there were several security challenges that were arising that seemed unanswerable with conventional forces alone. It was thought that military confrontation with satellites of the USSR, primarily due to the increased security threats centered on Angola, could unhinge the relative stability of the South African region and especially the RSA government. But developing a nuclear device was not a fast process; it took until 1981 for the RSA to physically possess a nuclear device. This considerable lag between the identification of a potential existential threat and the perceived means to deter that threat implies the difficulty involved in conducting covert nuclear development. It also suggests that the first five crises between the RSA and Angola were influenced by ever-increasing RSA nuclear capabilities, influencing RSA decision making by the knowledge that nuclear weapons were being developed, and the remaining three crises between the RSA and Angola were influenced by nuclear weapons possession.

In 1972, UNSC resolution 311 called upon all states to strictly observe the arms embargo against the RSA. While these international sanctions slowed NWP development, it neither

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[97] Ibid. Pages 1, 2, and 3.

stopped it nor broke RSA resolve to ensure state security.[98] RSA success in developing a nuclear

weapons program can be attributed to five elements. First, the ability to produce and store HEU

outside an inspection regime; second, a defense industry that could produce delivery systems, in

this case, a glide-bomb delivery system (intermediate-range ballistic missiles); third, highly

trained scientists and technicians, from the mining industry as well as through *Atoms for Peace*;

fourth, a good foreign procurement network; and fifth, simple, low cost weapons design. During

Phase II, RSA state presidents include Jacobas Johannes Fouche (1968-1975), Nicolaas Johannes

Diederichs (1975-1978), and Marais Viljoen (1979-1984). RSA prime ministers include

Balthazar Johannes Vorster (1966-1978), and Pieter Willem Botha (1978-1984). During this

phase, the two dominant political figures in the RSA were Vorster and Botha. They agreed on

the security problem, which was that the post-colonization social and political unrest might be

exacerbated by the introduction of communism to the largely impoverished RSA population, but

they disagreed on how to go about addressing it.[99]

 Since there are only three key speeches by RSA leaders during the Cold War period that

address dramatic adjustments to the security situation, I had to look further afield for additional

primary sources of RSA nuclear development. I found an alternative voice in Mr. Johnstone

"Johnny" Mfanafuthi Makhathini, who was the Chief Representative of the African National

Congress (ANC) to the United Nations from 1977 to 1987, and offered a different view than

RSA apartheid leadership regarding security. While his position demanded he try to increase

pressure on the United States and other key Western partners to disinvest from the RSA, until

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[98] http://web.mit.edu/SSP/seminars/wed_archives01spring/albright.htm 14 March 2001. Accessed 18 September 2017. Think about how North Korea may be following a parallel path.

[99] Guimaraes, Fernando A. *The Origins of the Angolan Civil War: Foreign Intervention and Domestic Political Conflict*. St. Martin's Press. NY. 1998. Pages 196-7.

such a time when the Apartheid Government collapsed and was replaced with a representative democracy, he also chronicled insight into the RSA nuclear development process.[100] This will be linked with RSA conflict throughout this study.

A few words on coding each incident are required to clarify key state attributes such as challenger, target, and winner. As it is unlikely that we will ever be able to uncover the entire truth of who started an incident, the state that is identified as the first to violate international norms will be deemed the challenger and the state being challenged will be deemed the target. For each incident, the act that violated international norms will be explicitly stated, such as physically crossing an international border, firing cross-border on another state's military forces, or conducting a blockade in common sea space.

There are two levels of winning an international conflict: tactical victory and strategic victory. In general, if the challenger is able to complete his intended tactical or strategic action without escalation, he is deemed the winner. If the target is able to deny the challenger the ability to complete his tactical or strategic action, or escalate the conflict to the point where the challenger fails to achieve his objective, the target is deemed the winner. In terms of tactical victory, in the case of any challenger, tactical success is the ability to cross borders and return to sovereign territory with impunity and without the target crossing borders, degrading the efficacy of adversarial forces, or defeating adversarial forces. The status quo (SQ) may remain the same in terms of territory, policy, or state power, but if the challenger acts cross-border with impunity or if the status quo changes, the challenger wins. In the case of a target, tactical success is degradation of challenger military forces.

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[100] *Diplomacy for Democracy: A Collection of Keynote Speeches and Contributions by Mr. Johnny Makhathini at the United Nations in New York, towards the liberation struggle of South Africa.* The Department of International Relations and Cooperation. November 2012. Page v, ix.

In terms of strategic victory, in the case of the RSA as a challenger, strategic success is the preservation of the Apartheid government, and no degradation in overall military capability. Conversely, for a target, strategic success against the RSA is a state-level policy change in governance, such as the dismantling of the Apartheid government, or degradation in overall state-level military capability. A challenger will almost always preserve his strategic SQ. Another way of saying this is that a target will rarely, if ever, gain a strategic victory. An example of that would be Vietnam in 1975, when the U.S. stopped challenging and lost the Vietnam conflict. This distinction in tactical and strategic victory is important when considering the MCT dataset, as in many cases Sechser codes the target as the winner because the SQ does not change, but the challenger achieving tactical success in those cases is clearly evident. This poses a challenge to how Sechser codes victory in the MCT dataset and is crucial to understanding the value of the NCI in terms of wins/losses for challenger vs. target.

The RSA was involved in eight crises during Phase II. The first crisis for the RSA in Phase II was in 1971 at a piece of land on the border of the RSA and Zambia called the Caprivi Strip. South African Defense and Police (SADP) forces were routinely stationed along the Caprivi Strip to prevent guerrilla infiltration from Zambia.[101] On October 5th, 1971, when, after an RSA police vehicle was destroyed in the Caprivi Strip, RSA security forces crossed into Zambia in order to pursue alleged perpetrators.[102] They then crossed back into RSA territory

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[101] Bissell, Richard E. and Crocker, Chester A. editors. *South Africa into the 1980s*. Westview Press. 1979. Page 74. Crocker notes that the U.S. provided South Africa with advanced military hardware relatively covertly. This economic/military relationship may have enabled South Africa to conduct far-reaching raids over the next decade against interstate and intrastate threats to the economic and social viability of the Apartheid regime.

[102] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=244 is the link to incident number 244, Caprivi Strip, 1971.

and no further military activity occurred.[103] On October 8th, 1971, Zambia requested a special session of the UNSC to discuss this and other "numerous violations of RSA forces against the sovereignty, airspace and territorial integrity of Zambia." A UNSC resolution on October 12th, 1971, condemned RSA behavior and called on it to respect the sovereignty of Zambia, ending the crisis.[104]

But the period between the first and second crises was a time of deep, strategic thought for the leadership of the RSA. Documents such as the March, 1974 "Armstrong memorandum" from the Chief of the Defense Staff to the Chief of the South African Defense Force called for RSA investment in the Israeli "Jericho Weapons System"; the basis for the RSA-1 and RSA-2 missiles that are nuclear warhead capable, and underscores that senior military leaders in the RSA were preparing position papers on development or procurement of nuclear weapons and their delivery systems. Having observed the effectiveness of modern air defense capabilities in the Yom Kippur War, RSA military leaders surmised that a missile or a stand-off delivery system such as a glide bomb was a vast improvement over an aircraft-delivered weapon system, which was far more easily destroyed in modern warfare.[105] A reference in *Armament and Disarmament* argued that RSA nuclear devices were never designed as simple gravity bombs, but were sophisticated video-guided glide bombs based on observations of Israel.[106]

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[103] Polack, Peter. *The Last Hot Battle of the Cold War: South Africa vs. Cuba in the Angolan Civil War*. Casemate. 2013. Chapter 3 provides a useful laydown of South African forces, order of battle, and equipment regarding all incidents with Angola. This chapter from Pollack can be referred to in 11 of the 18 incidents in this case study.

[104] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=244 is the link to incident number 244, Caprivi Strip, 1971.

[105] Harris, Verne, Hatang, Sello, and Lieberman, Peter. *Unveiling South Africa's Nuclear Past*. Journal of Southern African Studies. Vol. 30. No. 3. September 2004. Pages 461-3.

[106] Ibid. Page 459.

The "Armstrong memorandum" argued that a significant nuclear threat to the RSA had emerged, justifying the acquisition of a nuclear weapons capability. The threat envisaged was that 'a hostile African nation' might acquire a nuclear weapon, likely from China, and that the U.S., pursuing East-West détente, could not be counted upon to come to the aid of the RSA. This is different from another major line of reasoning, that a potential nuclear attack would come from a Soviet-backed attack from Angola or Mozambique and that the RSA would then try to blackmail the U.S. into intervening.[107] While nuclear weapons may deter a state actor, such as China, from providing such devices to 'a hostile African nation' if the RSA could hold something China values at risk, it is questionable how nuclear weapons could deter a non-state actor, other than holding their sanctuary at risk. That is why the "Armstrong memorandum" should be considered a military planning document that confirms nuclear weapons strategic thought was present in the RSA in 1974, but not a security policy directing the development of nuclear weapons. While the RSA military was interested in nuclear weapons development, at that time the RSA political leadership felt no pressure to build them.[108] That changed in 1975, after the dissolution of the Portuguese colonies of Angola and Mozambique and the U.S. withdrawal of support for anti-Marxist forces in Angola.[109]

The second conflict for the RSA in Phase II occurred with Angola, just prior to Angolan independence taking effect. In November 1975, a provisional Angolan government would take

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[107] Ibid. Page 462.

[108] Albright, David. *Revisiting South Africa's Nuclear Weapons Program: Its History, Disarmament, and Lessons For Today*. Institute for Science and International Security. Washington DC. 2016. Page 17. PNE development began in 1971 and, as some have surmised, there isn't much difference between a PNE and a low-grade nuclear weapon (other than intent), so some would argue RSA launched their program in 1971. Because intent matters greatly in international relations, this research marks 1975 as the decision point when RSA leadership initiated a nuclear weapons development program.

[109] Ibid. Page 463.

effect in Angola, consisting of three factions: the FNLA (the National Front for the Liberation of Angola), supported by the U.S. and Zaire, the Marxist-oriented MPLA, supported by the Soviet Union and Cuba, and UNITA (the National Union for the Total Independence of Angola).[110] A Portuguese high council would oversee the provisional Angolan government. On July 12th, 1975 Soviet-backed MPLA forces attacked the FNLA headquarters in the capital, triggering a crisis for Zaire and Zambia.[111] The USSR provided massive aid to the MPLA, causing alarm in Zaire, Zambia, and the RSA, as well as in the U.S., which had been providing covert aid to both the FNLA and the UNITA movements.[112] There was intense foreign involvement at this point in the Angolan War.

For the RSA, the second crisis was triggered when hydroelectric power projects, built jointly by the RSA and Portugal on the Kunene River bordering South-West Africa, were being threatened by clashes between UNITA and MPLA forces. The RSA sent small units of troops to the hydroelectric projects on August 11th, 1975.[113] Cuba and the USSR were concerned that RSA intervention may result in the defeat of the MPLA, so Cuba decided to increase military aid to the MPLA (which later would be recognized as the legitimate government of Angola). The RSA then increased troop deployment to the area. RSA response to the escalating crisis was the

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[110] Polack, Peter. *The Last Hot Battle of the Cold War: South Africa vs. Cuba in the Angolan Civil War*. Casemate. 2013. Chapter 6 provides a good laydown of UNITA forces and can be referred to in 11 of the 18 incidents in this case study.

[111] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=260 is the link to incident number 260, War in Angola, 1975.

[112] Carter, Gwendolen M. and O'Meara, Patrick eds. *Southern Africa in Crisis*. Indiana UP. 1977. Page 137. Also see Guimaraes, Fernando A. *The Origins of the Angolan Civil War: Foreign Intervention and Domestic Political Conflict*. St. Martin's Press. NY. 1998. Page 151, which cites that Premier Brezhnev initially refused to transport Cuban troops to Angola and did not know who authorized the initial Cuban troop movements to Angola two years prior.

[113] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=260 is the link to incident number 260, War in Angola, 1975.

dispatch of a strike force into Angola on October 23rd, 1975, to aid the FNLA/UNITA alliance.[114] The strike force was successful in recouping earlier territorial losses and inflicted significant personnel loss on MPLA. Cuba responded by sending a large number of troops to fight alongside the MPLA, together with massive arms supplies to Angola from the Soviet Union.

The U.S. crisis ended on December 19th, 1975, when the U.S. Congress refused to grant aid to Zaire or to support the FNLA/UNITA in the aftermath of Vietnam and Watergate.[115] The RSA, after extensive negotiations via British foreign secretary and the Soviet ambassador to London, achieved MPLA guarantees for the security of the hydroelectric projects and the safety of the personnel there. On March 27th, 1976, RSA announced a complete troop withdrawal from Angola.[116]

But the true situation in the RSA was far less clear. In a March 1977 speech to the UNSC, Mr. Makhathini referred to the problem of racism as one akin to the danger posed by the atomic bomb. He then stated that the government of the RSA has

> "turned its energies to the creation of a powerful military machine with which it seeks to dominate the whole southern Africa region. South Africa has built a garrison state, a new laager equipped with the most modern and deadly weapons, equipped indeed with a military nuclear capability."[117]

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[114] Guimaraes, Fernando A. *The Origins of the Angolan Civil War: Foreign Intervention and Domestic Political Conflict*. St. Martin's Press. NY. 1998. Page 90. Guimaraes gives a good account of FNLA and UNITA demands here and goes on to explain the connection between South Africa and these organizations on pages 109-110.

[115] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=260 is the link to incident number 260, War in Angola, 1975.

[116] Angola was not an integral state at this time, but one made up of three warring factions, each supported by a major Cold War power. With all operations against Angola during the Cold War, one must consider the notion that there is proxy activity occurring between the U.S and the U.S.S.R., which provided materiel to sustain all warring factions for the next decade. See Bissell, Richard E. and Crocker, Chester A. eds. *South Africa into the 1980s*. Westview Press. 1979. Pages 143-5 are useful when considering the strategic reasons why both the superpowers were interested in southern Africa.

[117] *Diplomacy for Democracy: A Collection of Keynote Speeches and Contributions by Mr. Johnny Makhathini at the United Nations in New York, towards the liberation struggle of South Africa.* The Department of International Relations and Cooperation. November 2012. Page 7.

After stating that the RSA had acquired nuclear weapons, which was not yet true, Mr.

Makhathini continued, saying

> "...the imperialist global strategy for world hegemony in which South Africa was being armed to the teeth
> and assisted in producing an atomic bomb in order to play the role of regional gendarme...governments of
> France and the Federal Republic of Germany which, together with the former U.S. Administration,
> permitted nuclear collaboration with fascist South Africa, in addition to supplying genocidal weapons."[118]

This was the first time that the ANC announced to the other countries of the world that,

not only did the RSA possess nuclear weapons, but that Western powers were aiding them in

acquiring those weapons. This was true. In an October 1977 speech to the UNSC, Mr.

Makhathini said

> "The United States, France, Great Britain, the Federal Republic of Germany, Japan, Israel and others whose
> record of collaboration with the apartheid regime is well known...because (they are) dependent on South
> Africa for trade, raw materials and strategic arrangements...some of whom have increased their military
> collaboration with the Pretoria regime by furnishing it with licenses which enable it to be virtually self-
> sufficient in the production of war equipment and supplying it with the technological know-how for
> producing atomic weapons."[119]

This was also true, but not released to the public by RSA leadership for another 16 years.

Mr. Makhathini continued

> "the (Pretoria) regime's new Defense Act, in terms of which it arrogates to itself the right to intervene
> militarily in all African countries south of the Equator. Its bellicose position, which went to the extent of
> dismissing the President of the United States as irrelevant, and indeed saying this of all the countries that
> have hitherto delayed action by the international community on the basis that they have the collective
> leverage to exert pressure on Vorster, must be seen against the background of its nuclear capability.[120]

While the above statement was true, it was not true that the RSA conducted a nuclear test.

Mr. Makhathini and other observers assumed that the RSA government conducted nuclear

testing, but they were found out by surveillance prior to making the attempt. According to

Commodore Dieter Gerhardt, commander of the Simonstown Naval Base, who was a highly

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[118] Ibid. Page 8.

[119] Ibid. Page 13.

[120] Ibid. Page 15.

placed Soviet spy in the South African Defense Force, by the summer of 1977 nuclear test preparations were set to begin. Dieter reported this to Soviet leadership, and, according to Dieter, Soviet officials actually recommended strike options against the RSA facility to their Cold War adversary, the U.S., but the U.S. rejected that option.[121] Instead, an article in the Washington Post made public the RSA test preparations, followed by the French foreign minister warning RSA officials of the serious repercussions to their relations should this occur, and the rapid burial of the test site occurred.[122]

By July 1977, the security situation in the RSA was worsening, due to independence of several adjoining Southern African states, backing by Soviet forces and Cuba in Angola, and a reduction in U.S. support, due to failure in Vietnam and lack of Congressional assistance.[123] Recall that the primary scenario RSA leaders envisioned would occur in order to employ their nuclear strategy was that of Soviet forces in Angola overrunning RSA forces and invading RSA territory. In that event, RSA leadership would then display the weapons (which still did not exist) to a strong Western power, likely the U.S., in hopes the U.S. would intervene and end the Soviet invasion. According to many sources, the weapons were never meant to be used, but it is apparent that the idea of possession of nuclear weapons emboldened RSA leadership to increase offensive operations throughout southern Africa, even into Soviet-controlled Angola, for over a decade.[124]

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[121] Albright, David. *Revisiting South Africa's Nuclear Weapons Program: Its History, Disarmament, and Lessons For Today*. Institute for Science and International Security. Washington DC. 2016. Page 75.

[122] Ibid. Page 76.

[123] Ibid. Pages 77-8.

[124] Ibid. Pages 129-130.

Also in 1977, the UNSC unanimously approved a resolution to make mandatory the weapons embargo on the RSA that had previously (since 1963 and again in 1972) been voluntary. After the mandatory UN arms embargo, developing a nuclear deterrent must have seemed even more attractive to RSA leadership, as they could not count on direct external support for security crises.[125] While internal development of nuclear weapons was occurring, it was true that other countries had been contributing materiel and know-how to improve the RSA nuclear weapons development process. In a November 1977 speech to the UNSC, Mr. Makhathini said

> "the U.S., France, the UK, Canada, and the Federal Republic of Germany…(have) provided it (the RSA) with the technological know-how to produce nuclear weapons."[126]

Mr. Makhathini goes on to announce that economic sanctions and the withdrawal of investments would harm the economies of Western countries, so that is why this cooperation persists.[127] Continuing the thread of external support to the RSA nuclear weapons program, in a December 1977 speech to the UNSC, Mr. Makhathini said that despite the countless USGA resolutions and the UNSC mandatory arms embargo "There has been a great deal of action in support and in defense of apartheid in the form of economic, diplomatic, military, cultural and nuclear collaboration."[128]

The third crisis for the RSA in Phase II began in May 1978 when fighting began between SADF and Namibian independence movement forces called the South West African People's

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[125] Ibid. Page 82.

[126] *Diplomacy for Democracy: A Collection of Keynote Speeches and Contributions by Mr. Johnny Makhathini at the United Nations in New York, towards the liberation struggle of South Africa.* The Department of International Relations and Cooperation. November 2012. Page 23.

[127] Ibid. Page 18.

[128] Ibid. Page 28.

Organization (SWAPO), who were based in Angola. Since the Angolan civil war of 1975, Angola had become the main staging area for SWAPO raids into South Africa.[129] A SWAPO attack on the Ruacana hydroelectric power station near the Angolan border on May 3rd, 1978, triggered a crisis for the RSA, who responded by conducting a raid consisting of approximately 700 South African troops into Angola to defeat SWAPO forces.[130]

SADF moved to and occupied the town of Cassinga, 230 kilometers north of the border, which the RSA claimed to be SWAPO's main operational base. In the operations at Cassinga, which lasted for 12 hours, six RSA soldiers and about 1,000 "refugees" were reportedly killed.[131] In addition to ground forces, aircraft were alleged to have been involved. Angolan troops met the attacking forces and suffered huge losses.[132] On May 5th, 1978, Angola appealed to the UN for support. The following day, the UNSC unanimously passed a resolution condemning RSA cross border actions. With the UNSC resolution and the end of the raid, the crisis ended the next day.

The fourth crisis for the RSA in Phase II began on October 22nd, 1978, when Angolan, SWAPO, Cuban, and East German forces launched a major offensive against UNITA in the southern and central parts of Angola.[133] On November 7th, 1978, Angola's minister of defense

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[129] Guimaraes, Fernando A. *The Origins of the Angolan Civil War: Foreign Intervention and Domestic Political Conflict*. St. Martin's Press. NY. 1998. Page 125 describes South Africa's strategy in dealing with SWAPO.

[130] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=291 is the link to incident number 291, Cassinga Incident, 1978.

[131] ibid.

[132] Bissell, Richard E. and Crocker, Chester A. Eds. *South Africa into the 1980s*. Westview Press. 1979. Page 89 shows military forces available to southern African nations in the 1970s and is a handy chart to use when considering correlation of forces. However, this does not provide data on SWAPO, ANC, or other non-state forces.

[133] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=297 is the link to incident number 297, Angola Invasion Scare, 1978.

stated that intelligence reports had reached him of a major buildup of RSA forces along the

border with Namibia; further, that the RSA planned a large incursion into Angola. The same day

Angola responded with a general mobilization of the Angolan army (about 200,000 men) and a

curfew in the five largest urban centers.[134] On November 8th, 1978, the SADF issued a statement

denying any intention of invading Angola. But on November 10th, a bomb explosion in Angola's

second largest city, Muambo, gave rise to the fear of an imminent RSA attack.[135] The next day

Angola's President Neto accused RSA leadership of fighting an undeclared war against Angola

and closed its airspace to RSA over flights.[136] RSA statements claimed that Angola's perception

of war was the result of UNITA successes in the October 22nd, 1978 campaign, and that Angola

wished to detract attention from its domestic problems. The crisis ended with a statement on

November 14th, 1978 by RSA Prime Minister Botha, denying any intention to invade Angola.

In a November 1978 speech to the UNGA, Mr. Makhathini again referred to assistance

given by Western powers to the RSA by stating that "full-scale war preparations, of the racist

regimes, undoubtedly encouraged by the persistent diplomatic, economic and military and

nuclear collaboration by some Western powers. The list is very long."[137] In the same speech,

Mr. Makhathini said "The invasion of Mozambique, Zambia and Botswana and the savage

killing of refugees, including women and children, are part of the grand design to rob the

people's struggle, led by the South West Africa People's Organisation (SWAPO) and the

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[134] Weigert, Stephen L. *Angola: A Modern Military History, 1962-2002*. Palgrave MacMillan. 2011. Page 70.

[135] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=297 is the link to incident number 297, Angola Invasion Scare, 1978.

[136] Carter, Gwendolen M. and O'Meara, Patrick Ed. *Southern Africa in Crisis*. Indiana UP. 1977. Page 145.

[137] *Diplomacy for Democracy: A Collection of Keynote Speeches and Contributions by Mr. Johnny Makhathini at the United Nations in New York, towards the liberation struggle of South Africa*. The Department of International Relations and Cooperation. November 2012. Page 39.

Patriotic Front, of imminent victory."[138] Later in that same speech, Mr. Makhathini commented

that when "Botha says South Africa is part of the free world and reminds the five powers of how

it fought together with them, not only to preserve democratic ideals, but actively to oppose

communism, what is the answer? The answer to this lies in the role of the Western transnational

corporations, which continue to concentrate heavy investments in South Africa in the most

technologically advanced sectors."[139] According to ANC leadership, Western powers were not

abiding by the UNSC mandatory arms embargo, nor were they supporting democracy in the

RSA.

The fifth conflict for the RSA in Phase II came about after SWAPO activity against the

RSA reached its highest intensity. On March 6th, 1979, air and ground attacks by the SADF on

SWAPO targets in southern Angola triggered a crisis for Angola. The attacks lasted until the

March 15th, 1979, with the targets being primarily SWAPO supply depots. Some villages were

attacked as well, and minor clashes were reported between the forces.[140] Angolan leaders

accused the RSA of using napalm, but there was no verification of this claim. On March 16th

1979, Angola approached the UN for help.[141] The UNSC met between March 20th and 28th 1979,

and passed a resolution condemning RSA activities in Angola and demanded an immediate end

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[138] Ibid. Page 40.

[139] Ibid. Page 41.

[140] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=302 is the link to incident number 302, Raid on SWAPO, 1979.

[141] Bissell, Richard E. and Crocker, Chester A. eds. *South Africa into the 1980s*. Westview Press. 1979. Page 76 is helpful when considering the relationship South Africa has with the U.S. and UK in terms of allied partners in WWII and why those major powers might have helped South Africa prevail over the many attempts at UNSC condemnations over the years.

to provocative acts; it also called for "aid to strengthen the defensive capabilities" of Angola.[142] The resolution ended the crisis for Angola's decision makers. The United States abstained from the Security Council vote, but in a March 1979 speech to the UNSC, Mr. Makhathini commented that in 1975, after years of Portuguese rule "the newly-born People's Republic of Angola was the victim of premeditated and full-scale invasion by (the RSA)."[143]

The sixth conflict for the RSA in Phase II came about in September 1979, just after Angolan President Augustino Neto died. A day after his death, Angolan sources reported an RSA attack on several economic targets in southern Angola. Then, on October 13th 1979, reportedly for the first time, Angolan forces crossed into South-West Africa.[144] On October 28th 1979, RSA troops attacked roads and bridges 190 kilometers inside Angola, in the Sierra da Leba area.[145] Angola responded with an appeal to the UN and the crisis ended on November 2nd, 1979, when the UNSC adopted a resolution condemning the RSA and calling for an immediate SADF withdrawal.[146] The U.S. abstained from the UNSC vote. There was no change in the Angola/RSA relationship after the crisis ended and no reports of withdrawal by the SADF from Angola at the end of the raids. The stalemate continued.

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[142] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=302 is the link to incident number 302, Raid on SWAPO, 1979.

[143] *Diplomacy for Democracy: A Collection of Keynote Speeches and Contributions by Mr. Johnny Makhathini at the United Nations in New York, towards the liberation struggle of South Africa.* The Department of International Relations and Cooperation. November 2012. Page 45.

[144] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=308 is the link to incident number 308, Raid on Angola, 1979.

[145] ibid.

[146] Davenport, Rodney and Saunders, Christopher. *South Africa: A Modern History*. St. Martin's Press. NY. 2000. Pages 523-30 where the relationship between the UN and South-west Africa is discussed at length.

In a November 1979 appeal to the UNGA, Mr. Makhathini said "In 1976, the General Assembly went beyond the pious condemnation of apartheid and recognised the legitimacy of the struggle (in USGA Resolution 31/6-1) in all forms, including armed struggle, for the seizure of power by the people of South Africa."[147] In the same speech, Mr. Makhathini said

> "The active support given to the apartheid regime by the USA, Great Britain, France, the Federal Republic of Germany, Israel, and other Western countries must be stopped…some Western countries have continued their policy of stepping up economic, military and nuclear collaboration with this regime, as well as diplomatic protection through the use of the veto, to frustrate the international effort aimed at the application of Chapter VII of the Charter."[148]

Later in that same speech, Mr. Makhathini said

> "But perhaps the most ominous development is marked by the regime's (RSA) recent detonation of an atomic device. On this issue, we wish to place full responsibility for this grave situation on those countries which have always assisted by their policy of nuclear collaboration the South African regime – meaning the USA, the Federal Republic of Germany, France and Israel."[149]

The seventh crisis for the RSA in Phase II began on June 7th, 1980, when the SADF penetrated into Angola and carried out large-scale operations in Angola's southern border provinces of Cunene and Cuando-Cubango, designed to destroy the operational headquarters of SWAPO.[150] Angola's major response was a request on June 26th 1980, for an urgent meeting of the UNSC. Angolan leadership announced that if Angola's forces were unable to repel the SADF, it would request outside help from Moscow-backed Cuban intervention.[151] On June 27th, 1980, the UNSC passed a resolution condemning the RSA for its raid and called for immediate withdrawal of SADF from Angola. This had a decisive impact on crisis resolution: on June 30th,

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[147] *Diplomacy for Democracy: A Collection of Keynote Speeches and Contributions by Mr. Johnny Makhathini at the United Nations in New York, towards the liberation struggle of South Africa.* The Department of International Relations and Cooperation. November 2012. Page 53.

[148] Ibid. Page 53.

[149] Ibid. Page 54.

[150] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=313 is the link to incident number 313, Operation Smokeshell, 1980.

[151] Weigert, Stephen L. *Angola: A Modern Military History, 1962-2002*. Palgrave MacMillan. 2011. Pages 72-3.

1980, Pretoria notified the UN that all its forces in Angola had been withdrawn.[152] At the

beginning of July 1980, Angolan troops claimed to have reoccupied several villages and towns,

and crisis termination occurred on July 2nd 1980, when the SADF flew Western journalists and

military attaches to the border zone for inspections. In a June 1980 speech to the UNSC, Mr.

Makhathini said

> "During those 17 years (between 1964 and 1980), the apartheid regime has not only developed a nuclear capability but also arrogated to itself the right to intervene militarily in all African countries south of the Equator. It has carried out a full-scale invasion of Angola and on several occasions threatened and committed aggression against Zambia, Angola, and Mozambique."[153]

The eighth crisis for the RSA in Phase II began on November 26th, 1980, when the RSA

prime minister publicly warned RSA neighbors that continued support for African National

Congress (ANC) guerrillas would result in cross-border raids by the SADF. The trigger to

Mozambique's crisis was a SADF raid on January 30th 1981, which destroyed ANC headquarters

in Matola, a suburb of the Mozambique capital, Maputo.[154] The SADF reported 30 ANC

members and two of its soldiers killed. On February 8th 1981, the ANC President Oliver Tambo

denied that there were ANC bases or training camps in Mozambique.[155] The presence of Soviet

warships in Mozambique waters threatened to escalate the conflict, as did Soviet Ambassador

Vdovin's warning of an "appropriate response" if "anyone attacks us or our friends."[156] No such

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[152] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=313 is the link to incident number 313, Operation Smokeshell, 1980.

[153] *Diplomacy for Democracy: A Collection of Keynote Speeches and Contributions by Mr. Johnny Makhathini at the United Nations in New York, towards the liberation struggle of South Africa.* The Department of International Relations and Cooperation. November 2012. Page 58.

[154] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=323 is the link to incident number 323, Mozambique Raid, 1981.

[155] Carter, Gwendolen M. and O'Meara, Patrick eds. *Southern Africa in Crisis*. Indiana UP. 1977. Pages 72-80.

[156] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=323 is the link to incident number 323, Mozambique Raid, 1981.

attacks occurred, but in an April 1981 speech to the UNSC, Mr. Makhathini said that according

to Resolution 301 (1971), the RSA mandate allowing it to occupy Namibia was terminated, and

must withdraw immediately."[157] The crisis faded late in March 1981, without an agreement,

formal, informal, or tacit.

In the same speech, Mr. Makhathini said

"Alarmed by the persistent call for mandatory economic sanctions, Canada, France, the Federal Republic of
Germany, the United Kingdom, and the United States of America (USA) urged the UN to allow them an opportunity
of negotiating with South Africa to accept UN supervised and controlled elections. In April 1978, (South Africa)
announced its acceptance of the plan. At the same time, it mounted the most savage repression against SWAPO and
its followers. Cassinga in Angola was attacked and more than 800 unarmed men, women, children, and refugees
were killed."[158]

Later in that same speech, Mr. Makhathini said "…the notorious secret Memorandum 39

(NSSM 39 10 April 1969), drawn up by the National Security Council during Nixon's

administration, which argued that there was no realistic or supportable alternative for the

Americans except to side with the whites in South Africa."[159] Finally, Mr. Makhathini said "The

same goes for the campaign to characterize the liberation movement of southern Africa,

SWAPO, and the ANC as terrorists or Soviet proxies."[160]

Applied Qualitative Data Specific to RSA for Phase II

Table 6.1: RSA Crises, Phase II Potential Nuclear Weapon State

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[157] *Diplomacy for Democracy: A Collection of Keynote Speeches and Contributions by Mr. Jonny Makhathini at the
United Nations in New York, towards the liberation struggle of South Africa.* The Department of International
Relations and Cooperation. November 2012. Page 73.

[158] Ibid. Page 73.

[159] Ibid. Page 75.

[160] Ibid. Page 76.

Crisis	Year	CH (NCI)	TA (NCI)	CH Win	Higher NCI Win	Higher NCI CH	SA Win	Nuclear activity	UN involvement
Caprivi Strip	1971	SA (2)	Zambia (0)	Yes	Yes	Yes	Yes	No	Yes - CT
War in Angola	1975	SA (2)	Angola (0)	Yes	Yes	Yes	Yes	No	No
Cassinga Incident	1978	SA (2)	Namibia (0)	Yes	Yes	Yes	Yes	No	Yes - CT
Angola Invasion Scare	1978	Angola (0)	SA (2)	Yes	No	No	No	No	No
Raid on SWAPO	1979	SA (2)	Angola (0)	Yes	Yes	Yes	Yes	No	Yes - CT
Raid on Angola	1979	SA (2)	Angola (0)	Yes	Yes	Yes	Yes	No	Yes - CT
Operation Smokeshell	1980	SA (2)	Angola (0)	Yes	Yes	Yes	Yes	No	Yes - CT
Mozambique Raid	1981	SA (2)	Mozambique (0)	Yes	Yes	Yes	Yes	No	No

Table 6.1 shows that while the RSA was in Phase II as a potential nuclear weapon state, the state with the greater nuclear capability won 87.5% (7 of 8) of the crises, supporting hypothesis one that conjectures the state with the greater nuclear capability should win more often. Table 6.1 also shows strong support for hypothesis two, in that 87.5% (7 of 8) of the crises during this period were initiated by the state with the greater nuclear capability. These results suggest that nuclear capability has value in terms of conflict onset and victory. During this time period, one crisis met Sechser's criteria for a compellent threat, and the result strongly support both hypotheses (100% higher NCI initiated and 100% higher NCI won). These results suggest that nuclear capability at the state level has compellent value.[161]

All throughout Phase II, Prime Ministers Vorster and Botha set a course to deter the spread of communism in the South African region should conventional forces and diplomacy fail. By the time communism began to spread to the region, RSA had already been politically and economically isolated, due to the continuing policy of Apartheid. In 1968, Botha remarked, "If the non-communist world would not support South Africa as a strategic ally, it (RSA) would have to defend the Cape route alone, for its own and the free world's sake, whatever the sacrifices."[162] It was clear that the USSR as well as the U.S. saw in Angola evidence that the

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[161] Militarized Compellent Threat number 170. Results of all nine case study tables will be discussed in the conclusion.

[162] Guimaraes, Fernando A. *The Origins of the Angolan Civil War: Foreign Intervention and Domestic Political Conflict*. St. Martin's Press. NY. 1998. Page 125.

USSR, albeit through surrogates, could and would project conventional power on a global level.[163] In 1973 Prime Minister Vorster stated, "South Africa was determined to defend itself and the free world to the utmost of its ability, even if the free world should continue denying South Africans the arms to do so" implying the development of nuclear weapons as a tool of last resort.[164] After the war in Angola left communism alive in the region, and RSA remained politically and economically isolated, although U.S. covert funding did assist the struggle in Angola, it was not enough. Botha pressed forward with the goal to develop nuclear weapons to be able to deter communism without the help of the U.S.[165]

Phase III: Nuclear Weapon State (1981-1990)

In addition to the nuclear research facility at Pelindaba, the RSA constructed two commercial nuclear power plants that went critical in 1984.[166] Major powers, such as the U.S., were not worried about RSA proliferation, because even as late as spring 1981 after the Rockefeller Report was released, U.S. officials assumed that the RSA would be dependent upon foreign (probably U.S.) supplied nuclear fuel to run their three reactors. But, in May 1981, Botha announced that the RSA possessed the technology to enrich uranium, which signaled that the RSA had the ability to develop nuclear weapons. This was one of the very few signals that

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[163] Ibid. Page 194.

[164] Ibid. Page 124.

[165] Ibid. Page 195.

[166] http://www.world-nuclear.org/information-library/country-profiles/countries-o-s/south-africa.aspx accessed on 14 September 2017.

RSA leaders gave about nuclear activity for the next ten years, until President de Klerk announced the dismantling of the RSA nuclear weapons.[167]

By the end of the 1980s, those three facilities had produced approximately 500kg of HEU. Weaponizing this HEU was the responsibility of Armscor, the primary weapons development agency for the RSA. "Circle" was the name used to denote the nuclear weapons research and development facility in the RSA, and in May 1981, Botha told the select crowd at commissioning "The time has come when the South African 'Plowshare' must be forged into a sword, for the battle that awaits. He continued and said that a nuclear weapon is "primarily a political weapons system, not a military system…(a weapon of) inducement, persuasion, and compulsion in the hands of the leaders of the world."[168] Armscor developed the first RSA nuclear device in 1982, capable of being dropped out of a plane; later they were glide-bomb systems with a range of 60 kilometers and accurate to within one meter.[169] Key reactor components were procured from abroad, such as instrumentation used to measure isotopic concentrations from Germany, industrial-process computers from the U.S., and uranium hexafluoride from France.[170] According to one source, Armscor acquired Israeli missile technology for a collaborative missile development program in the 1980s".[171] In 1985, the RSA government determined that seven nuclear weapons would be sufficient to provide adequate state

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[167] Davenport, Rodney and Saunders, Christopher. *South Africa: A Modern History*. St. Martin's Press. NY. 2000. Pages 546.

[168] Albright, David. *Revisiting South Africa's Nuclear Weapons Program: Its History, Disarmament, and Lessons For Today*. Institute for Science and International Security. Washington DC. 2016. Pages 91-2.
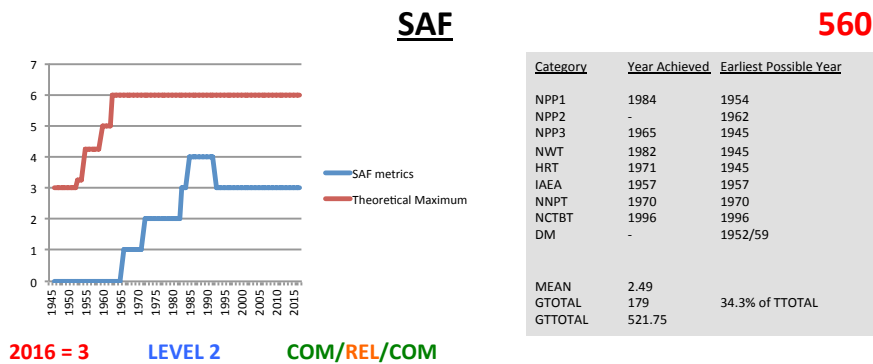
[169] Ibid. Pages 101-2.

[170] Ibid. Page 54.

[171] Harris, Verne, Hatang, Sello, and Lieberman, Peter. *Unveiling South Africa's Nuclear Past*. Journal of Southern African Studies. Vol. 30. No. 3. September 2004. Page 461.

security. By 1989, the RSA had six fully operational nuclear devices, each with 55kg of HEU, and enough HEU for a seventh device.[172]

The chart below summarizes the nuclear capability index for the RSA between 1945 and 2016, and will be explained in the following paragraphs.

SAF　　　　　　　　　　　　　　**560**

Category	Year Achieved	Earliest Possible Year
NPP1	1984	1954
NPP2	-	1962
NPP3	1965	1945
NWT	1982	1945
HRT	1971	1945
IAEA	1957	1957
NNPT	1970	1970
NCTBT	1996	1996
DM	-	1952/59
MEAN	2.49	
GTOTAL	179	34.3% of TTOTAL
GTTOTAL	521.75	

Chart legend: SAF metrics; Theoretical Maximum

2016 = 3　　**LEVEL 2**　　**COM/REL/COM**

Preliminary data interpretation as monad: SAF is a level 2 nuclear state. SAF developed a nuclear research facility in 1965 and a nuclear power plant in 1984. SAF has no nuclear weapons, however SAF did possess nuclear weapons from 1982 to 1991, after which it became the first and only state to voluntarily give up nuclear weapons. SAF is compliant with international nuclear regimes and is a charter member of the IAEA. SAF reluctantly ratified the NPT after 21 years and ratified the CTBT.

Theoretical maximum was 3 until 1952, 3.25 until 1954, 4.25 until 1959, 5 until 1962, and 6 after 1962

6/19/18　　　　Dissertation research by COL Tom Lafleur　　　　42

Figure 6.1 Nuclear Activity, RSA

The RSA is currently a level two nuclear power, but as described previously, was a level six nuclear state between 1982 and 1991. The RSA nuclear research facility Safari I went

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[172] http://web.mit.edu/SSP/seminars/wed_archives01spring/albright.htm 14 March 2001. Accessed 18 September 2017. All the devices were stored unassembled, with the front and rear portions of the weapons stored in separate vaults. Four codes were required to assemble the two parts into a weapon. Finally, weapons would only arm if they reached a certain altitude on board their delivery aircraft.

critical in 1965 and its first commercial nuclear power plant went critical in 1984.[173] The RSA currently has no HEU refinement capability and has no nuclear weapons, however did have between 1982 and 1991. The RSA is currently compliant with the three relevant international nuclear regimes. The RSA was a charter member of the International Atomic Energy Agency, a reluctant ratifier of the Non-Proliferation Treaty, and compliant with the Comprehensive Test Ban Treaty. Not surprisingly, the spike in RSA's graph occurred during the time of peak crisis (between 1978 and 1985), indicating RSA leadership expected an increase in nuclear activity to contribute to victory in interstate crises.

The RSA was a charter member of the United Nations, joining in November 1945, but in November 1962, the United Nations General Assembly (UNGA) passed a resolution condemning Apartheid, and in November 1974, the RSA was suspended from UN membership. The RSA was re-admitted to the UN in 1994 after dismantling the Apartheid government.

During Phase III, state presidents for the RSA include Marais Viljoen (1979-1984), Pieter Willem Botha (1984-1989), and Frederik Willem de Klerk (1989-1994). The RSA prime minister was Pieter Willem Botha (1978-1984). Botha and other officials were able to safeguard RSA nuclear secrets because they had an independent source of nuclear fuel. Other than the May, 1981 announcement about HEU production, RSA leaders did not issue public statements regarding nuclear weapons. RSA also refused to sign the NPT until after terminating their nuclear weapons program in 1990.[174]

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[173] Davenport, Rodney and Saunders, Christopher. *South Africa: A Modern History*. St. Martin's Press. NY. 2000. Pages 545-6 corroborate the world nuclear organization information regarding much of the development of South Africa's nuclear activity.

[174] Ibid. Page 546.

The RSA was involved in nine crises during Phase III. The first crisis for the RSA in Phase III was conducted from August 23rd to September 30th 1981 and was called Operation Protea.[175] The objectives of Operation Protea were to thwart Angola's plans to extend its radar missile air defense system southward and to create a buffer zone along the northern side of the Namibian border in order to prevent SWAPO infiltration into northern Namibia.[176] In response to Operation Protea, in an August 1981 speech to the UNSC, Mr. Makhathini said "The Security Council itself has, through Resolution 473 (1980), recognised the legitimacy of that struggle for the establishment of a democratic state…the ANC combatants have strictly adhered to the instructions of their leadership – instructions to focus exclusively on guarded installations and police stations and thus avoid soft targets", implying that ANC had been attacking RSA forces, not SWAPO.[177]

While defeat of SWAPO bases were the primary SADF goal, keeping the Angolan army from reinforcing SWAPO was also important, hence the Algerian military headquarters in Xangongo was also heavily bombed.[178] Operation Protea began with heavy bombing raids on the Angolan towns of Cahama and Chibemba. The bombing raids were followed by an RSA invasion consisting of two motorized columns, with 80 vehicles and 32 tanks.[179] The town of

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[175] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=331 is the link to incident number 331, Operation Protea, 1981.

[176] Weigert, Stephen L. *Angola: A Modern Military History, 1962-2002*. Palgrave MacMillan. 2011. Pages 78-80.

[177] *Diplomacy for Democracy: A Collection of Keynote Speeches and Contributions by Mr. Johnny Makhathini at the United Nations in New York, towards the liberation struggle of South Africa.* The Department of International Relations and Cooperation. November 2012. Page 70.

[178] Davenport, Rodney and Saunders, Christopher. *South Africa: A Modern History*. St. Martin's Press. NY. 2000. Page 549 discusses SWAPO tactics such as assassination attempts, murders of farmers, and abductions. SWAPO avoided direct military conflict, if at all possible.

[179] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=331 is the link to incident number 331, Operation Protea, 1981.

Xangongo was reduced to rubble and occupied by SADF, with the goal to cut off SWAPO guerrillas from escape to the east and of preventing interference by Angola's armed forces.

Angola's defense ministry responded with general mobilization and a threat to deploy 20,000 troops to repel the invaders. President dos Santos sought the UN Secretary-General's help in repelling the invasion, with a threat to invoke Article 51 of the UN Charter--the right of self-defense, including the use of Cuban troops then in Angola.[180] On August 27th 1981, Angola requested that the UNSC demand an immediate withdrawal of RSA forces. The next day the commander-in-chief of the SADF announced that his troops were withdrawing from Angola. Angola's crisis ended on 30 September 30th, 1981, with its reoccupation of Xangongo and several other towns vacated by the SADF. The superpowers were active politically in this crisis. The U.S., as noted, adhered to "constructive engagement." The USSR, as well as the OAU, called for unqualified condemnation of the RSA invasion and the imposition of sanctions. In a November 1981 speech to the UNGA, Mr. Makhathini said

> "The UNGA has repeatedly called on all member states to sever or refrain from establishing diplomatic, economic, military, nuclear, and cultural and sports relations with the apartheid regime. In this connection, the UNGA has also called on all member states to give moral, political and material support to the national liberation movement of South Africa in support of the legitimate struggle that it is waging in all forms, including armed struggle, for the seizure of power by the people and for the establishment of a democratic state based on the principle of universal suffrage."[181]

In the same speech, Mr. Makhathini said "Angola has, since the invasion of 1975, been the victim of the permanent and undeclared war of aggression…Mozambique has also been the target of periodic military incursions…Zimbabwe has been the victim of economic and military

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[180] Carter, Gwendolen M. and O'Meara, Patrick Ed. *Southern Africa in Crisis*. Indiana UP. 1977. Pages 149, 155.

[181] *Diplomacy for Democracy: A Collection of Keynote Speeches and Contributions by Mr. Johnny Makhathini at the United Nations in New York, towards the liberation struggle of South Africa*. The Department of International Relations and Cooperation. November 2012. Page 61.

sabotage."[182] Later in that same speech, Mr. Makhathini said "The U.S. policy in the future will be that of rewarding those African countries that befriend South Africa, and punishing and toppling those that support SWAPO and the ANC."[183]

The second crisis for the RSA in Phase III occurred in early 1982 with Lesotho. Lesotho, like Angola and Zambia, experienced multiple crises with the RSA as part of Pretoria's continuing struggle against forces of the African National Congress (ANC). In early 1982, several sub-crisis incidents led to a crisis between the RSA and Lesotho. First, economic and political sites in Lesotho were attacked. The Prime Minister of Lesotho, Chief Jonathan, accused the Pretoria regime of supporting these raids. On August 7th 1982, Lesotho's Minister of Works, Jobo K. Rampeta, was killed in an ambush.[184] Thirdly, a border incident was reported the same day and, once again, Lesotho accused the RSA of initiating the incident.[185] Finally, a crisis was triggered on December 9th 1982, when SADF launched a raid against the homes of ANC members in the capital of Lesotho, killing 32 people.[186] The next day Chief Jonathan condemned the raid and lodged a complaint with the UNSC that led to a resolution on December 15th 1982 condemning the RSA attack, terminating the crisis.

In a June 1982 speech to the UN Special Committee against Apartheid, Mr. Makhathini said

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[182] Ibid. Page 65.

[183] Ibid. Page 66.

[184] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=339 is the link to incident number 339, Lesotho Raid, 1982.

[185] Davenport, Rodney and Saunders, Christopher. *South Africa: A Modern History*. St. Martin's Press. NY. 2000. Page 547 describes the economic dependence states such as Lesotho had on South Africa.

[186] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=339 is the link to incident number 339, Lesotho Raid, 1982.

"(The apartheid government has) escalated its policy of destabilisation and aggression against neighboring states. The undeclared war of aggression against the People's Republic of Angola and Mozambique, as well as the arming, financing and training of counter-revolutionaries from Zimbabwe, Lesotho, Zambia and the rest of the frontline states, is part of this global strategy. In this, the Botha regime has been encouraged by the statements and acts of friendship and solidarity that continue to emanate from Washington. The vetoing of the Security Council resolution, which would have condemned South Africa aggression against Angola, and the violation of the arms embargo by the United States (USA) are tantamount to licensing wanton aggression against the African subcontinent by the apartheid regime."[187]

In a December 1982 speech to the UNSC, Mr. Makhathini said

"It (Apartheid government) has committed this unprovoked aggression against Lesotho, which has resulted in the death of dozens of innocent refugees, and Lesotho nationals in particular, including women and children and even a couple on their honeymoon who had arrived in Lesotho a day before the attack."[188]

In a June 1983 speech to the UNSC, Mr. Makhathini said

"On 23 May (1983), South African war planes attacked Mozambique, bombing civilian targets, including private houses, a factory and crèche, killing five adults and a child. This was boastfully reported by the apartheid regime as an act of retaliation for what took place in Pretoria on 20 May (1983) when the armed combatants of Umkhonto we Sizwe attacked the South African Air Force headquarters."[189]

In a November 1983 speech to the UNGA, Mr. Makhathini said

"After committing one flagrant act of aggression after another against independent African states, the regime (South Africa) has the effrontery to propose a so-called non-aggression pact with them. Lesotho, Zimbabwe, Angola, Mozambique, Botswana and Zambia – to mention but a few – not one of these states has sent a single soldier to fire a single shot in South African territory."[190]

The third crisis for South Africa in Phase III began on December 6th, 1983, when the

RSA launched a preemptive invasion of southern Angola and attacked targets more than 150

miles beyond the border with the goal of disrupting preparations by SWAPO guerrillas for

incursions into the RSA.[191] Serious clashes continued throughout December around the towns of

Cubama, Caiundo, and Cassinga, with the most intense fighting early in January at Curelai,

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[187] *Diplomacy for Democracy: A Collection of Keynote Speeches and Contributions by Mr. Johnny Makhathini at the United Nations in New York, towards the liberation struggle of South Africa.* The Department of International Relations and Cooperation. November 2012. Page 87.

[188] Ibid. Page 81.

[189] Ibid. Page 92.

[190] Ibid. Page 104.

[191] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=347 is the link to incident number 347, Operation Askari, 1983.

where RSA troops clashed not only with SWAPO, but also with Angolan and Cuban forces.[192]

Angola responded to the crisis with military resistance and with a complaint to the UNSC that the RSA had committed aggression against its territory, requesting an emergency session of the Council. The UNSC adopted a resolution on December 20th 1983, again censuring the RSA for military operations in Angola and demanded unconditional withdrawal from Angola. SADF withdrew only after Angola agreed to control SWAPO and the military phase of the conflict terminated on December 31st 1983, but diplomatic discussions continued to attempt to reach a more lasting peace. On February 16th 1984, Angolan and RSA delegations, with assistance from Ambassadors from the U.S. and the USSR, signed the Lusaka Agreement to establish a joint monitoring commission to supervise the withdrawal of RSA troops from Angola that, in return, undertook not to permit SWAPO forces to move into Namibia.[193] This marked the end of Angola's crisis and, with it, the end of Operation Askari.

The fourth crisis for the RSA in Phase III began on March 16th, 1984, when the Nkomati Accord between Mozambique and the RSA eliminated Mozambique as a sanctuary for the ANC. Pretoria, concerned that the ANC would move its bases from Mozambique to Botswana, pressed Botswana to sign a similar agreement, but Botswana refused. On June 14th, 1985, the SADF launched a preemptive cross border raid on multiple centers of ANC guerrilla activity in Gaborne, the capital of Botswana.[194] In protest to the cross border raid, the U.S. recalled its ambassador from Pretoria, the UK protested to RSA ambassadors in London and in India, and to

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[192] Weigert, Stephen L. *Angola: A Modern Military History, 1962-2002*. Palgrave MacMillan. 2011. Page 79.

[193] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=347 is the link to incident number 347, Operation Askari, 1983.

[194] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=355 is the link to incident number 355, Raid on Botswana, 1985.

other members of the Non-Aligned Movement to denounce the raid.[195] The UNSC passed

resolution 568 on June 21st 1984, unanimously condemning the RSA cross border raid and

demanded that it pay "full and adequate compensation."[196] This ended the crisis for Botswana.

After the Mozambique raids, the second critical speech from a president of the RSA was

given. It was called the "Rubicon" speech, and was made on August 15th, 1985, by Pieter

Willem Botha. This speech was made less than two months after the incident with Botswana

(June 14th-21st, 1985) and less than four months prior to the incident with Lesotho (December

20th 1985 – January 26th 1986), yet no mention of conflict with either of these two states was

mentioned. Botha did make several key points about policy and security in the RSA. The first

statement was that "One of the major activities of the Congress is to decide on Party policy" yet

there was no direct mention of nuclear weapons development, or specific defense programs of

any kind.[197] However, later in the speech, Botha referred to the procurement, development, and

funding of South African arms, as well as to defense policy.

> "When I was Minister of Defence and the world started an arms boycott against South Africa, I called upon the private sector to support the Government in providing our own arms, which they did successfully."[198]

This statement does not offer limits to which type of arms the private sector built. The

last series of statements reinforce RSA defense policy of independently standing firm against all

possible threats. Botha states

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[195] Davenport, Rodney and Saunders, Christopher. *South Africa: A Modern History*. St. Martin's Press. NY. 2000. Page 547.

[196] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=355 is the link to incident number 355, Raid on Botswana, 1985.

[197]https://omalley.nelsonmandela.org/omalley/index.php/site/q/03lv01538/04lv01600/05lv01638/06lv01639.htm page 3. Accessed 3 January 2019.

[198] Ibid. Page 6. Accessed 3 January 2019.

"We have never given in to outside demands and we are not going to do so now." "We are not going to be deterred from doing what we think best, nor will we be forced into doing what we don't want to do." "If necessary, we will use stronger measures but they (revolutionaries) will not succeed."[199]

This statement may imply that Botha considered use of nuclear weapons against Cuban forces in Angola, if pressured past the point of conventional deterrence. Shortly after this speech, in September 1985, the RSA government placed limits on the nuclear weapons program, establishing the maximum number of weapons at seven, and stopping work on plutonium systems as a cost-saving measure.[200]

The fifth crisis for the RSA in Phase III began in late 1985. A major regional policy goal for the RSA during the 1980s was to establish nonaggression pacts with its neighbors. The policy was successful with Swaziland (February 1982) and Mozambique (March 1984), but less successful with Botswana and Lesotho; therefore the RSA occasionally conducted raids into these countries to defeat ANC forces. On December 20th, 1985, two SADF raids against ANC elements in the capital of Lesotho triggered a crisis, killing 9 ANC members.[201] On December 30th 1985, the UNSC unanimously adopted a resolution condemning RSA violence against Lesotho and demanded compensation. Ignoring the condemnation, on January 1st 1986, the RSA imposed a blockade of Lesotho, justifying it as necessary to prevent ANC infiltration into RSA territory.[202] The two states signed a mutual security agreement on January 21st 1986, and border restrictions were completely lifted a few days later, terminating the crisis.

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[199] Ibid. Page 10. Accessed 3 January 2019.

[200] Albright, David. *Revisiting South Africa's Nuclear Weapons Program: Its History, Disarmament, and Lessons For Today*. Institute for Science and International Security. Washington DC. 2016. Page 113.

[201] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=360 is the link to incident number 360, Raid on Lesotho, 1985.

[202] Ibid.

The sixth, seventh, and eighth crises for the RSA in Phase III began on May 15th 1986, when RSA President Botha clearly signaled to Botswana, Zambia, and Zimbabwe, all of which were vulnerable to RSA military and economic power, of the risk of providing a sanctuary for ANC fighters.[203] On May 19th, 1986, SADF initiated "punitive" air and commando raids against selective ANC targets in Botswana, Zambia, and Zimbabwe. On May 20th, 1986, the six southern Africa states opposed to the Apartheid regime, Angola, Mozambique, and Tanzania, along with the three targets of recent RSA cross-border raids, condemned the Pretoria regime and called upon the international community to impose mandatory, comprehensive, economic sanctions in order to bring about "peace and stability in the region."[204] At the UN, the Secretary-General condemned the raids as violations of the territorial integrity and sovereignty of the three target states and of the UN Charter. A UNSC draft resolution calling for mandatory economic sanctions was sponsored by Senegal on behalf of the OAU and by Zambia speaking for the front-line states received a large majority but was vetoed by the UK and the U.S. on May 23rd, 1986.[205] After the failed UNSC vote, the crisis faded in late May.

In a September 1986 speech to the Special Session of the UNGA on the question of Namibia, Mr. Makhathini said

"SWAPO's rejection of the irrelevant linkage of the process of Namibian decolonization to the presence of Cuban international forces in the sovereign and independent People's Republic of Angola…and (SWAPO) condemned the covert and overt support by the Reagan Administration for the National Union for the Total Independence of Angola (UNITA) bandits."[206]

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[203] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=365 is the link to incident number 365, Cross-Border Raid, 1985.

[204] Ibid.

[205] Eade, Deborah. *From Conflict to Peace in a Changing World: Social Reconstruction in Times of Transition*. Oxfam. 1998. Pages 117-8.

[206] *Diplomacy for Democracy: A Collection of Keynote Speeches and Contributions by Mr. Johnny Makhathini at the United Nations in New York, towards the liberation struggle of South Africa*. The Department of International Relations and Cooperation. November 2012. Page 131.

However, in 1987 there was a move to double the number of nuclear weapons in the RSA inventory, and replace the glide vehicles, which only had a 60 km range, with the RSA-3 ballistic missile, which had a range of 3,000 km, reversing September 1985 RSA-imposed limitations and increasing the range of nuclear delivery systems by fifty times.[207] This evidence contributes to the narrative that RSA considered holding communist command posts and headquarters elements in the capital of Angola at risk to complicate deterrence decision-making.

The ninth crisis for the RSA in Phase III was triggered by a SADF attack on SWAPO bases in Angolan territory on October 3rd, 1987 in a continuing struggle to thwart SWAPO's attempt to create an independent state of Namibia in RSA-controlled South-West Africa.[208] Angola's initial response followed its behavior in earlier intrusions of this kind: it appealed to the UNSC, who unanimously passed a resolution condemning RSA "continued and intensified acts of aggression" against Angola and called for the immediate, unconditional withdrawal of its forces from Angola's territory.[209] As the RSA ignored the UNSC condemnation, on December 10th 1987, Angola launched a counterattack against SADF units.[210] Serious clashes between the SADF and Angolan forces continued intermittently for months, intertwined with the ongoing civil war in Angola between the MPLA-led government and UNITA. The Head of the SADF,

[207] Albright, David. *Revisiting South Africa's Nuclear Weapons Program: Its History, Disarmament, and Lessons For Today*. Institute for Science and International Security. Washington DC. 2016. Pages 138-9.

[208] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=380 is the link to incident number 380, Angola, 1987.

[209] Davenport, Rodney and Saunders, Christopher. *South Africa: A Modern History*. St. Martin's Press. NY. 2000. Page 523 describes UN condemnation in general against South Africa.

[210] At the end of this incident, the conflict between SWAPO in Angola and South Africa came to an end with the creation of an independent Namibia in 1990. As a result, South Africa achieved a strategic defeat, with a substantial loss of territory, but also enjoyed a strategic victory in that border conflicts came to an end. See also https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=380 is the link to incident number 380, Angola, 1987.

General Johan Geldenhuys, admitted for the first time that his troops were fighting alongside UNITA inside Angola, whose forces had the active backing of 2,000 Soviet military advisors and of a large Cuban contingent in reserve, estimated as 30,000-35,000 troops.

The winding down of this cross-border crisis was a slow process that involved twelve rounds of mediation efforts taking nearly eight months to resolve. Angola and the RSA signed a cease-fire agreement on August 22nd, 1988, the Ruacana Accord, with a mutual commitment to continue talks on the issue of a complete SADF withdrawal. This ended the crisis and was the last international crisis of the Angola protracted conflict, as the Ruacana Accord was fully implemented by Angola, Cuba, and the RSA.

In August 1988, the RSA, Cuba, and Angola had declared a permanent cease-fire and by September, all RSA forces had left Angola. The Geneva Protocol of December 1988 effectively ended the Soviet threat to the RSA through the redeployment of 50,000 Cuban troops in Angola, and by granting independence to Namibia.[211] Within a year, and shortly after the fall of the Berlin Wall, a new RSA president, F. W. de Klerk, began to transform the RSA political landscape. With the active involvement of the U.S., Russia, and the RSA, Namibia's independence became a reality in 1990. De Klerk released Nelson Mandela from his life-sentence and lifted the ban on the ANC and other opposition parties. As the former head of the Atomic Energy Corporation, de Klerk believed the time had come to dismantle the RSA nuclear weapons and rejoin the international community.[212]

Applied Qualitative Data Specific to RSA for Phase III

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[211] Albright, David. *Revisiting South Africa's Nuclear Weapons Program: Its History, Disarmament, and Lessons For Today*. Institute for Science and International Security. Washington DC. 2016. Page 183.

[212] Ibid. Page 187.

Table 6.2: RSA Crises, Phase III Nuclear Weapon State

Cris	Year	CH (NCI)	TA (NCI)	CH Win	Higher NCI Win	Higher NCI CH	SA Win	Nuclear activity	UN involvement
Operation Protea	1981	SA (2)	Angola (0)	Yes	Yes	Yes	Yes	No	Yes - CT
Lesotho Raid	1982	SA (3)	Lesotho (0)	Yes	Yes	Yes	Yes	No	Yes - CT
Operation Askari	1983	SA (3)	Angola (0)	Yes	Yes	Yes	Yes	No	Yes - No
Raid on Botswana	1985	SA (4)	Botswana (0)	Yes	Yes	Yes	Yes	No	Yes - CT
Raid on Lesotho	1985	SA (4)	Lesotho (0)	Yes	Yes	Yes	Yes	No	Yes - No
Zimbabwe	1985	SA (4)	Zimbabwe (0)	Yes	Yes	Yes	Yes	No	Yes - No
Cross-Border Raids	1985	SA (4)	Botswana (0)	Yes	Yes	Yes	Yes	No	Yes - No
Zambia	1985	SA (4)	Zambia (0)	Yes	Yes	Yes	Yes	No	Yes - No
Angola	1987	SA (4)	Angola (0)	Yes	Yes	Yes	Yes	No	Yes - No

Table 6.2 shows that while the RSA was in phase III as a nuclear weapon state, the state with the greater nuclear capability won 100% (9 of 9) of the crises, strongly supporting hypothesis one that conjectures the state with the greater nuclear capability should win more often. Table 6.2 also shows strong support for hypothesis two, in that 100% (9 of 9) of the crises during this period were initiated by the state with the greater nuclear capability. During this time period, five crisis met Sechser's criteria for a compellent threat, and these results show that, in that in 100% (5 of 5) of the cases, the higher NCI initiated crisis and in 100% (5 of 5) of the cases, the higher NCI won.[213] These results challenge Sechser's assertion that nuclear capability at the state level has no compellent value.

Phase IV: Post-Nuclear Weapon State (1991-Present)

At the end of Phase III, the RSA had run out of enemies. By late 1989, with the departure of Cuban forces from Angola, the decline and eventual fall of the USSR, and the independence of Namibia, the three major security challenges faced by the RSA had become resolved. Resolving the final stability challenge, an end to Apartheid, prompted President-elect de Klerk to terminate the nuclear weapon program. Other than a minor conflict with Lesotho in 1994, the RSA has had no state-level crises since dismantling their nuclear weapons. In 1990,

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[213] Militarized Compellent Threat numbers 176, 178, 179, 180, and 181. Results of all nine case study tables will be discussed in the conclusion.

the RSA terminated their nuclear weapon program, and signed the NPT in 1991. The IAEA

began inspections shortly thereafter and began to dismantle the weapons.[214]

The RSA nuclear story as described in this chapter was both corroborated as well as

challenged by the last of three critical speeches given by an RSA President. It was presented on

March 24th, 1993, to a joint session of parliament by Frederick Willem de Klerk, the president of

the RSA, and was remarkable in that for the first time, a president of the RSA exposed the RSA

nuclear program.

> "I wish to concentrate today on the Nuclear Non-Proliferation Treaty and would like to convey important
> information to Parliament, the public and the international community. It is important that the integrity of
> the Republic of South Africa with regard to its commitments to the Nuclear Non-Proliferation Treaty
> should be placed above any doubt…For this reason, the Government has decided to provide full
> information on South Africa's past nuclear programme despite the fact that the NPT does not require
> this."[215]

In unveiling the RSA nuclear program for the first time, de Klerk both corroborates and

challenges multiple lines of evidence used throughout this chapter. The first major point was

that RSA leadership clearly adopted increased nuclear activity as a deterrent measure against

Soviet involvement in the region.

> "At one stage, South Africa did, indeed, develop a limited nuclear deterrent capability…The decision to
> develop this limited capability was taken as early as 1974, against the background of a Soviet expansionist
> threat in southern Africa, as well as prevailing uncertainty concerning the designs of the Warsaw Pact
> members."[216]

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[214] http://web.mit.edu/SSP/seminars/wed_archives01spring/albright.htm 14 March 2001. Accessed 18 September
2017. South Africa's three step nuclear weapon strategy was developed in 1978, with step one being the continued
uncertainty of whether South Africa possessed nuclear weapons (similar to the situation with Israel), step two being
covert leakage of South Africa's nuclear posture to key western powers in hope of their intervening. Step three was
based around executing an underground nuclear test to provide a credible deterrent, overt declaration of nuclear
capability and capacity, or threaten to detonate a nuclear device if South Africa faced an overwhelming conventional
military force threat and key western powers were unwilling to intervene.   South Africa never reached step two.

[215] "Speech by South African President F.W. de Klerk to a Joint Session of Parliament on Accession to the Non-
Proliferation Treaty," March 24, 1993, History and Public Policy Program Digital Archive, Archives.un.org.
Contributed by Jo-Ansie van Wyk. Page 2. https://digitalarchive.wilsoncenter.org/document/116789

[216] Ibid.

This corroborates the "Armstrong memorandum" (see pages 78-9) in time (1974), and in scope (deter an African nation who might acquire a nuclear weapon), but not in terms of specific threat (from China, not the USSR). The second major point in the de Klerk speech was that communist forces in Angola required a nuclear deterrent.

> "The build-up of the Cuban forces in Angola from 1975 onwards reinforced the perception that a deterrent was necessary – as did South Africa's relative international isolation and the fact that it could not rely on outside assistance, should it be attacked."[217]

This supports Albright's claims (see page 79), but not Mr. Makhathini's claims that there were no communist forces in Angola (see page 87). The third major point in the de Klerk speech was that RSA developed and built nuclear weapons by themselves, with a severely restricted need-to-know.

> "I wish to emphasize that at no time did South Africa acquire nuclear weapons technology or materials from another country, nor has it provided any to any other country, or cooperated with another country in this regard…The programme was under the direct control of the Head of Government, who decided that it should be managed and implemented by Armscor…Knowledge of the existence of the programme was limited to a number of ministers on a "need-to-know" basis…This was the situation when I became State President in 1989. As a former Minister of the Atomic Energy Corporation (AEC), I was also informed about this."[218]

Mr. Makhathini and the ANC continually challenged that RSA received assistance from key Western countries to develop nuclear weapons (see pages 82 and 86), but both the Apartheid government as well as the successor ANC government agree on restricting the need-to-know. Even after Nelson Mandela and other ANC leaders became presidents or ministers of RSA, there remained strong objection by RSA leadership to disclose further secrets about RSA nuclear

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[217] Ibid.

[218] Ibid. Pages 3 and 4.

policy.[219] The fourth major point in the de Klerk speech was that RSA developed seven nuclear

devices.

> "The objective was the provision of seven nuclear fission devices, which was considered the minimum for testing purposes and for the maintenance thereafter of credible deterrent capability…when the decision was taken to terminate the programme, only six devices had been completed."[220]

This is not disputed by any source used in this research because it was unknown how

many nuclear devices RSA actually possessed. The fifth and last major point in the de Klerk

speech was that RSA strategy developed the nuclear devices strictly for deterrence purposes.

> "The strategy was that, if the situation in southern Africa were to deteriorate seriously, a confidential indication of the deterrent capability would be given to one or more of the major Powers, for example the United States, in an attempt to persuade them to intervene…It was never the intention to use the devices and from the outset the emphasis was on deterrence."[221]

This point was challenged repeatedly by Mr. Makhathini (see pages 89 and 90), but RSA

intent cannot be confirmed, because a vast quantity of documents were destroyed between 1990

and 1991, as well as restrictions on de-classification.[222]

In 1996, the RSA signed the African Nuclear Weapons Free Zone treaty, also called the

Pelindaba Treaty, but under IAEA, remains an exporter of nuclear materials. As there have been

dozens of mines that extracted uranium from the gold and copper mining process, managed by

many different companies from different countries, it is easy to imagine less than perfect

accountability for the nearly one hundred thousand tons of uranium extracted over the past 70

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[219] Harris, Verne, Hatang, Sello, and Lieberman, Peter. *Unveiling South Africa's Nuclear Past*. Journal of Southern African Studies. Vol. 30. No. 3. September 2004. Page 457.

[220] "Speech by South African President F.W. de Klerk to a Joint Session of Parliament on Accession to the Non-Proliferation Treaty," March 24, 1993, History and Public Policy Program Digital Archive, Archives.un.org. Contributed by Jo-Ansie van Wyk. Page 4. https://digitalarchive.wilsoncenter.org/document/116789

[221] Ibid.

[222] Harris, Verne, Hatang, Sello, and Lieberman, Peter. *Unveiling South Africa's Nuclear Past*. Journal of Southern African Studies. Vol. 30. No. 3. September 2004. Page 460.

years.[223] All of the HEU used in RSA nuclear weapons production and as fissile material

produced by their three power plants, over 500 pounds of weaponizable fissile material, is now

stored at the nuclear research facility at Pelindaba.

The RSA continues to use nuclear energy as a power source to this day. Due to

increasing energy demands, and requirement to desalinate water due to low potable water

density, the RSA remains in constant consultation with Japan, Russia, the U.S., China, France,

and South Korea to develop additional nuclear power plants, at least one of which is a generation

IV reactor, capable of producing weapons-grade plutonium as a by-product. .[224]

The only crisis for the RSA in Phase IV occurred between the RSA and Lesotho, but

there are no details provided in Sechser's dataset. Sechser states that the challenger wins

tactically because all the RSA objectives were met.[225]

Applied Qualitative Data Specific to RSA for Phase IV

Table 6.3: RSA Crises, Phase IV Post-Nuclear Weapon State

Crisis	Year	CH (NCI)	TA (NCI)	CH Win	Higher NCI Win	Higher NCI CH	SA Win	Nuclear activity	UN involvement
Lesotho	1994	SA (3)	Lesotho (0)	Yes	Yes	Yes	Yes	No	No

Table 6.3 shows that while the RSA was in Phase IV as a post-nuclear weapon state, the

state with the greater nuclear capability won 100% (1 of 1) of the crises, supporting hypothesis

one that conjectures the state with the greater nuclear capability should win more often. Table

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[223] Ibid.

[224] Ibid.

[225] https://dataverse.harvard.edu/dataset.xhtml?persistentId=hdl:1902.1/17315 is the MCT dataset, which allows access to all 121 MCT used in this research.

6.3 also shows strong support for hypothesis two, in that 100% (1 of 1) of the crises during this period were initiated by the state with the greater nuclear capability.

Applied Qualitative and Quantitative Findings: South Africa Case Study

The RSA engaged in 18 incidents between 1945 and 2016. The RSA challenged 17 times (17-0), was the target one time (0-1), and had a higher NCI 18 times. The RSA was victorious in the tactical objectives it set out to accomplish in 17 cases and lost in one case (as target), but in zero cases did RSA victories lead to a strategic victory (0-1). In 18 incidents, higher NCI has a record of 17-1 victories and also 17-1 challenges.

Prior to examination of table 6.1, we observe that for twenty-five years (1945-1970) the RSA was a non-nuclear state that engaged in no state-level conflict (averaging 0 crises per year). Upon examining table 6.1, we observe that the RSA, as a potential nuclear state, participated in eight state-level conflicts in a nine year time period (averaging 0.91 crises per year). During this period, the state with the greater nuclear capability both initiated as well as won 87.5% of the crises, providing strong support to both hypotheses one and two and showing that nuclear capability at the state level has compellent value.[226] These restated quantitative results suggest that conflict onset and victory are positively correlated with increased nuclear capability, which is consistent with the more detailed qualitative results that show the increased scale and number of RSA interventions was the result of the increased conventional threat, which led to the increase in nuclear capability.

When considering table 6.2, we see that during Phase II, as a nuclear-capable state, the RSA increased frequency of conflict, averaging one crisis per year. During this period, the state

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[226] Militarized Compellent Threat number 170. Results of all nine case study tables will be discussed in the conclusion.

with the greater nuclear capability both initiated as well as won 100% of the crises, strongly

supporting both hypotheses. During this time period, five crisis met Sechser's criteria for a

compellent threat, and these results show that in that in 100% of the cases, the higher NCI both

initiated and was victorious.[227] These results display that nuclear capability at the state level has

compellent value. Finally, looking at table 6.3, we see that while the RSA was a post-nuclear

weapon state, the state with the greater nuclear capability both initiated and won 100% of the

crises, again providing strong support to both hypotheses.

Based on quantitative data results, RSA nuclear capability rose commensurate with

conflict, but when compared with qualitative findings in this chapter, no nuclear activity was

ever overtly or covertly signaled by the RSA to influence the outcome of any of the eighteen

conflicts. How then was the RSA so successful? The key to the RSA success is that the threat of

nuclear weapon employment mattered to both sides, to RSA leadership as well as to Soviet

proxies, and that threat kept the eighteen interstate conflicts that RSA had during the nuclear age

at the conventional level, as well as virtually guaranteeing that the RSA would keep the problem

regional, and therefore win, so long as they did not escalate and threaten nuclear use. Real and

perceived nuclear capability development, coupled with "corroboration" from an unlikely source,

created the security framework that RSA adroitly used to remain intact, despite intense and

prolonged internal unrest, for over twenty years.

The formula for RSA success has three aspects. First, that there was a combination of

real and perceived assistance between western powers and RSA regarding nuclear weapons

development. Recall reference to nearly a dozen speeches throughout this chapter by Mr.

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[227] Militarized Compellent Threat numbers 176, 178, 179, 180, and 181. Results of all nine case study tables will be
discussed in detail in the conclusion.

Makhathini that stated RSA, in conjunction with several "western powers" had developed

nuclear weapons. Based on other primary source material, some of these claims were real, others

erroneous, but all claims served RSA leadership well in that through the platform as the ANC

representative to the UN, someone antithetically opposed to helping the RSA agenda, Mr.

Makhathini unwittingly informed the U.S.S.R that RSA could defend itself far beyond actual

abilities. While the limited source material available hampers a definitive claim, it is likely that

information leaked, gained, or ascertained by Mr. Makhathini led Soviet leadership to believe

that the RSA possessed nuclear weapons.

Second, there was a combination of real and perceived alliance between "western

powers" and RSA regarding nuclear security. Recall reference to other Makhathini speeches that

stated RSA was in alliance with "western powers" that possessed nuclear weapons, and the

implication that those "western powers" would stand with RSA, despite UN restrictions for arms

sales and nearly universal condemnation of the Apartheid government. One example of this is

the April 1981 speech by Mr. Makhathini describing NSSM 39, the 1969 statement by the Nixon

Administration stating that the U.S. would back the Apartheid government. Again, the limited

source material available hampers a definitive claim, but it is likely that information leaked,

gained, or ascertained by Mr. Makhathini led Soviet leadership to believe that, should conflict

escalate, RSA would be backed by "western powers" that had nuclear weapons.

Finally, the aggressive nature of RSA conventional military actions throughout this

period reinforced the "western powers" alliance (real or imagined), as well as true capability

(real or imagined). No act of sabotage, whether orchestrated by the ANC as Makhathini claimed

or by proxy forces in Angola and other Southern African states as RSA believed, went

unaddressed during this period. Constant military pressure likely caused Soviet, proxy, and

state-sponsored forces to believe that the RSA was willing and able to defend its interests.

Despite a careful examination of the evidence presented in this chapter, the results of this

case study are indecisive, due to limited source material. Alternate explanations are possible,

which may undermine the thesis presented, but the inaccessibility of critical archival documents

from RSA, the U.S.S.R., and Angola mean it is impossible to fully trace decision-making and

prove or disprove why decisions were made. However, based on the arguments listed above,

RSA was able to use its nascent nuclear capability as a credible deterrent threat, emboldening it

to cause more crises and discourage large-scale reprisals by proxy (or even Soviet) forces. This

deterrent effect against local, proxy, and Soviet forces caused RSA to enjoy superior crises

outcomes.[228]

Conclusion

In terms of interstate conflict, the RSA has been peaceful since 1994, thanks to the

positive confluence of three factors: the end of Apartheid, the end of the Soviet threat, and the

independence of Namibia. These three factors have eliminated the state-level security threats to

the RSA and removed the reasons that the RSA would require nuclear weapons for state security,

but there remains the possibility that the RSA could weaponize, should a future threat arise.

As Sir Michael Howard said in his 1961 article on the use and abuse of military history, it

is often the case where historical vignettes can create "an image of the past through careful

selection and interpretation, in order to create or sustain certain emotions or beliefs."[229] This

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[228] Sechser viewed RSA outcomes differently. Sechser stated that the RSA engaged in seven MCT between 1945 and 2016, and that the RSA challenged seven times (2-5 with one success rated as partial). This is because in *Crisis Bargaining and Nuclear Blackmail*, a win must be accompanied by a SQ change.

[229] Howard, Michael. *The Use and Abuse of Military History*. Parameters. 9:1. Carlisle, PA. 1981. Page 9.

study is not immune to the possibility of that misuse of history, as access to the speeches, personal and professional papers, and official documents of RSA leadership during the time when the RSA increased nuclear capabilities has proven difficult to secure. The records that have been examined suggest RSA leadership were driven to increase nuclear capabilities from 1975 until 1984, due to the growing conventional threat, but while emboldened to increase conventional conflict during the possession of nuclear weapons from 1984 to 1991, were extremely reluctant (0 for 7) to escalate beyond conventional attacks. Howard reminds us that historians are chiefly concerned with difference, not similarity, among case study examination and, furthermore, explaining those differences in terms of the society in which the phenomenon in question occurred is essential to avoid muddling the reasons behind the facts.[230] On the one hand, because prior to 1985 no substantive speeches given by presidents of the RSA made direct mention of nuclear ambitions, strategies, or threats, one can conclude that, similar to the Israel case, nuclear strategy did not lie in the public domain, but in secret sessions amongst select policy makers. On the other hand, because the choice to continue with Apartheid through 1991 severely reduced the number of allies available for state defense, RSA leadership signaled indirectly that it would preserve state security by all necessary means.

One final and important point about the RSA nuclear program was that it remained ambiguous. The April 1978 RSA nuclear strategy document has never been released. The ideas behind the strategy included conducting overt underground or above ground tests as escalation measures to ensure a Western power would intercede.[231] Secrecy laws enacted by the RSA

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[230] Ibid. Page 11.

[231] Albright, David. *Revisiting South Africa's Nuclear Weapons Program: Its History, Disarmament, and Lessons For Today*. Institute for Science and International Security. Washington DC. 2016. Pages 131-2.

concealed the development of the nuclear arsenal.[232] Future scholars will certainly benefit from

the RSA Promotion of Access to Information Act of 2000, as it is only through that act that

scholars, journalists, and other researchers can conduct historical research into the RSA nuclear

program.[233] De-classification and release of SADF documents regarding the acquisition and

employment of nuclear weapons could uncover inaccuracies or discrepancies of the 1993 de

Klerk-era disclosures, or of other documents, such as overviews published in 1995 by the head of

the AEC, Dr. Waldo E. Stumpf, court judgments leaked to the RSA press in 1994 revealing

tritium imports from Israel, or the like.[234]

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[232] Harris, Verne, Hatang, Sello, and Lieberman, Peter. *Unveiling South Africa's Nuclear Past*. Journal of Southern African Studies. Vol. 30. No. 3. September 2004. Page 457.

[233] Ibid. Page 473. This is similar to the Freedom of Information Act of 1966 in the U.S.

[234] Ibid. Pages 458-9 and 461.

Chapter 7 - Case Study: Israel

The second case that will be examined is conflict in Israel. Israel is an interesting case for two reasons. First, it is commonly assumed that Israel is a nuclear state despite any Israeli official ever declaring that Israel possesses nuclear weapons, no clear evidence of Israel having ever conducted a nuclear weapon test, and no evidence of any type of NWP. Israel was chosen as a case study because it is the only state with a policy of nuclear ambiguity. Second, Israel possesses no sizable or declared uranium sources, has no nuclear power plants, and produces no nuclear energy, yet is commonly assumed to be a powerful, nuclear weapon enabled state.[235] In the nuclear age (1945-present), Israel experienced conflict a total of 31 times. There were three distinct militarized compellent threat incidents, 24 distinct international crisis behavior incidents, and four shared incidents.

This case study will examine three different time periods. The first time period is from 1945 to 1959, when Israel was a pre-nuclear weapon state. The second time period is from 1960 to 1963, after the time when Israel decided to weaponize nuclear power, but before nuclear weapons were built. The third time period is from 1964 to present day, while Israel possessed nuclear weapons. In each of these time periods, this research will discuss key facts that shaped the security and stability challenges of Israel, an examination of the history of nuclear activity of Israel during that time, an examination of the incidents that occurred between Israel and other

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[235] Israel carried out four years of tests on nuclear explosives to measure the effects of a dirty radiological device (RDD), see "Israel tested "dirty bomb cleanup" in the Desert" at http://www.haaretz.com/israel-news/.premium-1.660067 accessed 13 September 2017. Another important point here is that Israel is not party to the Comprehensive Nuclear Test Ban Treaty, meaning it did not agree to not conduct nuclear weapon tests. While most Cold War experts continue to argue that nuclear testing is an important step in creating nuclear weapons and without the ability to test, states will not be able to make viable nuclear weapons. However, with the advent of sophisticated computer modeling, experts are beginning to realize that live testing is no longer required to make viable weapons. Therefore, in general, the CTBT is no longer an obstacle for any state to produce viable nuclear weapons and certainly not for Israel.

states that led to security or stability challenges, and finally a summary of the results from those incidents.

Current day Israel has a population of 8.4 million people with a GDP of 318 billion USD. Opposite South Africa, Israel has a mismatch in overspending between gross domestic product (GDP) and defense at nearly 5%, but neither shares a mismatched PPP nor a soft adversary set with South Africa. With a top 15% GDP, when compared to all other states, Israel has a negative mismatch between GDP, population, and defense spending that could suggest Israel is in a constant state of war.[236] This would suggest Israel would seek powerful, yet economical, means of defense, to deter potential adversaries. However, among all states, Israel has experienced the most conflict. During the nuclear age, Israel engaged in conflict with Egypt, Syria, Jordan, Lebanon, Iraq, and Uganda. Israel had seven conflicts prior to becoming a potential nuclear weapon state, two conflicts while developing nuclear weapons, and 22 conflicts while a nuclear weapon enabled state, the last of which was 12 years ago. Israel has never directly engaged in conflict with a nuclear state.

In this research, written and spoken statements by the president and prime minister are used as evidence of overt signaling before, during, and after crises. This research employs those statements in each of the three time periods to better understand state behavior. In the case of Israel, after becoming a state in 1948 there have been ten presidents and 17 prime ministers.[237]

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[236] I am using "negative mismatch" to refer to spending more on defense than the state's GDP would suggest should be spent on defense. Afghanistan is the best current example of this, spending nearly 60% of its GDP on defense.

[237] Israeli presidents include Chaim Weizmann (1949-1952), Yitzhak Ben-Zvi (1952-1963), Zalman Shazar (1963-1973), Ephraim Katzir (1973-1978), Yitzhak Navon (1978-1783), Chaim Herzog (1983-1993), Ezer Weizman (1993-2000), Moshe Katsav (2000-2007), Shimon Peres (2007-2014), and Reuven Rivlin (2014-present). Israeli prime ministers include David Ben-Gurion (1948-1954), Moshe Sharett (1954-1955), David Ben-Gurion (1955-1963), Levi Eshkol (1963-1969), Golda Meir (1969-1974), Yitzhak Rabin (1974-1977), Menachem Begin (1977-1983), Yitzhak Shamir (1983-1984), Shimon Peres (1984-1986), Yitzhak Shamir (1986-1992), Yitzhak Rabin (1992-1995), Shimon Peres (1995-1996), Benjamin Netanyahu (1996-1999), Ehud Barak (1999-2001), Ariel Sharon (2001-2006), Ehud Olmert (2006-2009), and Benjamin Netanyahu (2009-present).

Therefore, in this case study, written and spoken statements (or the lack thereof) by these 21 individuals will provide insight into Israeli signaling before, during, and after crises.[238]

Phase I: Pre-Nuclear Weapon State (1945-1959)

The story of Israel is one of determination and persistence. It is clear that Israel had been actively investigating nuclear weapons program development since 1949, when Israeli scientists began a detailed geological survey of the Negev desert, hoping to discover uranium deposits. Uranium was discovered in phosphate deposits and harvesting began by 1953, just a year after formation of the Israeli Atomic Energy Commission (IAEC).[239] Shortly thereafter, Israel developed a new method for developing heavy water, providing Israel with indigenous capability to produce some of the most important nuclear weapons making materials.[240]

The lack of indicators of near-nuclear status for Israel must be examined further, because Israel does not conform to a typical path of nuclear development. While it is true that Israel has zero nuclear power plants and produces no nuclear energy, it does operate two nuclear research reactors. The first is a light-water reactor at the Soreq Nuclear Research Center, which operates within the guidelines of the International Atomic Energy Agency, and the second is a heavy-water cooled nuclear reactor called IRR-2 at the Negev Nuclear Research Center near Dimona, managed by the Israeli Atomic Energy Commission.[241]

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[238] 27 positions, but 4 people served twice (Ben-Gurion, Rabin, Shamir, Netanyahu) and one served three times (Peres) leaving 21 distinct individuals.

[239] http://www.fas.org/nuke/guide/israel/nuke/ accessed 18 September 2017.

[240] "Heavy water" is a nickname for either deuterium or tritium.

[241] "Nuclear Research Center NEGEV" at http://iaec.gov.il/English/Soreq/Pages/default.aspx accessed 13 September 2017

The exact origin of the Israeli nuclear facility at Dimona continues to be unclear. One source argues that the American Machine and Foundry Company built the nuclear reactor in Israel under the *Atoms for Peace* program.[242] Other sources argued that after 1953, France assisted Israel with nuclear reactor design and construction, as both states saw an independent nuclear option as a means by which they could maintain a degree of autonomy in a bipolar world.[243] In 1957, France and Israel signed an agreement calling for France to build a chemical reprocessing plant, complete with cooling systems and waste facilities at Dimona, the nuclear reactor outside the IAEA inspection regime. While being constructed, the cover story was that it was a desalinization plant being built for export to Latin America.[244] That plant is still in operation today and continues to produce heavy water.[245] During phase I, Israeli presidents include Chaim Weizmann (1949-1952) and Yitzhak Ben-Zvi (1952-1963). Israeli prime ministers include David Ben-Gurion (1948-1954), Moshe Sharett (1954-1955), and David Ben-Gurion once again (1955-1963). During phase I, no Israeli official issued a statement about nuclear weapons.[246]

In terms of strategic victory, in the case of Israel as a challenger, strategic success is the preservation of the State of Israel with no significant degradation in overall military capability.

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[242] https://www.iaea.org/about/history/atoms-for-peace-speech accessed 19 September 2017.

[243] http://www.fas.org/nuke/guide/israel/nuke/ accessed 18 September 2017.

[244] Ibid.

[245] *Global Fissile Material Report 2015: Nuclear Weapon and Fissile Material Stockpiles and Production*. International Panel on Fissile Materials. 2015. Page 26.

[246] Ginor, Isabella and Remez, Gideon. *Foxbats over Dimona: The Soviets' Nuclear Gamble in the Six-Day War*. Yale UP. New Haven. 2007. Page 28 states that 1958 was the last year where transcripts for Israeli cabinet meetings have been declassified and that up until that point, the Israeli cabinet had never discussed nuclear weapons development or policy. According to this source, David Ben-Gurion, as the first prime minister and defense minister, managed and shaped Israeli nuclear policy under the strictest security, even from the cabinet.

Conversely, for a target, strategic success against Israel is a state-level policy change in governance, such as an acknowledgement of the PLO as a legitimate government, ceding territory to the PLO or another state level actor, or significant degradation in overall state-level military capability.

The first crisis for Israel in Phase I began on November 29th, 1947, when the UN partitioned Palestine into two independent states, one Arab, the other predominantly Jewish. On December 17th, 1947, the Arab League announced that it was determined to maintain Palestine as an Arab state.[247] No further action was taken until May 14th, 1948, which both marked the end of the British evacuation/mandate and the declaration of the State of Israel, when Arab armies entered into Palestine and began a series of attacks on Jewish settlements in Palestine.[248] On May 15th, 1948, Syria and Lebanon invaded Israel in the north, Jordan and Iraq invaded Israel in the east, and Egypt invaded Israel in the south. Israel responded immediately and sent its newly formed army to fight against five invaders.[249]

The fighting was intense and ended at different times for different participants. Fighting ended first with Iraq on July 18th 1948, then with Lebanon and Syria on October 30th, 1948, and finally with Egypt and Jordan in early January, 1949.[250] Officially, the conflict ended for Israel after it ratified the armistice agreement with Egypt on 10 March 10th, 1949, with Jordan on April

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[247] Bar-Joseph, Uri. *The Best of Enemies: Israel and Transjordan in the War of 1948*. Frank Cass. London. 1987. Page 55.

[248] Hertzog, Chaim. *The Arab-Israeli Wars: War and Peace in the Middle East*. Vintage Books. New York. 1984. Page 46.

[249] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=120 is the link to incident number 120, Palestine PRT/Israel Independence, 1947.

[250] Bar-Joseph, Uri. *The Best of Enemies: Israel and Transjordan in the War of 1948*. Frank Cass. London. 1987. Page 86.

3rd, 1949, and with Syria on July 20th, 1949. [251] UN leadership as well as the Great Powers was deeply involved in this crisis, arranging four truce agreements and brokering armistice agreements, with the intent to find a settlement based on the military status quo and not the UN Partition lines.

The second crisis for Israel in Phase I began on December 25th, 1948, when Israeli forces launched an attack on the Egyptian army, crossing into the Sinai Peninsula.[252] Egypt responded to this territorial threat a week later, by appealing to the UK to press for a UNSC resolution demanding Israeli withdrawal. The UK demanded that Israel vacate Egyptian territory and sent aircraft to observe, five of which Israel shot down on January 7th, 1949.[253] When the next UK action included sending military reinforcements to Jordan, Israel vacated the Sinai and complied with the UNSC resolution for a cease-fire. This action terminated the conflict.

The third crisis for Israel in Phase I began in the Hula Valley on February 12th, 1951, which resided in the Demilitarized Zone (DMZ) between Syria and Israel. Israel's Palestine Land Development Company (PLDC) began work on the Hula drainage project, with the goal of draining the lake and surrounding marshes for resettlement (to eliminate threat of malaria in the area and reclaim about 15,000 acres of land for agriculture) and to use the accumulated water to irrigate other parts of Israel.[254]

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[251] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=120 is the link to incident number 120, Palestine PRT/Israel Independence, 1947.

[252] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=128 is the link to incident number 128, Sinai Incursion, 1948.

[253] Bar-Joseph, Uri. *The Best of Enemies: Israel and Transjordan in the War of 1948*. Frank Cass. London. 1987. Page 175. Israeli suspicion of UK's motives in Transjordan was at its height in January 1949.

[254] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=134 is the link to incident number 134, Hula Drainage, 1951.

Syria perceived a threat if the Hula Valley became an economically productive area under Israeli control. On February 14th, 1951, Syria appealed to the UNSC to compel Israel to halt the project. Israel refused to do so, citing the concession granted to the PLDC by the British Mandatory Power in 1934, and claiming that the land fell under Israeli jurisdiction, according to Mandate maps. Syria countered with a claim to portions of the DMZ, including the town of al-Hamma and all territory east of Lake Tiberias. On March 15th, 1951, Arabs in civilian dress opened fire on a bulldozer of the Israeli company working in the Hula area. Tension escalated dramatically on 4 April 4th, 1951, when Syrian soldiers killed seven Israeli policemen near al-Hamma. Israel retaliated the next day with an air attack on the Syrian outpost and the police station of al-Hamma, also shooting down two Syrian aircraft. Both sides appealed to the UNSC, blaming each other for a violation of their Armistice Agreement.

While UNSC deliberations were taking place, Syrian forces overran the Israeli post at Tel al-Mutillah, just beyond the DMZ. Israeli forces counterattacked, and regained control of Tel al-Mutillah with significant bloodshed. The UNSC passed a resolution on May 8th, 1951, calling for a cease-fire and the withdrawal of all military forces from the DMZ. Hostilities ended on May 11th, 1951, and the crisis was terminated shortly thereafter.[255]

The fourth crisis for Israel in Phase I began in response to repeated occurrences of Palestinian infiltrators from Jordan murdering Jewish settlers. On October 14th, 1953, a crisis was triggered when the Israel Defense Forces (IDF) retaliated against Palestinian refugees in the village of Qibya in Jordan, killing 69 civilians and destroying 45 houses.[256] Jordan corresponded with the U.S. and UK representatives, called for a meeting of the Arab League, and lodged a

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[255] Ibid.

[256] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=143 is the link to incident number 143, Qibya, 1953.

complaint with the UNSC. The UNSC condemned IDF actions and that coincided with the

termination of the conflict, but did not in itself terminate the conflict. Israel responded to cross

border incursions from "Arab civilians" from Jordan, and these ceased after actions on October

14th. This conflict later changed Israeli policy in two ways: first, to cease attacking "Arab

civilians" in refugee camps, but second, to hold the host state responsible for attacks from "Arab

civilians", causing the host state to keep the "Arab civilians" in check.[257]   The demarcation

between "Arab civilians", PLO, and other groups, while relatively easily differentiated in

purpose, is extremely difficult to discern in a firefight.[258] Ultimately, Israel retained the policy to

preserve its state against all threats and continues to suffer tremendous international scrutiny for

the operationalization of this policy.[259]

   The fifth crisis for Israel in Phase I began in February 1955 when "Arab civilians"

infiltrated from Gaza into Israel and attacked Israeli citizens. Israeli policy was to conduct

retaliatory military action into the states in which those groups were harbored, in this case Egypt

because it controlled Gaza. On February 28th, 1955, Israel conducted cross border operations

into Gaza on where 39 Arabs were killed and 32 more were injured.[260]

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[257] Ibid.

[258] Harms, Gregory and Ferry, Todd M. *The Palestine-Israel Conflict: A Basic Introduction*. Pluto Press. London. 2005. Page 118. Harms notes here that the PLO began to gel after the Six-Day War, and it struck me that in an urban setting or certainly with non-state actors, we often don't know who we are fighting until after the fighting is done; we just know that they want to kill us. This makes intelligence reports prior to battle so important to military historians, as they will need to know what type of threat was anticipated before they can assess the effect of an operation.

[259] Samaan, Jean-Loup. *From War to Deterrence? Israel-Hezbollah Conflict since 2006*. Strategic Studies Institute. Carlisle, Pennsylvania. 2014. Page 38. "It is widely known in Beirut and elsewhere that there is a tacit agreement between Hezbollah and Lebanese armed forces over the control of the national territory." Samaan goes on to describe how Hezbollah patrols the border between Lebanon and Israel.

[260] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=149 is the link to incident number 149, Gaza Raid/Czechoslovakia Arms, 1955.

Nearly a month later, on March 20th, 1955, Egypt appealed to the UNSC and the Arab League to condemn Israeli actions and to supply additional military hardware to Egypt. The Soviet Union agreed to provide arms to Egypt, and Syria through a surrogate arms agreement with Czechoslovakia.[261] This increased the number of raids into Israeli territory from Gaza, culminating in a large raid resulting in 59 dead and 93 wounded on April 5th, 1956. Israel responded to this "Arab civilian" incursion from Egypt by requesting a massive amount of military hardware from France. By June 23rd, Israel had signed three arms deals with France, thus restoring the balance of military hardware in the Gaza region, which caused raids from Egypt to temporarily cease and thus terminated the crisis.[262]

While the UNSC passed a resolution condemning Israel for the Gaza Raid, this did not cease the operations – the reciprocal arms deal with France did, once the perceived balance of military hardware in the Gaza region was restored. Similarly, UN calls for cease-fire fell on deaf ears, so long as there was an imbalance in military strength. It is difficult to say whether Israel or Egypt instigated this conflict, as Israeli policy had been retaliatory in nature, so the initial Czechoslovakian arms deal may have been the catalyst for conflict, and cross border operations being a predictable response to a shift in the security dilemma.

The sixth crisis for Israel in Phase I began on July 26th, 1956, when Egyptian President Jamal Abdul Nasir proclaimed the nationalization of the Suez Canal. This act, perceived by the UK and France as portending grave economic and military consequences, resulted in multinational talks aimed at a peaceful solution. When these talks did not result in satisfaction

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[261] Cleveland, William L. and Bunton, Martin. *A History of the Modern Middle East*. Westview Press. 2016. Page 294.

[262] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=149 is the link to incident number 149, Gaza Raid/Czechoslovakia Arms, 1955.

for the UK and France, France, and later the UK, initiated talks with Israel to discuss a military solution. On October 29th, 1956, Israel invaded the Sinai, and two days later, British and French forces landed in the Canal Zone.[263] Egypt responded with military resistance and an appeal to the Soviet Union for military and diplomatic assistance.[264] On 5 November Moscow dispatched a harsh note to the three invading powers, as well as to the U.S., referring to the "dangerous consequences" of the aggressive war in Egypt, warning that London, Paris, and Tel Aviv lay under the threat of Soviet missiles and indicating the USSR intended to use force if the situation were not rectified immediately.

The UK and France complied at once and agreed to a cease-fire, and later, on November 8th, 1956, Israel declared that the IDF would evacuate the Sinai, once arrangements for an international Sinai peacekeeping force had been concluded. The UN established an emergency force to police Sinai and Gaza, from which all foreign forces were to be withdrawn. This came into effect on March 12th, 1957, and Israel then withdrew its forces back to Israeli territory.[265]

The seventh crisis for Israel in Phase I began during July and August 1956, when dozens of Israelis were killed or wounded as a result of several infiltrations of feda'iyyun (guerrilla) groups from Jordan. In keeping with their continuing policy to retaliate against aggression, on September 13th, 1956, the IDF conducted the first of three reprisals by blowing up a police

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[263] Hertzog, Chaim. *The Arab-Israeli Wars: War and Peace in the Middle East*. Vintage Books. New York. 1984. Pages 124-137.

[264] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=152 is the link to incident number 152, Suez Nationalization War, 1956.

[265] The UN condemnation did not terminate the conflict, neither did the UN decision to establish an international peacekeeping force – it was only after the international peacekeeping force assumed duties in the Sinai that IDF departed. This incident is a case of military and political opportunism, as all three belligerents (UK, France, and Israel) gained from the crisis. See also https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=152 is the link to incident number 152, Suez Nationalization War, 1956.

station in the Jordanian village of Garandal, followed by an attack against the Jordanian village of Husan and later, an attack on the village of Qalqilya.[266] The Jordanian King immediately inquired about the possible stationing of Iraqi troops in Jordan, and Iraq replied that is was ready to send troops to Jordan. Israeli Foreign Minister Golda Meir responded by declaring that the stationing of Iraqi troops in Jordan would be a threat to Israel's integrity and that in such an event Israel would retaliate. In addition, Israel's ambassadors to the major powers were called home for consultation, and a request was made to convene the UNSC. Soon after, the Jordanian King declared that Iraqi forces would not enter Jordan at that time, but would do so if Israel attacked. This ended the conflict.

This conflict was interesting in that Israel denuded an escalatory step by Jordan, when responding to possible Iraqi troop deployment, by implementing additional escalation measures. Both the UN as well as the Great Powers did not want to see an increase in military tension in the region, and indirectly influenced both sides to stand down. When Israeli strategic objectives were at risk, they escalated. The UN did not directly terminate the conflict, as Israel refused to terminate until after the King of Jordan declared there would be no Iraqi troops stationed in Jordan.

Applied Qualitative Data Specific to Israel for Phase I

Table 7.1: Israeli Crises, Phase I Pre-Nuclear Weapon State

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[266] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=153 is the link to incident number 153, Qalqilya, 1956.

Crisis	Year	CH (NCI)	TA (NCI)	CH Win	Higher NCI Win	Higher NCI CH	ISR Win	Nuclear activity	UN involvement
Palestine PRT	1947	Egypt (0)	Israel (0)	No	N/A	N/A	Yes	No	Yes - Delay
Sinai Incursion	1948	Israel (0)	Egypt (0)	Yes	N/A	N/A	Yes	No	Yes - CT
Hula Drainage	1951	Israel (0)	Syria (0)	Yes	N/A	N/A	Yes	No	Yes - Delay
Qibya	1953	Israel (0)	Jordan (0)	Yes	N/A	N/A	Yes	No	No
Gaza Raid - Czech Arms	1955	Israel (0)	Egypt (0)	Yes	No	No	Yes	No	Yes - No
Suez Nationalization	1956	Israel (0)	Egypt (0)	Yes	No	No	Yes	No	No
Qalqilya	1956	Israel (0)	Jordan (0)	Yes	N/A	N/A	Yes	No	No

Table 7.1 shows that while Israel was in Phase I as a pre-nuclear weapon state, the state with the greater nuclear capability won 0% of the crises (0 of 2), providing no support to hypothesis one that conjectures the state with the greater nuclear capability should win more often. Table 7.1 also shows no support for hypothesis two, in that 0% of the crises during this period were initiated by the state with the greater nuclear capability (0 of 2). During this time period, one crisis met Sechser's criteria for a compellent threat, and the result showed support for Sechser's assertion that that nuclear capability at the state level has no compellent value.[267]

Phase II: Potential Nuclear Weapon State (1960-1963)

The U.S. identified the site at Dimona as a nuclear research facility as early as 1958, but was officially told it was a textile plant, later an agricultural station, and finally a metallurgical research facility. It wasn't until 1960 when Israeli Prime Minister David Ben-Gurion publicly announced that the Dimona complex was a nuclear research center. Throughout the next several years, the Israelis successfully masked the intent of the Dimona complex, until a report in 1968 concluded that Israel had successfully started production of nuclear weapons.[268]

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[267] Militarized Compellent Threat number 111. Results of all nine case study tables will be discussed in the conclusion.

[268] http://www.fas.org/nuke/guide/israel/nuke/ accessed 18 September 2017. See *The Risk Report*. Vol. 2. No. 4 (July-August 1996). Also, see Parker, Richard B. *The Six Day War: A Retrospective*. UP of Florida. 1996. Page 158, where, in chapter four, C. Ernest Dawn states that the U.S. did not believe that the Israelis had nuclear weapons until after 1967.

Israel received additional help when it bought deuterium/tritium from Norway, under the specific condition that the heavy water would not be transferred to a third country and that French Air Force would fly the four tons of heavy water from Norway to Israel.[269] France agreed to supply the uranium and components Israel needed to complete the reactor and to block international inspections in return for the promise that Israel would not build atomic weapons, would not reprocess plutonium, and would reveal the existence of the reactor, which would be finalized without French assistance. The Israeli reactor went critical in 1964.[270] During phase II, Israeli presidents include Yitzhak Ben-Zvi (1952-1963) and Zalman Shazar (1963-1973). Israeli prime ministers include David Ben-Gurion (1955-1963) and Levi Eshkol (1963-1969).

The first crisis for Israel in Phase II began in February 1960. On February 15th, 1960, when Egyptian President Jamal Nasir received a message from the Soviet embassy in Cairo, claiming that Israeli troops were massing on its northern border, in preparation to attack Syria, which at that time was a single political entity with Egypt called the United Arab Republic.[271] Egypt then initiated clandestine troop maneuvers across the Suez Canal into the Sinai toward the Israeli border. On February 23rd, 1960, the Israeli intelligence service (Mossad) notified Prime Minister/Minister of Defense David Ben-Gurion that the Egyptian army had crossed the Suez Canal and was situated in the Sinai near Israel's southern border. The following day, Israel responded by moving its forces southward in army maneuvers, termed Rottem by the IDF. No

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[269] http://www.fas.org/nuke/guide/israel/nuke/ accessed 18 September 2017.

[270] Ibid.

[271] The UAR existed from 1958-1961.

battle ensued on either front. Egyptian forces returned to their bases and then the IDF did the same. These actions ended the crisis.[272]

The second crisis for Israel in Phase II began on December 11th, 1963, when the Israeli Minister of Labor stated that the National Water Carrier Plan would occur, despite pressure from the Arab states. Egyptian President Jamal Nasir proposed a meeting of all Arab heads of state to consider Israel's plan to divert the Jordan waters. At that meeting, held 13-16 January, 1964, it was unanimously decided to not go to war with Israel, but to divert the three tributaries of the Jordan River and to set up a joint (unified) military command to protect the Arab states.[273] This announcement triggered a crisis for Israel, which perceived a grave threat to its vital water supplies. On January 19th, 1964, Israel repeated its determination to carry out the plans for using the waters of the Jordan River. The crisis ended on May 5th, 1964, when it was announced by Israel that the project was completed and that it would go into operation in the summer of 1964.[274] The announcement set off an outburst of indignation in the Arab press at the failure of the Arab governments to stop the project, but no further action was taken by them.

In this conflict, Israeli strategic objectives were at risk. The UN did not condemn any actions, but along with the U.S. and the Soviet Union, issued strong warnings to both sides against using armed force. Conflict was terminated when Israel announced the water plan had been initiated despite escalation attempts.

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[272] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=173 is the link to incident number 173, Rottem, 1960.

[273] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=203 is the link to incident number 203, Jordan Waters, 1963.

[274] Hammel, Eric. *Six Days in June: How Israel Won the 1967 Arab-Israeli War*. Scribner's. New York. 1992. Page 5. Here, Hammel states that the origins of the Six-Day War were the completion of the Israeli water project that caused conflict as far back as 1951 with Hula Drainage. In Uzbek, the word for water is the same as the word for life; it is evident that wars are often begun around water in desert cultures.

Applied Qualitative Data Specific to Israel for Phase II

Table 7.2: Israeli Crises, Phase II Potential Nuclear Weapon State

Crisis	Year	CH (NCI)	TA (NCI)	CH Win	Higher NCI Win	Higher NCI CH	ISR Win	Nuclear activity	UN involvement
Rottem	1960	Israel (1)	Egypt (1)	Yes	N/A	N/A	Yes	No	No
Jordan Waters	1963	Israel (1)	Jordan (0)	Yes	Yes	Yes	Yes	No	No

Table 7.2 shows that while Israel was in Phase II as a potential nuclear weapon state, the state with the greater nuclear capability won 100% (1 of 1) of the crises, supporting hypothesis one that conjectures the state with the greater nuclear capability should win more often. Table 7.2 also shows strong support for hypothesis two, in that 100% (1 of 1) of the crises during this period were initiated by the state with the greater nuclear capability. This table neither supports nor refutes Sechser's assertion that nuclear weapons have no compellent value, because during this time period, none of the crises met Sechser's criteria for a compellent threat.

Phase III: Nuclear Weapon State (1964-Present)

The lack of confirmation of Israel's nuclear status is well known in defense circles and continually challenged, as new evidence comes to light. In one example, a 1986 London Sunday Times article documented by Mordechai Vanunu, a dismissed Israeli nuclear technician, revealed photographs and descriptions of Israeli atomic devices that led defense experts to conclude that Israel could possibly have made between 100 and 200 devices by that time.[275] The Dimona nuclear reactor is the source of plutonium for Israeli nuclear weapons, and the number of nuclear weapons that could have been produced by Israel can be estimated on the basis of the power

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[275] http://www.fas.org/nuke/guide/israel/nuke/ accessed 18 September 2017. By the late 1990's, the U.S. intelligence community estimated that Israel possessed between 75 and 130 nuclear weapons, based on production estimates.

level of this reactor. Based on the London Sunday Times article, weapons-grade plutonium was being produced at a rate of between 20kg and 40kg per year, based on the power output of the reactor. As the reactor at Dimona can produce approximately 1g of plutonium for each thermal megawatt day, it is possible to extrapolate the total amount of plutonium based on duration and intensity of plant operations.[276] Despite the release of that article, senior Israeli officials continued to refuse to confirm or deny possession of nuclear weapons. Sources have announced that Israel had two armed nuclear weapons available for use in the Six-Day War in 1967, and that the Israelis assembled several atomic bombs for use during the Yom Kippur War.[277]
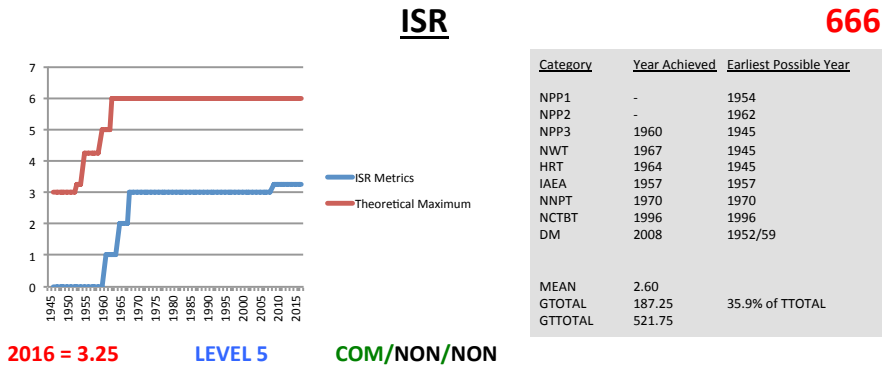
Regarding nuclear weapons production, the negative mismatch between GDP and defense spending is potentially problematic in the Israeli case, because despite the high cost, the Israelis could conceivably extract uranium from non-IAEA-tracked sources. The World Nuclear Organization tracks the global supply of known uranium deposits, but they do not track uranium located in seawater, the Earth's continental crust, sedimentary rock, or granite. The extraction process is exceptionally expensive, however, for a state without uranium reserves, such as Israel, harvesting uranium from such sources would not be cost-prohibitive. Based on the GDP/defense spending mismatch, these outlandish costs of uranium extraction could have been acceptable to Israel for state security.[278]

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[276] Ibid.

[277] Ibid. These unconfirmed sources were examined in depth by several scholars, including sources such as *The Bomb that Never Is* by Avner Cohen, *Bulletin of the Atomic Scientists*, May/June 2000, Vol. 56, No. 3 pp.22-23 and *The Samson Option: Israel's Nuclear Arsenal and American Foreign Policy* by Seymour M Hersh, [New York: Random House, 1991]

[278] http://www.world-nuclear.org/information-library/nuclear-fuel-cycle/uranium-resources/supply-of-uranium.aspx accessed on 7 September 2017. Extraction of uranium from seawater costs ten times the current value of uranium mined from the average WNO-tracked sources.

ISR   **666**

Category	Year Achieved	Earliest Possible Year
NPP1	-	1954
NPP2	-	1962
NPP3	1960	1945
NWT	1967	1945
HRT	1964	1945
IAEA	1957	1957
NNPT	1970	1970
NCTBT	1996	1996
DM	2008	1952/59
MEAN	2.60	
GTOTAL	187.25	35.9% of TTOTAL
GTTOTAL	521.75	

2016 = 3.25   **LEVEL 5**   **COM/NON/NON**

Preliminary data interpretation as monad: ISR is a level 5 nuclear state. ISR developed a nuclear research facility in 1960, but has no nuclear power plants, no disclosed HEU refinement capability and no disclosed nuclear weapons. Despite the nuclear ambiguity regarding ISR, they have developed some strategic delivery means for nuclear weapons and is widely assumed to possess nuclear weapons. ISR is a charter member of the IAEA. ISR is non-compliant with both the NPT and the CTBT.

Theoretical maximum was 3 until 1952, 3.25 until 1954, 4.25 until 1959, 5 until 1962, and 6 after 1962

Figure 7.1 Nuclear Activity, Israel

These next two paragraphs detail the information depicted on the chart above. Israel is one of five non-signatories to the treaty on the Non-Proliferation of Nuclear Weapons (NPT), the international treaty with 188 signatories whose objective is to prevent the spread of nuclear weapons and weapons technology and to promote cooperation in the peaceful uses of nuclear energy.[279] Israel continues to produce plutonium in its reprocessing plant, as well as HEU, and is unaccountable to any international body concerning quantity of these elements.[280] Interestingly, Israel, India, and Pakistan all continue to operate plutonium production reactors

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[279] https://www.un.org/disarmament/wmd/nuclear/npt/ accessed 20 September 2017.

[280] Global Fissile Material Report 2015: Nuclear Weapon and Fissile Material Stockpiles and Production. International Panel on Fissile Materials. 2015. Page 3. In my research, the Nuclear Capabilities Index (NCI) of Israel is at least two points below the score it is assumed to have. For example, Israel is not given any credit for HEU refinement capability, since they have never declared nor allowed an examination of any such facility. Also, I could not give Israel credit for possessing nuclear weapons because no state official has ever declared to have them. In addition, the strategic delivery means Israel has developed suggest Israel possesses HEU refinement capability and nuclear weapons.

and production rates are expected to increase through 2025.[281] Client states of Israel, India, and

Pakistan stand to be very well set should they choose to develop nuclear weapons.

Regarding nuclear activity, Israel is the most enigmatic case among all 193 UN states.

Israel is currently a level five nuclear power, despite never declaring an HEU refinement

capability or nuclear weapons. This is based on the strategic delivery means Israel has

developed to deliver nuclear devices, and the unconfirmed opinion of hundreds of defense

analysts that Israel possesses nuclear weapons. Israel is the only state with a policy of nuclear

ambiguity, which has not prevented non-nuclear neighbors from continually challenging Israel

on security matters. Israel developed the nuclear research facility at Dimona in 1960, but has

never developed a nuclear power plant. Israel is one of a small handful of examples of a non-

compliant nuclear state regarding the three relevant international nuclear regimes. While Israel

was a charter member of the International Atomic Energy Agency, it remains non-compliant to

the Non-Proliferation Treaty, and non-compliant to the Comprehensive Test Ban Treaty. Not

surprisingly, the spike in Israel's graph occurred during the time of peak crisis (between 1967

and 1973), indicating Israeli leadership expected an increase in nuclear activity to contribute to

victory in interstate crises.

During Phase III, Israeli presidents include Zalman Shazar (1963-1973), Ephraim Katzir

(1973-1978), Yitzhak Navon (1978-1783), Chaim Herzog (1983-1993), Ezer Weizman (1993-

2000), Moshe Katsav (2000-2007), Shimon Peres (2007-2014), and Reuven Rivlin (2014-

present). Israeli prime ministers include Levi Eshkol (1963-1969), Golda Meir (1969-1974),

Yitzhak Rabin (1974-1977), Menachem Begin (1977-1983), Yitzhak Shamir (1983-1984),

Shimon Peres (1984-1986), Yitzhak Shamir (1986-1992), Yitzhak Rabin (1992-1995), Shimon

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[281] Ibid. Page 27, 48 and 49.

Peres (1995-1996), Benjamin Netanyahu (1996-1999), Ehud Barak (1999-2001), Ariel Sharon (2001-2006), Ehud Olmert (2006-2009), and Benjamin Netanyahu (2009-present). As previously discussed, even at the Israeli cabinet level, nuclear ambitions and plans were not discussed, however at exclusive meetings between the prime minister and the minister of defense, these conversations were thought to have taken place routinely.

As a point of departure, in 1964 it was Israel's declared policy to not be the first to introduce nuclear weapons into the region".[282] This policy confused U.S. officials, who asked then Israeli Ambassador to the U.S. Yitzhak Rabin (later defense minister and yet later, prime minister) for clarification. Rabin said that Israel believed that signaling was an important component of nuclear deterrence and that in order for it to be effective, an adversary must be convinced that it is available and ready to use. Therefore, the statement "not the first to introduce nuclear weapons into the region" had nothing to do with possessing or not possessing nuclear weapons; Israel could very well have them and be willing to use them for that stated policy to be completely true, they only stated that they wouldn't use them first.[283] This policy is surprisingly consistent with Indian nuclear policy a decade later.

The first crisis for Israel in Phase III began on November 12th, 1967, when a mine blew up an IDF command car near the Jordanian border. Three soldiers were killed and six were wounded. The IDF responded the following day with a commando raid on the village of El

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[282] Ginor, Isabella and Remez, Gideon. *Foxbats over Dimona: The Soviets' Nuclear Gamble in the Six-Day War*. Yale UP. New Haven. 2007. Page 45. Interestingly, pages 36-48 discuss the reports of a Soviet double agent, Comrade Moshe Sneh, who elicited information from defense analysts involved in the private meetings. While possibly true, this does not invalidate the claim of this research that no Israeli senior official has made public statements regarding nuclear weapons possession or policy other than the "not be the first to introduce" policy statement.

[283] Ibid. Page 45.

Samu, in Jordan, where Palestinian supporters were concentrated.[284] Jordan responded to the raid

by mobilizing its army. Heavy fighting took place, and Israel withdrew across the border a few

hours later. Jordan appealed to the UNSC and issued an internal state of alert, especially against

possible riots on the West Bank, but with no further IDF activity, ended the state of alert on

November 15th, 1967, terminating the crisis.[285]

The second crisis for Israel in Phase III was arguably the most significant incident for

Israel in the twentieth century. Tension along the Israel/Syria border had been increasing since

late 1966, due to increased attacks by Palestinian guerrillas based in Syria.[286] On April 7th, 1967,

six Syrian MIG fighter planes were shot down in an air skirmish over the Israel/Syria border.[287]

Israel repeatedly warned Syria that a massive reprisal would be inevitable if Damascus did not

stop active support of Palestinian raids into Israel. On May 14th, 1967, both Syria and Egypt

announced a state of emergency, based upon Soviet-inspired reports that Israel was concentrating

troops on its northern border.[288] On May 17th, 1967, Syrian aircraft conducted a successful over

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[284] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=220 is the link to incident number 220, El Samu, 1966.

[285] Hammel, Eric. *Six Days in June: How Israel Won the 1967 Arab-Israeli War*. Scribner's. New York. 1992. Pages 19-21.

[286] Parker, Richard B. *The Six Day War: A Retrospective*. UP of Florida. 1996. Page 27. Parker states that none of his Egyptian sources had ever mentioned nuclear capabilities or use of nuclear weapons – see Ginor, Isabella and Remez, Gideon. *Foxbats over Dimona: The Soviets' Nuclear Gamble in the Six-Day War*. Yale UP. New Haven. 2007. Page 30, however it was clear that Egyptian targets included both the research facility at Dimona as well as Nahal Sorek. This was likely due to the Soviet goal of this confrontation, which was to prevent "Israel to have even the semblance of nuclear superiority over its neighbors" page 32.

[287] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=222 is the link to incident number 222, Six Day War, 1967.

[288] Ginor, Isabella and Remez, Gideon. *Foxbats over Dimona: The Soviets' Nuclear Gamble in the Six-Day War*. Yale UP. New Haven. 2007. Page 94 provides insight to how some Soviet intelligence was inaccurate and misled Egyptians to faulty estimates. Page 130 describes the accurate and reliable Soviet photoreconnaissance used to aid Egyptian battle plans. The Egyptians could not have planned this operation without Soviet intelligence support. Most interesting, this book suggests that the Soviet Union caused the Six Day war to occur expressly to remove the threat of the Israeli nuclear weapons program (see page 27 and 32).

flight of the nuclear research center at Dimona, greatly concerning Israeli defense officials, and

in addition, two Egyptian divisions deployed into the Sinai.[289] On May 18th, 1967, the UN

Secretary-General withdrew the United Nations Emergency Force (UNEF) from the Sinai,

signaling a likely ground conflict was imminent.[290] On May 23rd, 1967, Egypt announced the

closure of the Strait of Tiran, blockading the Israeli port of Eilat, which was a violation of

international law. Shortly after the bilateral Egypt-Jordan defense pact was signed on May 30th,

1967, Israel conducted a pre-emptive strike on Egypt, crippling the Egyptian Air Force and

defeating the Egyptian Army in the Sinai.[291] Jordanian forces also responded by opening fire on

Jerusalem and bombing Netanya. Israel destroyed the small Jordanian Air Force and, on June

7th, 1967, captured the Jordan-controlled Old City of Jerusalem. Syrian forces, which

immediately bombed Israeli border settlements, were soon faced with successful Israeli advances

on the Golan Heights, and shortly thereafter accepted a cease-fire. The following day, the cease-

fire came into effect for all the other actors, terminating the 1967 Middle East Crisis.[292]

As a result of this conflict, the Soviet Union and five of its East European satellite states

severed diplomatic relations with Israel. The UN helped to escalate the crisis, by the removal of

UNEF, but it also contributed to the more rapid termination of the crisis through the efforts of the

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[289] Ibid. Page 223. Note 10 describes that Egypt may have started the Six-Day War in fear of the Israeli nuclear facility at Dimona.

[290] Hertzog, Chaim. *The Arab-Israeli Wars: War and Peace in the Middle East*. Vintage Books. New York. 1984. Page 149.

[291] Hammel, Eric. *Six Days in June: How Israel Won the 1967 Arab-Israeli War*. Scribner's. New York. 1992. Page 146 is telling. The Egyptians had never promulgated the plans for Operation Kahir to divisional commanders, no war games were ever conducted on the phases or stages of executing the plan, and there were no combined arms rehearsals. Equipment does not win battles, preparation and adaptation do and that is only accomplished through planning and rehearsing actions.

[292] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=222 is the link to incident number 222, Six Day War, 1967.

UNSC and cease-fire resolutions. The political activity of the two superpowers, especially that of the U.S., had an important impact on the course of the crisis and its outcome.

Egypt precipitated this conflict by deploying two divisions into the UN-controlled Sinai and closing the Strait of Tiran. Jordan and Syria also attacked Israel first by the over flight of the nuclear facility and the bombing of Jerusalem. There was implicit nuclear activity displayed in this incident, as some scholars have asserted the Syrian over flight of Dimona led to an Israeli Minister of Defense decision to enable nuclear weapons.[293] Since Israel has a policy of nuclear ambiguity, this has never been officially confirmed.[294]

The third crisis for Israel in Phase III began on March 18th, 1968, an Israeli school bus detonated a land mine near the Jordanian border, killing two children and wounding 28.[295] This was the latest of 37 reported raids from guerilla forces from Jordan into Israel in the past 90 days and after this incident, Israeli Defense Minister Dayan issued a warning to Jordan to prevent further border crossings by Palestinian feda'iyyun. On March 21st, 1968, the IDF conducted a raid on the Jordanian village of Karameh, a feda'iyyun base. Jordanian forces responded, and heavy fighting followed with severe losses on both sides.[296] The IDF withdrew back to Israeli territory on March 21st, 1968, and shortly thereafter, Jordan reopened the Allenby Bridge, linking the Israeli-occupied West Bank and Jordan, ending the conflict.

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[293] Parker, Richard B. *The Six Day War: A Retrospective*. UP of Florida. 1996. Page 251.

[294] https://dataverse.harvard.edu/dataset.xhtml?persistentId=hdl:1902.1/17315 is the MCT dataset, which allows access to all 121 MCT used in this research. http://faculty.virginia.edu/tsechser/MCT-Coding-Document.pdf is the coding document created by Todd Sechser to describe the components of the Militarized Compellent Threat, or MCT, dataset.

[295] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=226 is the link to incident number 226, Karameh, 1968.

[296] Hertzog, Chaim. *The Arab-Israeli Wars: War and Peace in the Middle East*. Vintage Books. New York. 1984. Page 205.

The fourth crisis for Israel in Phase III began on December 26th, 1968, when the

Lebanon-based PFLP (Popular Front for the Liberation of Palestine) attacked an Israeli civilian

plane at Athens International Airport, killing one passenger. It was common practice at that time

for terrorist groups to target states that had reduced security presence at their airports, as there

had never been a successful attack at an airport in Israel. IDF responded by conducting a

retaliation raid on Beirut International Airport on December 28th, 1968, destroying 13 airplanes

belonging to the Middle East Airlines and other Lebanese-owned planes, then returned to

Israel.[297] Only equipment was targeted, there was no loss of life. Lebanon responded by lodging

a complaint against Israel to the UNSC, declaring a heightened state of alert, and mobilizing

reserve forces. No additional Israeli actions ensued.

Israeli strategic objectives were not at risk, however not acting in such a manner

threatened to undermine the long-standing Israeli policy to attack the state or origin where the

attacking stateless group resides. As a result of this crisis, there was widespread condemnation

of the Israeli raid, including a protest by the Vatican, a total embargo by France on all military

supplies destined for Israel, heightened alert status by the U.S., and UNSC condemnation.

The fifth crisis for Israel in Phase III began in the fall of 1968, when Egypt's leaders

perceived that a limited military initiative against Israel along the "Bar Lev Line" on the east side

of the Suez Canal was possible.[298] Egyptian artillery bombarded Israeli positions on the east

bank of the Suez Canal in September and October, and IDF responded with the destruction of

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[297] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=229 is the link to incident number 229, Beirut Airport, 1968.
[298] Hertzog, Chaim. *The Arab-Israeli Wars: War and Peace in the Middle East*. Vintage Books. New York. 1984. Page 199.

Egypt's power station at Naj Hamadi on October 31st, 1968.[299] Egypt desisted from further

military activity until March 8th, 1969, when it launched the War of Attrition with intense

artillery fire against Israel's "Bar Lev Line" on the east side of the Suez Canal.[300] Israel

responded with air raids into Egypt on July 20th, 1969, forcing Egypt to temporarily cease the

offensive to cross the Suez Canal.[301] After a few months of stability, in October 1969, Israeli air

raids destroyed SAM-2 batteries and Egyptian antiaircraft systems and conducted deep-

penetration raids into Egypt. Egyptian President Jamal Nasir then appealed to the Soviet Union

for aid, and threatened to resign if the introduction of Soviet advisors and a sophisticated missile

air defense system weren't deployed into Egypt. Israel responded with intensive bombing of

these SAM sites and aerial warfare against Soviet-piloted MIGs. The UN, along with the U.S.,

the USSR, the UK and France were all heavily involved in developing a cease-fire plan, which

took effect on August 7th, 1970, terminating the War of Attrition.

Israeli strategic objectives were not at risk, however when Soviet military hardware

became available to Egyptian forces, the threat of escalation seemed imminent and Israel showed

no signs of backing down; rather they increased offensive pressure on Egyptian and Soviet forces

in the region. The conflict was mediated by the most powerful and influential states in the world

at that time, and still Israel did not terminate until it had achieved its goals.[302]

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[299] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=232 is the link to incident number 232, War of Attrition, 1969.

[300] Hertzog, Chaim. *The Arab-Israeli Wars: War and Peace in the Middle East.* Vintage Books. New York. 1984. Page 196.

[301] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=232 is the link to incident number 232, War of Attrition, 1969.

[302] https://dataverse.harvard.edu/dataset.xhtml?persistentId=hdl:1902.1/17315 is the MCT dataset, which allows access to all 121 MCT used in this research. http://faculty.virginia.edu/tsechser/MCT-Coding-Document.pdf is the

The narrative for the sixth crisis for Israel in Phase III was not included in Sechser's dataset, however he states that the primary challenger was Israel and the target was Lebanon. Sechser states that force was used, but none of the challenger's demands for policy change were met. Therefore, the target wins, but we have no narrative to understand why. This incident doesn't occur in the ICB dataset.[303]

The narrative for the seventh crisis for Israel in Phase III was also not included in Sechser's dataset, however he states that the primary challenger was Israel and the target was Lebanon. Sechser states that force was used, but none of the challenger's demands for policy change were met. Therefore, the target wins, but we have no narrative to understand why. This incident doesn't occur in the ICB dataset.[304]

The eighth crisis for Israel in Phase III began on February 21st, 1973, when a plane was spotted on Israeli radar heading in the direction of Israel's nuclear plant in Dimona.[305] Several weeks prior to this event, Israel's cabinet had been alerted to a terrorist plot to hijack an airliner that would be packed with explosives and crashed into an Israeli population center. Apparently, a Libyan Boeing-727 with 113 passengers on board had strayed over the eastern side of the Suez Canal, then occupied by Israel. Israeli fighter planes immediately intercepted the intruding aircraft, demanding identification. Twenty minutes of sustained warnings and signals to the pilot

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coding document created by Todd Sechser to describe the components of the Militarized Compellent Threat, or MCT, dataset.

[303] Ibid.

[304] Sobel, Lester A. ed. *Israel & the Arabs: The October 1973 War*. Facts on File. New York. 1974. Page 4. In 1972, Israel conducted 7 raids against Lebanon on 13 Jan, 25 Feb, 9 Mar, 21 Jun, 23 Jun, 7 Sep, 16 Sep. I have no idea which or if any of these Sechser is describing. I do know that the raid on 16 September (following the slaying of Israeli athletes at the Munich Olympics) was the largest in scale.

[305] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=251 is the link to incident number 251, Libyan Plane, 1973.

brought no results. The IDF Chief of Staff, Lieutenant-General David Elazar, ordered the Israeli

Air Force fighter planes in intercept to shoot down the Boeing 727.   Israeli pilots destroyed the

plane and the crisis was terminated.[306]

It may be a stretch to consider Libya the target, but the aircraft was Libyan in

ownership.[307] From a strictly Israeli perspective, this crisis was about preventing a potential

military threat from destroying an Israeli strategic center of gravity, the nuclear facility at

Dimona, therefore, Israeli strategic objectives were at risk. Following the crisis, most members

of the international system condemned Israeli actions, however because the crisis was so short,

the UN was not involved in crisis termination. There was both implicit and explicit nuclear

activity displayed in this incident, as the decision to shoot down a passenger airliner was directly

tied to the intelligence report of several weeks past and the possible destination of the airliner,

the Dimona nuclear facility.

After the defeat in the 1967 Six-Day War, Egypt, Lebanon, Syria, and Jordan wanted to

regain lost territory the Sinai Desert, the Golan Heights, the West Bank, and East Jerusalem.

After the Six-Day War, the U.S. supplied Israel with combat aircraft: 48 Phantoms and 36

Skyhawks, shifting the military balance firmly into Israeli hands.[308] The military balance shifted

again in 1973, when Egypt gained additional military supplies from the Soviets, and 16 fighter

planes each from Iraq and Libya. At the beginning of April 1973, Egyptian President Anwar al-

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[306] Immediately thereafter the Israelis learned that the plane had been a civilian airliner from Libya and that it had not represented a security threat.

[307] Had the threat been different, for example the PLO had hijacked a Libyan flag carrier, the threat would have been Lebanon, as Israel considers the state sponsor responsible for terrorist acts.

[308] Sobel, Lester A. ed. *Israel & the Arabs: The October 1973 War.* Facts on File. New York. 1974. Page 80.

Sadat stated publicly that Egypt was preparing for war with Israel.[309] Egyptian coordination with

the Syrians began in February 1973, and a joint attack was scheduled for May of that year. He

also announced a large Egyptian army exercise.[310] The ninth crisis for Israel in Phase III began

on April 10th, 1973, when the IDF Chief of Staff, Lieutenant-General David Elazar, received

intelligence reports of this intended Egyptian-Syrian invasion, scheduled to begin on May 15th,

1973. Elazar responded by placing the IDF on alert, canceling all leaves, activating reserves

forces and preparing for war. After three months of heightened tension, it became clear that

Egypt did not intend to go to war at that time, and the crisis was terminated. Preparation is a

requirement to preserve Israeli strategic objectives and because Israeli strategic objectives were

at risk, the actions taken by the IDF Chief of Staff were correct.[311]

The preparations IDF Chief of Staff Elazar underwent in the summer of 1973 paid huge

dividends in the Yom Kippur War, only a few months later. On September 13th, 1973, Israel and

Syria fought a seemingly unprovoked air battle in which 13 Syrian MIGs and one Israeli Mirage

were shot down.[312] When Syria did not react immediately to this catastrophic defeat, Israel

became suspicious and strengthened IDF ground forces in the north, as well as taking

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[309] El Badri, Hassan, El Magdoub, Taha, and Dia El Din Zohdy, Mohammed. *The Ramadan War, 1973*. Dupuy Associates, Inc. Dunn Loring, Virginia. 1974. Page 17. The Egyptian plans for the October war began right after defeat in the Six-Day War, and were completed by March 21st, 1973.

[310] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=253 is the link to incident number 253, Israel MBL, 1973.

[311] President al-Sadat subsequently explained that the postponement of the war was due to the Nixon-Brezhnev talks requiring a second summit conference in Washington scheduled for May, 1974. IDF Chief of Staff Lieutenant-General Elazar came under severe criticism by Israel's finance minister for the economic cost of the April mobilization, while the Israel intelligence estimates were vindicated. This proved to be a crucial factor in Elazar's reluctance to order general mobilization and misconceptions that characterized Israeli thinking just before the successful Egyptian attack on 6 October 1973.

[312] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=255 is the link to incident number 255, October – Yom Kippur War, 1973.

precautionary measures in the south along the Syrian border. Over the next few days, Syria

mobilized three infantry divisions, supporting tanks and artillery, and reserve forces. The IDF

was put on the highest state of alert, even though Israeli intelligence perceived the outbreak of

war to be highly unlikely.

On October 5th, 1973, massed formations of Egyptian ground forces maneuvered toward

the Suez Canal, supported by intelligence claims of an impending Egyptian combined arms

attack for the following day.[313] The tenth crisis for Israel in Phase III began on October 6th,

1973, with a simultaneous attack by Egyptian and Syrian forces. Early territorial gains by both

Egypt and Syria, including recapture of the Golan Heights catalyzed an Israeli intra-war crisis:

perceiving a double penetration into Israeli territory and the collapse of the IDF, the Knesset

considered adopting the "Samson Option," the use of Israeli nuclear weapons to stem the

Egyptian/Syrian assault.[314] By October 10th, 1973, after heavy losses, IDF counterattacks in the

Golan Heights region were successful. Syria pressed Egypt to increase pressure in the South and

requested Soviet support, but both requests went unanswered. During the next three days Israeli

forces advanced 10 kilometers beyond the 1967 cease-fire lines into Syrian territory. By October

14th, 1973, Egyptian forces in the Sinai were crushed. On October 16th, 1973, IDF crossed the

Suez Canal, threatening to surround the Egyptian Third Army. At this point, Egypt asked for

Soviet assistance in garnering a cease-fire agreement, which was accepted October 22nd, 1973,

however this did not terminate the crisis, as Egyptian ground commanders continued to fight in

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[313] El Badri, Hassan, El Magdoub, Taha, and Dia El Din Zohdy, Mohammed. *The Ramadan War, 1973*. Dupuy Associates, Inc. Dunn Loring, Virginia. 1974. Page 22. The Egyptians knew the limitations of their position and the strengths of the IDF; the Egyptians decided that surprise was the principle of war they would need to use in order to defeat Israeli strengths.

[314] Up to 13 nuclear devices were reportedly activated. A few days later, on October 14th, 1973, Israel's nuclear weapons were returned to storage

order to open up an escape route for the Egyptian Third Army. At this point, both the U.S. and the Soviet Union warned Israel that it must allow supplies to reach the Third Army and cease offensive operations. The crisis reached its zenith when, on October 25th, 1973, a Soviet freighter arrived in Alexandria reportedly carrying nuclear weapons, however all sides agreed to a joint U.S.-Soviet-sponsored UNSC resolution calling for a cease-fire on October 26th, 1973. In the north, after several months of intermittent shelling and skirmishing on the Syrian border, a UN buffer zone was finally established. Despite the Syrian refusal to commit itself to the cessation of all terrorist activities, an agreement was signed on 31 May 31st, 1974, terminating the crisis for Israel, Syria, the Soviet Union, and the United States.[315]

In the end, Israel was able to defend its territory against combined arms invasion while preserving its military force. Israeli strategic objectives were at risk: not only the loss of territory gained in the Six-Day War, but an existential threat to the integrity of the State of Israel. The UN condemnation terminated the conflict, but not immediately, as Israel refused to terminate until after consolidation of gains. Both superpowers were active during this conflict and, at times, escalation seemed imminent. Each supplied massive arms and equipment, as well as political support, to its client state. The cease-fire agreements were worked out between their representatives.[316] There was both implicit and explicit nuclear activity displayed in this incident, but unconfirmed by Israeli government officials.

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[315] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=255 is the link to incident number 255, October – Yom Kippur War, 1973.

[316] Harms, Gregory and Ferry, Todd M. *The Palestine-Israel Conflict: A Basic Introduction*. Pluto Press. London. 2005. Page 128. When you consider that peace between Israel and Egypt was first secured at the Camp David Accords in 1979, you can see the time separation between this war (1973) and the first codified peace (1979) as a 6-year lag. Seems like a long time, but Israel and Egypt have not had a militarized conflict since.

Guerrilla war against Israel by the Palestine Liberation Organization (PLO) took several forms, including the hijacking of planes from Israel's national carrier, El Al, or other airlines carrying Israeli passengers. As security measures in airports tightened, these acts diminished in number, however security conditions at some airports remained less stringent. One of these airports was Athens. The eleventh crisis for Israel in Phase III began on June 27th, 1976, when an Air France plane en route from Tel Aviv to Paris was hijacked shortly after a stopover in Athens by an armed group belonging to the Popular Front for the Liberation of Palestine (PFLP), including persons from Germany's Bader-Meinhof terrorist organization.[317] The pilot was forced to fly to Libya where the plane spent nine hours. Later, it reached Entebbe, Uganda, where passengers were divided into two groups: Jews and other. The latter were released shortly thereafter.

When it became apparent that Uganda's President, Idi Amin, had no intention of pressing for the release of the Jewish passengers, Israel began to consider military options to effect their rescue. On July 3rd, 1976, three Hercules transport planes carrying IDF commando troops landed in Entebbe, fought Ugandan soldiers in a one-hour battle, and succeeded in rescuing the hostages. The crisis ended on July 4th, 1976, when the rescue team, together with the hostages, landed safely in Israel. [318] If the IDF allowed the terrorist act to go unpunished or if Israel allowed the hostages to be executed for political grievances, this likely would have encouraged an increase in skyjacking or hostage taking to further affect Israeli policy.

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[317] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=270 is the link to incident number 270, Entebbe Raid, 1976.

[318] Ibid.

The twelfth crisis for Israel in Phase III began during the Lebanon Civil War. Syrian

troops entered Lebanon in January 1976, and by September 1976, Syria had defeated Palestinian

and Lebanese Muslim leftists and controlled large areas of Lebanon.[319] On October 18th, 1976, a

comprehensive peace plan for Lebanon was signed, setting up an Arab Deterrent Force,

consisting almost entirely of Syrian troops. By November 20th, 1976, Syria controlled all the key

points in Lebanon with the exception of the area south of the Litani River bordering Israel. A

tacit agreement was reached with Israel marking the Litani as the "Red Line", however it

appeared that Syria might break the tacit Red Line agreement. To prevent this, Israel deployed

IDF ground forces along the northern border. The Syrians halted at the Litani River, and by

December 13th, 1976, the situation had stabilized and the tacit agreement between the two

countries was restored.

The narrative for the thirteenth crisis for Israel in Phase III was not included in Sechser's

dataset, however Sechser states that the primary challenger was Israel and the target was Syria.

Sechser states that force was demonstrated but not used, but none of the challenger's demands

for policy change were met. Therefore, the target wins, but we have no narrative to understand

why. This incident doesn't occur in the ICB dataset.[320]

The fourteenth crisis for Israel in Phase III began on March 11th, 1978, when 11

Palestinians entered Israel by sea and attacked vehicles on the main highway north of Tel Aviv.

Thirty-five Israelis were killed and another 70 wounded before Israeli police, in a fierce clash,

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[319] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=275 is the link to incident number 275, Syria MBL, 1976.

[320] https://dataverse.harvard.edu/dataset.xhtml?persistentId=hdl:1902.1/17315 is the MCT dataset, which allows access to all 121 MCT used in this research. http://faculty.virginia.edu/tsechser/MCT-Coding-Document.pdf is the coding document created by Todd Sechser to describe the components of the Militarized Compellent Threat, or MCT, dataset.

killed or captured all of the terrorists.[321] On March 14th, 1978, IDF conducted a cross-border raid into southern Lebanon in a major attack against PLO bases in response to the actions on March 11th, 1978. On March 17th, 1978, Lebanon sought assistance from the UNSC regarding this IDF invasion. U.S. Vice President Mondale acknowledged Israel's right to defend its borders against terrorist incursions but called for an Israeli withdrawal. The UNSC met on March 19th, 1978, and called for Israel's immediate withdrawal, along with an order to establish a UN peacekeeping force in southern Lebanon called the United Nations Interim Force in Lebanon (UNIFIL). The hostilities ended shortly thereafter, and Israeli forces departed Lebanon by June 13th, 1978, terminating the crisis.

The fifteenth crisis for Israel in Phase III began on October 28th, 1980, when Israel's cabinet made a decision to attack the Osirak nuclear reactor near Baghdad. Israeli Prime Minister Begin explicitly stated that a nuclear weapon in the hands of any Arab state posed a threat to Israel's existence. Since the Ba'ath Party came to power in 1963, Iraq had sought to develop a nuclear capability. A pro-Soviet policy led to the construction of a small nuclear research reactor in 1968. In 1975, President Saddam Hussein secured a French commitment to build a larger nuclear reactor for "research." Israel's diplomatic efforts from 1976 to 1979 to persuade France to desist from this commitment proved to be in vain.[322] After a French announcement in January 1981 that the Osirak reactor would be fully operational by July 14th, 1981, Israel Air Force (IAF) plans for a preemptive strike were approved. The IAF attack

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[321] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=289 is the link to incident number 289, Litani Operations, 1978.

[322] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=324 is the link to incident number 324, Iraq Nuclear Reactor, 1981.

occurred on June 7th, 1980, destroying the Osirak nuclear reactor and, for some years, Iraq's embryonic nuclear capability. The IAF raid ended Israel's crisis.

Israeli strategic objectives were at risk, as Prime Minister Begin publicly stated. The crisis ended before UN condemnation mattered, but near-universal condemnation was the reaction of most states. There was explicit nuclear activity displayed in this incident, as the attack was expressly conducted against a nascent nuclear site.

The sixteenth crisis for Israel in Phase III began on April 28th, 1981, when Israeli planes shot down two Syrian helicopters carrying supplies to Syrian troops on Mount Sanin overlooking Zahle. Syria responded the next day by deploying SAM-3 to Lebanon, which Israel destroyed on May 28th, 1981.[323] Both Israel and Syria accused each other of violating the 1976 Red Line agreement: Syria by the use of air power against any party to the civil war and the introduction of missiles into Lebanon; and Israel by intervening in the Lebanese civil war with air power. Crisis abatement was the result of mediation and pressure on both sides, aided by the U.S. and Saudi Arabia, and took effect on July 24th, 1981, ending the crisis.

The seventeenth crisis for Israel in Phase III began on May 9th, 1982, when 100 Katyusha rockets were fired from south Lebanon into Israel's northern Galilee settlements. Shortly thereafter, on June 3rd, 1982, Israel's Ambassador to the UK, Shlomo Argov, was gravely wounded in a terrorist attack in London.[324] As an Israeli decision in principle to conduct attacks against PLO bases in Lebanon was made on April 21st, 1982, when Israeli planes bombed PLO

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[323] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=327 is the link to incident number 327, Al-Biqa Missiles I, 1981.

[324] Davis, M. Thomas. *40Km Into Lebanon*. National Defense UP. Washington D.C. 1987. Page 75.

sites in Beirut in reprisal for those two previous attacks.[325] IDF forces also responded by

invading Lebanon on June 5th, 1982.[326] The rapid IDF advance in Lebanon brought Israeli forces

into direct conflict with Syrian troops in the Biqa Valley.[327] This was accentuated on June 9[h],

1982, by an air battle that led to the shooting down of 60 Syrian planes.[328] Continued IDF/PLO

clashes led to a renewal of Israel/Syria hostilities. By June 24th, 1982, IDF units succeeded in

severing the strategic Beirut-Damascus highway, the key to Syria's military control over

Lebanon. And by early July 1982, IDF forces laid siege to Beirut.[329] As a result of this conflict,

PLO forces completed their withdrawal from Lebanon by September 1st, 1982, to nine locations

in the Arab world, temporarily ceasing to be a meaningful military force in the Arab/Israel

conflict, and IDF units pulled back from the outskirts of Beirut, though the crisis for Lebanon

didn't end until the peace agreement with Israel on May 17th, 1983, and Israel kept a massive

presence in Lebanon through 1985. On June 6th, 1982, the UNSC adopted a resolution calling for

an immediate cessation of hostilities and the withdrawal of Israeli forces to the recognized Israel-

Lebanon border. Altogether, nine UN resolutions were passed during the Lebanon War, but none

were heeded. IDF continued to control the "security zone" more than a decade later.

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[325] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=337 is the link to incident number 337, War in Lebanon, 1982.

[326] Schiff, Ze'ev and Ya'ari, Ehud. *Israel's Lebanon War*. Simon and Schuster. New York. 1984. Page 110.

[327] Davis, M. Thomas. *40Km Into Lebanon*. National Defense UP. Washington D.C. 1987. Page 81. There were two Syrian divisions in the Biqa valley.

[328] Ibid. Page 92. Thomas states that the Israeli Air Force launched a 96-plane attack and shot down 22 Syrian planes in the first minutes of action. By the end of the day, Thomas states that the Syrian Air Force had lost nearly 65 MIGs with 0 Israeli combat losses.

[329] Schiff, Ze'ev and Ya'ari, Ehud. *Israel's Lebanon War*. Simon and Schuster. New York. 1984. Page 181. "There is no getting around the fact that the Israeli cabinet never ordered or sanctioned the IDF's entry into Beirut." This was a mission command disconnect: military leaders seek to unhinge the enemy's center of gravity while Israeli political leaders cardinal rule was to never enter into an Arab capital with Israeli troops.

The eighteenth crisis for Israel in Phase III began on November 19th, 1985, when IAF shot down two Syrian MIG aircraft over Lebanon. Tensions rose when Syria responded by deploying SAM-6 sites to the Biqa Valley and along the Beirut-Damascus road, however, those missiles were soon withdrawn following U.S. pressure.[330] On December 15th, 1985, Syria deployed SAM-6 and SAM-8 missiles close to the Lebanon border. Israel reacted immediately by accusing Syria of also deploying long-range SAM-2 missiles in southwestern Syria, posing a threat to mutually agreed Israeli reconnaissance missions over Lebanon. On January 15th, 1986, the IAF announced that Syria's long-range missiles had been withdrawn from Lebanon. This ended the crisis.

The nineteenth crisis for Israel in Phase III began on July 10th, 1993, by a Hezbollah attack in the Lebanon security zone that killed five IDF soldiers and wounded many others. Israel demanded that Syria curb the activities of the Hezbollah, whose headquarters were located in the Biqa Valley of Lebanon, where Syria held sway. Simultaneously Israel deployed more troops and firepower to its border with Lebanon.[331]

On July 19th, 1993, after another Hezbollah attack in which several Israeli soldiers were wounded, the IDF was authorized to take "whatever steps were necessary" to protect the northern border. After the third unhindered Hezbollah incident occurred in a two-week period, Israel launched Operation Accountability, which included conducting heavy air raids and intense artillery attacks on south Lebanon villages, as well as Hezbollah bases all over Lebanon. The goal of Operation Accountability was to cause a large refugee flow from southern Lebanon into

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[330] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=357 is the link to incident number 357, Al-Biqa Missiles II, 1985.

[331] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=409 is the link to incident number 409, Operation Accountability, 1993.

Beirut, in an attempt to compel the government of Lebanon to stop Hezbollah's attacks. Operation Accountability was successful but at a serious cost. IDF military actions caused 1.5 million Lebanese refugees to flee to Beirut, but the international condemnation towards Israel for causing such extensive human suffering kept fleeing civilians as the top story in the international news media for weeks. Despite those drastic steps, Israel was unable to cause Lebanon to curb Hezbollah attacks, as the Lebanese government had very little influence over them.

UN Secretary-General Boutros-Ghali publicly condemned Israel on July 28th, 1993, for creating a massive refugee problem, and on July 30th, 1993, Lebanon complained to the UNSC for assistance. The UNSC swiftly passed a resolution condemning Israel actions and called for its withdrawal from Lebanese territory. On July 31st, 1993, a cease-fire between the IDF and Hezbollah was arranged through U.S. mediation: the IDF agreed to desist from military operations north of the security zone and Hezbollah pledged to stop firing missiles into northern Israel. Some would argue that Operation Accountability posed a strategic defeat for Israel, in that world opinion believed that Israel was causing unnecessary suffering for hundreds of thousands of civilians needlessly. Israeli strategic objectives were not at risk, as it does not value public opinion as a source of strength.

The twentieth crisis for Israel in Phase III began on April 9th, 1996, by a significant Hezbollah attack against Kiryat Shmona in Israel's northern Galilee, in which 36 Israeli civilians were wounded.[332] In the exchange of fire between the IDF and Hezbollah on the following day, four Israeli soldiers were killed. Israel's major response was an air attack against Hezbollah bases in South Lebanon and targets in Beirut on April 11th, 1996. Israel used the same tactics it had

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[332] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=418 is the link to incident number 418, Operation Grapes of Wrath, 1996.

employed in Operation Accountability, only this time it was called Operation Grapes of Wrath. The goal of Operation Grapes of Wrath was to cause a large refugee flow from southern Lebanon into Beirut, in an attempt to compel the government of Lebanon to stop Hezbollah's attacks. The refugee flow was considerably smaller than in Operation Accountability, but still caused a vast amount of human suffering.

On April 13th, 1996, Lebanon called on the UNSC to assist. On April 14th, 1996, after a meeting between Lebanon's Prime Minister and Syrian President Assad, Lebanon's Foreign Minister announced that his government was willing to return to the tacit understandings at the end of the "Operation Accountability" crisis in 1993 and, for the first time, was also ready to guarantee that no Hezbollah attacks on Israel would be launched from Lebanon's territory. While mediation was ongoing, on April 18th, 1996, more than a hundred Lebanese, who fled their homes in South Lebanon to a Hezbollah camp next to a UN post in the village of Qa'ana were killed by an Israeli attack. That escalated the crisis, leading to the condemnation of Israel in the Arab world and in Europe. After this incident, the UNSC called for restraint, to little effect, but by April 27th, 1996, the parties accepted a cease-fire and agreed to cease attacks on civilians in Israel and Lebanon. This action terminated the conflict. In a vein similar to Operation Accountability, many argued that Operation Grapes of Wrath posed a second strategic defeat for Israel, in that world opinion believed that Israel was causing unnecessary suffering for tens of thousands of civilians needlessly. Israeli strategic objectives were not at risk, as it does not value public opinion as a source of strength.

The twenty-first crisis for Israel in Phase III began on October 4th, 2003, the eve of the Yom Kippur holiday, by a suicide bomb attack at a seaside restaurant in Haifa that killed at least

21 people.[333] Islamic Jihad claimed responsibility for this suicide attack. On October 5th, 2003, IAF combat aircraft struck a suspected terrorist training camp near Damascus used by Islamic Jihad and Hamas. The Israeli air strike in Syrian territory, which coincided with the 30th anniversary of the 1973 war, triggered a crisis for Syria. While Israel claimed that the camp was used by terrorist organizations under Syrian patronage, Syria denied that the target was a training camp for Palestinian militants and claimed that it was a shelter for Palestinian refugees.

Syria responded to the Israeli air attack immediately by lodging a complaint with the UNSC, but no resolution condemning Israeli actions was approved, as the U.S. President Bush stood with Israel, stating that Israel had the right to defend itself in the face of terrorist attacks. On October 6th, 2003, Lebanon also lodged a complaint with the UNSC, but again no resolution condemning Israeli actions was approved, however the European Union, the UK, France, Germany, and China did condemn Israeli actions. For the next two months, neither side took any actions aside from political posturing. December 2nd, 2003, marks the end of the crisis, although the crisis faded without a definitive outcome and mostly as a result of Syria's softening position toward both the U.S. and Israel.

The twenty-second crisis for Israel in Phase III began on July 12th, 2006, when Hezbollah guerillas launched a three-pronged attack into Israel, beginning with rocket attacks at several Israeli villages and army posts to mask a border crossing aimed to kill and capture Israeli soldiers. They ambushed a patrol and succeeded at killing three Israeli soldiers and taking two others as hostages. The Secretary General of the Hezbollah movement, Shaikh Hassan Nasrallah, stated that the seizure of the Israeli soldiers was designed to draw international attention to the

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[333] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=443 is the link to incident number 443, Haifa Suicide Bombing, 2003.

plight of Lebanese, Palestinian, and Arab prisoners held in Israeli prisons. In reprisal, Israel imposed an air and sea blockade on Lebanon and launched a massive assault on southern Lebanon, called Operation Just Deserts, by land, air, and from navy gunboats.[334]

Israel continued the attack over the next several days, conducting air raids over Lebanon and killing dozens of people, including a significant amount of civilians, until Hezbollah declared open war against Israel.[335] On July 16th, 2006, Hezbollah launched a fierce rocket attack on Haifa that killed eight Israeli civilians and wounded many others. Israel stepped up its assault and continued to carry out air raids. Thousands of Lebanese citizens evacuated the country.

The war drew a great deal of international attention and calls for a ceasefire, but despite the international pressure for a ceasefire, the fighting continued to escalate. On July 27th, 2006, Israel's Security Cabinet approved call-ups for 30,000 reservist troops and continued the aerial bombardment and ground assault. The next day, Hezbollah unleashed powerful new rockets, hitting multiple targets deep within Israel. The violence continued into August, with aerial bombardments and rocket attacks continuing on both sides of the border. The Israeli offensive continued to deal devastating blows to Hezbollah. Israeli Prime Minister Olmert claimed that Hezbollah's infrastructure had been destroyed, but despite this claim, Hezbollah managed to fire more than 200 rockets into Israel on August 2nd 2006 alone. The UNSC resolution of August 14th, 2006, set the conditions for the cease-fire, but low-level skirmishes continued until the blockade was lifted by Israel on September 8th, 2006, terminating the conflict.

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[334] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=451 is the link to incident number 451, Israel – Lebanon War II, 2006.

[335] Samaan, Jean-Loup. *From War to Deterrence? Israel-Hezbollah Conflict since 2006*. Strategic Studies Institute. Carlisle, Pennsylvania. 2014. Page 18.

Applied Qualitative Data Specific to Israel for Phase III

Table 7.3: Israeli Crises, Phase III Nuclear Weapon State

Crisis	Year	CH (NCI)	TA (NCI)	CH Win	Higher NCI Win	Higher NCI CH	ISR Win	Nuclear activity	UN involvement
El Samu	1966	Israel (2)	Jordan (0)	Yes	Yes	Yes	Yes	No	No
Six Day War	1967	Egypt (1)	Israel (3)	No	Yes	No	Yes	Yes	Yes - No
Karameh	1968	Israel (3)	Jordan (0)	Yes	Yes	Yes	Yes	No	No
Beirut Airport	1968	Lebanon (0)	Israel (3)	No	Yes	No	Yes	No	Yes - CT
War of Attrition	1969	Egypt (1)	Israel (3)	No	Yes	No	Yes	No	No
Lebanon	1972	Israel (3)	Lebanon (0)	No	No	Yes	No	No	No
Lebanon	1972	Israel (3)	Lebanon (0)	No	No	Yes	No	No	No
Libyan Plane	1973	Israel (3)	Libya (0)	Yes	Yes	Yes	Yes	Yes	No
Israel MBL	1973	Israel (3)	Egypt (1)	Yes	Yes	Yes	Yes	No	No
Yom Kippur War	1973	Egypt (1)	Israel (3)	No	Yes	No	Yes	Yes	Yes - Delay
Entebbe Raid	1976	Uganda (0)	Israel (3)	No	Yes	No	Yes	No	No
Syria MBL	1976	Syria (0)	Israel (3)	No	Yes	No	Yes	No	No
Syria	1978	Israel (3)	Syria (0)	No	No	Yes	No	No	No
Litani Operation	1978	Lebanon (0)	Israel (3)	No	Yes	No	Yes	No	Yes - Delay
Iran Nuclear Reactor	1981	Israel (3)	Iran (1)	Yes	Yes	Yes	Yes	Yes	Yes - No
Al-Biqa Missiles I	1981	Israel (3)	Syria (0)	Yes	Yes	Yes	Yes	No	No
War in Lebanon	1982	Lebanon (0)	Israel (3)	No	Yes	No	Yes	No	Yes - No
Al-Biqa Missiles II	1985	Israel (3)	Syria (0)	Yes	Yes	Yes	Yes	No	No
Operation Accountability	1993	Lebanon (0)	Israel (3)	No	Yes	No	Yes	No	Yes
Operation Grapes of Wrath	1996	Lebanon (0)	Israel (3)	No	Yes	No	Yes	No	Yes
Haifa Suicide Bombing	2003	Syria (1)	Israel (3)	No	Yes	No	Yes	No	No
Israel-Lebanon War II	2006	Lebanon (0)	Israel (3)	No	Yes	No	Yes	No	Yes - Delay

Table 7.3 shows that while Israel was in Phase III as a nuclear weapon state, the state with the greater nuclear capability won 86% (19 of 22) of the crises, strongly supporting hypothesis one that conjectures the state with the greater nuclear capability should win more often. The results from table 7.3 do not support hypothesis two, in that only 45% (10 of 22) of the crises during this period were initiated by the state with the greater nuclear capability. During this time period, three crisis met Sechser's criteria for a compellent threat and these results show that in that in 33% (1 of 3) of the cases the higher NCI initiated crisis, but in 100% (3 of 3) of the cases, the higher NCI won.[336] These results lend themselves to challenge Sechser's assertion that nuclear capability at the state level has no compellent value. These

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[336] Militarized Compellent Threat numbers 136, 140, and 161. Results of all nine case study tables will be discussed in the conclusion.

results support the assertion that nuclear capability has value in terms of conflict victory, but not conflict onset.

Qualitative Findings: Israel Case Study

In the second case study, Israel engaged in 31 incidents between 1945 and 2016. Israel challenged 18 times (15-3), was the target 13 times (13-0), and had a higher NCI 23 times (lower NCI 2 times; NCI parity 6 times). Israel was victorious in the tactical objectives it set out to accomplish in 28 cases (15 as challenger, 13 as target), lost in three cases (three as challenger), but in zero cases did Israel's victories lead to a strategic victory. In 31 incidents, higher NCI has 20 victories (80%), lower NCI has five victories (20%), and there were six cases of NCI parity.

Based on the graph in figure 7.1, it is clear that nuclear activity rose commensurate with conflict, however it is also clear through examination of dozens of historical texts that no nuclear activity was overtly or covertly signaled to influence the outcome, other than possibly in ICB 255, the Yom Kippur War, where initial Egyptian and Syrian successes may have triggered the "Samson option". There was a good deal of discussion about nuclear weapons use in the Six Day War, but key to this research is the absence of evidence that any Israeli senior official had ever stated that Israel possesses nuclear weapons or outlined any policy position other than "no first use in region". Israeli leadership likely considered their nuclear status as a hedge against Soviet involvement in the Middle Eastern region and a way to preserve independence from either of the Cold War behemoths, similar to France, and counter-intuitively, possibly as a way to continue to guarantee U.S. support. It is likely that Israeli nuclear activity emboldened Israeli decision-making, it is clear that escalation involving nuclear weapons was a part of Israeli decision-making.

In an examination of table 7.1, we see that Israel, as a pre-nuclear weapon state, engaged in seven state-level conflicts in a fourteen year time period (averaging 0.5 crises per year). During this period, the state with the greater nuclear capability both initiated as well as won 0% of the crises, showing no support for either hypothesis. During this time period, only one crisis met Sechser's criteria for a compellent threat, and these results show that, in 0% (0 of 1) of the cases, the higher NCI initiated crisis and in 0% (0 of 1) of the cases, the higher NCI won.[337] These results lend themselves to support Sechser's assertion that nuclear capability at the state level has no compellent value.

When looking at table 7.2, we see that Israel, as a potential nuclear weapon state, engaged in two crises in a four year time period (averaging 0.5 crises per year). During this time period, the state with the greater nuclear capability both initiated as well as won 100% (1 of 1) of the crises, supporting both hypotheses. None of the results from table 7.2 met Sechser's criteria for a compellent threat.

Finally, upon consideration of table 7.3, we see that Israel, as a nuclear weapon state, engaged in twenty crises in a fifty-four year period (averaging 0.37 crises per year). During this time period, the state with the greater nuclear capability initiated 45% (10 of 22) of crises, failing to support hypothesis two, but won 86% (19 of 22) of the crises, supporting hypothesis one. During this time period, three crisis met Sechser's criteria for a compellent threat and these results show that in that in 33% (1 of 3) of the cases the higher NCI initiated crisis, but in 100% (3 of 3) of the cases, the higher NCI won.[338] The results from the Israel case study lend

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[337] Militarized Compellent Threat number 111. Results of all nine case study tables will be discussed in the conclusion.

[338] Militarized Compellent Threat numbers 136, 140, and 161. Results of all nine case study tables will be discussed in the conclusion.

themselves to challenge Sechser's assertion that nuclear capability at the state level has no

compellent value. These results support Lafleur hypothesis one, which shows that nuclear

capability has value in terms of conflict victory, but do not support claims that nuclear capability

affects conflict onset.

Chapter 8 - Case Study: India

The third case that will be examined is conflict in India. India is an interesting case for three reasons. First, India is currently the state with the highest NCI. Second, despite a balanced defense spending portfolio and a relatively low GDP, India increased its nuclear activity in a relatively short period of time, implying other states could follow. Finally, India is a leader in a community of rebels; states that have signed neither the CTBT nor the NPT. In the nuclear age (1945-present), India experienced conflict a total of 21 times. There were three distinct militarized compellent threat incidents, ten distinct international crisis behavior incidents, and eight shared incidents.

In U.S. defense circles, when nuclear threat is mentioned, the conversation immediately shifts to North Korea, Iran, China, and Russia, only rarely to India or Pakistan. This lack of western awareness of India's nuclear activity level seems reckless, as policymakers must consider all the abilities a state possesses to assess risk, especially the most powerful ones. Also, if India could catapult to the pole position in nuclear activity with the 38th largest GDP, what could Japan, Germany, the Netherlands, Canada, Australia, and many others do with their vastly greater resources to change their nuclear activity status? Finally, more attention must be paid to those states that refuse to comply with international nuclear norms in order to understand the impact of those organizations built to manage the global nuclear array. In an anarchic system, the state is still the highest authority; perhaps compliant states are fooling themselves that international nuclear regimes provide a measure of control. This must be researched further.

A final point on India and the UN: India was not an independent state until 1947, so at the founding of the UN, when the permanent members of the UNSC were established, India was not among them. In addition, at no point in time have the permanent members of the UNSC

changed, despite the tremendous growth India has experienced. When the UNSC was established, only the U.S. had nuclear weapons; later, all of the five UNSC permanent members achieved nuclear weapons and then in 1970, strove to cap the nuclear club at five. This has not sat well with India, who has been a nuclear rebel seeking recognition for its size, accomplishments, and strength and finding none. This fact has driven many of India's decisions regarding nuclear development.

This case study will examine three different time periods. The first time period is from 1945 to 1959, when India was a pre-nuclear weapon state. The second time period is from 1960 to 1973, after the time when India decided to weaponize nuclear power, but before nuclear weapons were built. The third time period is from 1974 to present day, while India possessed nuclear weapons. In each of the time periods, this research will discuss key facts that shaped the security and stability challenges of India, an examination of the history of nuclear activity of India during that time, an examination of the incidents that occurred between India and other states that led to security or stability challenges, and finally a summary of the results from those incidents.

Current day India has a population of 1.35 billion people with a GDP of 294 billion USD. India has a balanced spending portfolio between gross domestic product (GDP) and defense, at 1.6%, but GDP per capita numbers suggest that India has a disparate wealth pyramid between members of society: in essence, a lot of poor people. This is also evident in comparing population and GDP. This poses a security challenge in that unequal wealth distribution is often the cause of internal unrest; hence a greater portion of GDP is required to control internal security than states with a more balanced population to GDP mix. With a top 25% GDP, when compared to all other states, India has managed defense spending in relation to its wealth. This

would suggest India is stable, however, during the nuclear age, India engaged in direct conflict with two nuclear states, China and Pakistan, in addition to Portugal, and Sri Lanka. India has had six conflicts prior to becoming a potential nuclear weapon state, seven conflicts while developing nuclear weapons, and seven conflicts while a nuclear weapon enabled state, the last of which was 16 years ago.

In this research, written and spoken statements by the president and prime minister are used as evidence of overt signaling before, during, and after crises. This research employs those statements in each of the three time periods to better understand state behavior. In the case of India, after becoming a state in 1947 there have been 14 presidents and 16 prime ministers.[339] Therefore, in this case study, written and spoken statements (or the lack thereof) by these 28 individuals will provide insight into Indian signaling before, during, and after crises.[340]

Phase I: Pre-Nuclear Weapon State (1945-1959)

The story of India's nuclear activity is quite interesting, in that India quickly developed technology to harness the atom and applied that technology to both energy and weapons production, but gets almost no credit in the west as a nuclear state. India's program began quite early; as a member of the British Empire, as early as 1944, Dr. Homi Jehangir Bhabba submitted

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[339] Indian presidents include Rajendra Prasad (1950-1962), Sarvepalli Radhakrishnan (1962-1967), Zakir Husain (1967-1969), Varahagiri Venkata Giri (1969-1974), Fakhruddin Ali Ahmed (1974-1977), Neelom Sanjiva Reddy (1977-1982), Zail Singh (1982-1987), Ramaswamy Venkataraman (1987-1992), Shankar Dayal Sharma (1992-1997), Kocheril Raman Narayanan (1997-2002), Avul Pakir Jainulabdeen Abdul Kalam (2002-2007), Pratibha Patil (2007-2012), Pranab Mukherjee (2012-2017), and Ram Nath Kovind (2017-present). Prime ministers include Jawaharal Nehru (1947-1964), Lal Bahadar Shastri (1964-1966), Indira Ghandi (1966-1977), Morarji Desai (1977-1979), Charan Singh (1979-1980), Indira Ghandi (1980-1984), Rajiv Ghandi (1984-1989), Vishwanath Pratap Singh (1989-1990), Chandra Shekhar (1990-1991), Pamulaparti Venkata Narasimha Rao (1991-1996), Atal Bihari Vajpayee (1996, 1998-2004), Haradanahalli Doddegowda Dere Gowda (1996-1997), Inder Kumar Gujral (1997-1998), Manmohan Singh (2004-2014), Narendra Modi (2014-present).

[340] 30 positions, but 2 people served twice (Indira Ghandi and Atal Bihari Vajpayee) leaving 28 distinct individuals.

a proposal to found a nuclear research institute, which was accepted and led the creation of the

Tata Institute of Fundamental Research (TIFR) in December 1945.[341]   Shortly after

independence, in April 1948, the Indian government passed the Atomic Energy Act, leading to

the establishment of the Indian Atomic Energy Commission (IAEC). At commissioning, Indian

Prime Minister Nehru spoke of developing atomic energy for peaceful purposes, but if

compelled, developing atomic energy for defense as well. India founded the Non-Aligned

Movement (NAM), initially advocating nuclear disarmament, but later designed to allow

powerful, yet excluded, states like India, Brazil, and others to break free of the restriction forced

upon the world by the original five nuclear powers.

By 1957, the Indians established a new facility called the Atomic Energy Establishment,

Trombay (AEET), which would serve as the nucleus of Indian weapon construction and

employed over a thousand scientists.[342] In terms of reactor development, both the British and the

Canadians helped India achieve their first reactors, a one-megawatt Apsara research reactor, and

later a 40-megawatt Canada-India Reactor (CIR).[343] Apsara was fueled by HEU provided by the

UK, and went critical in August 1957.[344] During phase I, the Indian president was Rajendra

Prasad (1950-1962). The Indian prime minister was Jawaharal Nehru (1947-1964).

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[341] www.nuclearweaponarchive.org/india/indiaorigin.html accessed 16 Mar 2018. Page 2.

[342] www.nuclearweaponarchive.org/india/indiaorigin.html accessed 16 Mar 2018. Page 3. In 1967, AEET was renamed Bhabha Atomic Research Centre (BARC).

[343] Ibid. The sale of CIR to India was the first such technology transfer, and was the precursor to France selling similar technology to Israel, leading to the facility at Dimona and subsequent weapons development.

[344] Other sources place India's nuclear research reactor as going critical in 1964. As I cannot confirm these earlier dates of 1957 and 1960, I am using the more conservative 1964 in this research. In a similar way, the development of refined plutonium was certainly happening as early as 1964, with the development of the project phoenix processing plant, but IAEA records and the World Nuclear Organization records only credit India as having HEU refinement capability as of 2015.

A few words on coding each incident are required to clarify key state attributes such as challenger, target, and winner. As it is unlikely that we will ever be able to uncover the entire truth of who started an incident, the state that is identified as the first to violate international norms will be deemed the challenger and the state being challenged will be deemed the target. For each incident, the act that violated international norms will be explicitly stated, such as physically crossing an international border, firing cross-border on another state's military forces, or conducting a blockade in common sea space.

There are two levels of winning an international conflict: tactical victory and strategic victory. In general, if the challenger is able to complete his intended tactical or strategic action without escalation, he is deemed the winner. If the target is able to deny the challenger the ability to complete his tactical or strategic action, or escalate the conflict to the point where the challenger fails to achieve his objective, the target is deemed the winner. In terms of tactical victory, in the case of any challenger, tactical success is the ability to cross borders and return to sovereign territory with impunity and without the target crossing borders, degrading the efficacy of adversarial forces, or defeating adversarial forces. The status quo (SQ) may remain the same in terms of territory, policy, or state power, but if the challenger acts cross-border with impunity or if the status quo changes, the challenger wins. In the case of a target, tactical success is degradation of challenger military forces.

In terms of strategic victory, in the case of India as a challenger, strategic success is the preservation of the territorial integrity of India, typically the McMahon line with China and the LOC with Pakistan in Kashmir, and no degradation in overall military capability. Conversely, for a target, strategic success against India is a state-level policy change in governance dealing with Muslim separatists, ceding territory to Pakistan or a sub-state actor, or degradation in

overall state-level military capability. A challenger will almost always preserve his strategic SQ. Another way of saying this is that a target will rarely, if ever, gain a strategic victory. An example of that would be India ceding Kashmir to Pakistan. This distinction in tactical and strategic victory is important when considering the MCT dataset, as in many cases Sechser codes the target as the winner because the SQ does not change, but the challenger achieving tactical success in those cases is clearly evident. This poses a "challenge" to how Sechser codes victory in the MCT dataset and is crucial to understanding the value of the NAI in terms of wins/losses for challenger vs. target.

The first crisis for India in Phase I began after the independence of India from the UK and the separation of what became Pakistan, both countries experienced decades of tension and military conflict. The first such conflict was triggered when Junagadh, a region inside India, acceded to Pakistan on August 17th, 1947.[345] Indian leadership quickly approved a plan to occupy the towns of Mangrol and Babariawad with civilians and a small military force, after a formal request by the Junagadhi government asking India to assist with governance. On November 9th, 1947, Indian officials occupied Junagadh to help govern. The Pakistani prime minister was livid and stated that because Junagadh had already acceded to Pakistan, India's action was a clear violation of Pakistani territory.[346] Pakistan, however, was in no position to defend Junagadh, because they were not contiguous and Junagadh was 300 miles from the sea. The last British viceroy, Lord Mountbatten, effected the discussions between India and Pakistan, with both sides agreeing to hold a plebiscite to determine to which country Junagadh would

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[345] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=118 is the link to incident number 118, Junagadh, 1947.

[346] Dixit, J. N. *India-Pakistan in War & Peace*. Routledge. London. 2002. Pages 109, 111.

belong. The crisis ended on 24 February 24th, 1948, when a plebiscite was held in Junagadh, reinforcing India's control over the state.[347]

The challenger was India with an NCI of 0. The target was Pakistan with an NCI of 0. The challenger wins tactically because India was able to maintain control of a disputed region within its borders and preserve its military force. Indian strategic objectives were at risk in two ways: first, to preserve the territorial integrity of the state and second, to not allow a Muslim majority of a region within India to secede. There was no UN involvement in this conflict. There was neither implicit nor explicit nuclear activity displayed in this incident.

The second crisis for India in Phase I, and one that has endured until the present day, is the ongoing crisis between India and Pakistan in the Kashmir region, which began 100 years earlier when, in 1847, the British sold the Vale of Kashmir to the ruler of Jammu.[348] For 100 years it was run along orthodox Hindu lines because during that time, Kashmir had a Hindu ruler with a Muslim population of three million, roughly 75% of the territory.[349] Besides having a majority Muslim population, the importance of this territory for Pakistan lay in the fact that the Indus River and its tributaries, which Pakistan relied upon for irrigation, originated inside Kashmir. The location of Kashmir, contiguous to India and Pakistan, Chinese-controlled Tibet, and the Afghanistan-controlled corridor leading to the Soviet Union, endowed it with strategic value. For India, Kashmir was the only Muslim majority state in independent India, which seemed crucial to its claim and goal of being a secular, multi-religious, pluralist democracy.

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[347] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=118 is the link to incident number 118, Junagadh, 1947.

[348] Bajwa, Farooq. *From Kutch to Tashkent: The Indo-Pakistan War of 1965*. Hurst & Company. London. 2013. Pages 3-4.

[349] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=119 is the link to incident number 119, Kashmir I, 1947.

The trigger to this crisis was an invasion of the Kashmir valley by Pakistan-armed and Pakistan-backed Muslim tribesmen October 24th, 1947. The (Hindu) maharaja of Kashmir appealed to India for help in suppressing the threat to his rule, and India quickly responded by ordering an airlift of troops, equipment, and supplies into the area. By February 1947, Pakistani officers realized that Pakistan-backed Muslim tribesmen could not contend with the Indian army, and decided to station the Pakistani Seventh Division in Kashmir. On March 17th, 1948, Pakistan launched an unsuccessful attack on Poonch that resulted in an Indian spring offensive.[350]

Afterward, the UN Commission for India and Pakistan (UNCIP) was established to investigate and mediate the dispute. After a great deal of posturing and failed mediation, this crisis over Kashmir ended for both India and Pakistan with a UNCIP-mediated, three-part resolution proposing a cease-fire, which was finally accepted by both parties and implemented on January 1st, 1949.

The challenger was Pakistan with an NCI of 0. The target was India with an NCI of 0. The target wins tactically because India was asked to intervene by the Maharaja of Kashmir and was able to defeat Pakistan-backed Muslim tribesmen, the Pakistani Army at Poonch, and also blunt further Pakistani incursion into Kashmir, while simultaneously preserving its military force. Indian strategic objectives were at risk, as both the disposition of water rights as well as determination of the Muslim majority population were resolved in India's favor. The UN was heavily involved in conflict termination. There was neither implicit nor explicit nuclear activity displayed in this incident. Sechser sees the outcome differently, as he states India, after both demonstrating and using force, did not receive any of its territorial demands, however, since that

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[350] Ibid.

time, two-thirds of Kashmir has been occupied by India, and one-third by Pakistan, with a UN Observer Group present to monitor the cease-fire.[351]

The third crisis for India in Phase I involved Hyderabad, which was the second largest princely state in the subcontinent, after Kashmir. Unlike in Kashmir where the majority of the population was Muslim and the political leadership Hindu, in Hyderabad 75% of its population was Hindu while the political elite was Muslim, led by the Nizam.[352] It is located in the geographic center of India, and like Junagadh, sought autonomy but that was impossible. The Indian government stated that Hyderabad was far too important to India's territorial integrity and economic needs to be permitted to choose independence.[353] Unrest occurred throughout the first half of 1948, although trade still flourished. When the Indian government discovered that the Nizam was funding Pakistan, the Indian leadership imposed a blockade and retaliated to increasing acts of violence from the province. In August 1948, the Nizam declared the independence of the state of Hyderabad, causing India to deploy troops to Hyderabad in September 1948 to restore law and order and to secure Hyderabad as a region integral to India.[354] Though Pakistan pressed for discussion in the UNSC, India argued that, because Hyderabad was not an independent state, it had no right to seek international legal intervention in what was a purely domestic affair. There was no substantive consideration of the question at the UN.

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[351] https://dataverse.harvard.edu/dataset.xhtml?persistentId=hdl:1902.1/17315 is the MCT dataset, which allows access to all 121 MCT used in this research. http://faculty.virginia.edu/tsechser/MCT-Coding-Document.pdf is the coding document created by Todd Sechser to describe the components of the Militarized Compellent Threat, or MCT, dataset.

[352] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=124 is the link to incident number 124, Hyderabad, 1948.

[353] Dixit, J. N. *India-Pakistan in War & Peace*. Routledge. London. 2002. Page 112.

[354] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=124 is the link to incident number 124, Hyderabad, 1948.

The challenger was India with an NCI of 0. The target was Pakistan with an NCI of 0. The challenger wins tactically because India was able to recover Hyderabad as an integral part of India prior to secession to Pakistan or a manifestation of independence through military means and effective governance. Indian strategic objectives were at risk yet again, as a pro-Pakistani independent region within the territory of India was an untenable situation. The UN was not involved in crisis termination. There was neither implicit nor explicit nuclear activity displayed in this incident. Sechser briefly addresses this conflict in MCT 110, but does not consider India as the winner, even though he identifies that force was both demonstrated and used. In his opinion, India did not secure any territorial or policy related goals.[355]

The fourth crisis for India in Phase I began on July 7th, 1951, when Pakistan deployed a brigade to the vicinity of Poonch, the site of the 1948 Pakistani military defeat in the Kashmir saga. The deployment of the Pakistani brigade, coupled with rhetoric about a holy war against India, led Prime Minister Nehru to order Indian troops to the Punjab border, Jammu, and Kashmir. Acting upon advice by Pakistan's Chief of Staff, General Ayub Khan that Pakistan was unprepared for war, Pakistan's Prime Minister Liaquat Ali Khan decided to resolve the crisis diplomatically. He held a press conference to express worry over Indian troops poised to attack into Pakistan and requested that Nehru remove the threat, adding that Pakistan "would not allow itself to be intimidated or influenced by any threat of force." On July 27th, 1951, four battalions of the Pakistan National Guard were sent to reinforce the Pakistani army in that region.[356] After

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[355] https://dataverse.harvard.edu/dataset.xhtml?persistentId=hdl:1902.1/17315 is the MCT dataset, which allows access to all 121 MCT used in this research. http://faculty.virginia.edu/tsechser/MCT-Coding-Document.pdf is the coding document created by Todd Sechser to describe the components of the Militarized Compellent Threat, or MCT, dataset.

[356] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=135 is the link to incident number 135, Punjab War Scare I, 1951.

a month of correspondence and posturing, the crisis terminated when both sides began to withdraw forces from the Poonch region.

The challenger was Pakistan with an NCI of 0. The target was India with an NCI of 0. The target wins tactically because India was able to escalate the conflict militarily and reduce tension in so doing. The notion of "escalate to de-escalate" is attributed to Russian activities in the 2014 confrontation in the Donbas region of Ukraine, but is not a new tactic, as shown here and in countless other examples. In this case, India was able to force Pakistan into either a military retreat or a diplomatic concession. India's strategic objectives were at risk, yet used military escalation to deftly manage continued tensions in Kashmir when Pakistan attempted to press. The mediation attempts by the UN representative had little or no effect on conflict termination. There was neither implicit nor explicit nuclear activity displayed in this incident.

The majority of India's struggles thus far have been ones of territorial integrity and the fifth crisis for India in Phase I was no different. This one was about the Portuguese settlement of Goa. After the British withdrawal from India in 1947, Portugal continued to reject all Indian requests for the reunification of Portuguese enclaves on the west coast of India.[357] This led to strained relations between India and Portugal, leading to the closing of the Indian legation in Lisbon. Intensification of nationalist agitation within India and within Portugal's enclaves began in mid-1954 and resulted in mass arrests, curfews, and expulsions. In July 1954, "Free Goan volunteers" seized the cities of Dadra, Nagar Haveli, and Damao and the government of India refused passage to Portuguese forces to reinstate control over these areas. The mass entry of

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[357] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=151 is the link to incident number 151, Goa I, 1955.

"volunteers" into Goa in May and June 1954 became the symbol of a campaign for the peaceful liberation of Goa.

On 10 August 10th, 1955, Indian "volunteers" announced that they would march into Goa in a peaceful mass invasion on India's Independence Day, August 15th. This announcement triggered a crisis for Portugal, which responded by moving Portuguese army units to the Indian/Goan border and sending its chief of staff to Goa. Portugal's Prime Minister Cunha called upon the Indian government to ban the march, which they did not. On August 15th, 1954, about 3,000 Indian demonstrators marched across the Goan border.[358] Portuguese police and soldiers opened fire killing 20 and wounding many more. Lisbon protested to New Delhi on August 17th, 1954, accusing it of violating Portugal's sovereignty and, no surprise, India completely broke diplomatic relations with Portugal on August 19th, 1954. On September 4th, 1954, the All-India Congress Committee declared that in the present situation it would be inappropriate for Indian nationals to enter Goa. This crisis ended on September 6th, 1954, when Indian Prime Minister Nehru stated in parliament that India had no intention of taking any warlike measures over Goa.

The challenger was India with an NCI of 0. The target was Portugal with an NCI of 1. The target wins tactically because Portugal was able to preserve the integrity of its colony in South Asia. While Indian strategic objectives were at risk, the Indian government did not have the means to deal with the situation otherwise. When India did develop the means to expel the Portuguese seven years later, another conflict ensued with a different outcome (see India crisis #1 in phase II). The UN was not involved in this conflict. There was neither implicit nor explicit nuclear activity displayed in this incident.

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[358] Ibid.

The border between China and India has long been disputed.[359] The sixth crisis for India

in Phase I began on August 25th, 1959, when China considered Indian patrols in the region of

Longju, North East Frontier Agency (NEFA) as having crossed into Chinese territory and

attacked with People's Republic of China (PRC) troops.[360] On August 28th, 1959, Indian Prime

Minister Nehru informed the lower house of India's parliament that a Chinese detachment of 300

men had crossed into Indian territory at Longju three days earlier and attacked Indian police

forces. On October 20th, 1959, another incident occurred at the Kongka Pass in the Ladakh area

of northeast Kashmir. China's Premier Zhou Enlai refused to recognize the existing McMahon

Line and claimed large tracts of NEFA's territory.[361]

On November 1st, 1959, Indian Prime Minister Nehru announced that the Indian army

would reinforce the police-guarded border posts in Ladakh, Kashmir. Nehru described those

border incidents as challenges by China to India's territorial integrity.[362] PRC suggestions for

negotiations were followed by a series of letters between Nehru and Zhou Enlai, leading to crisis

termination on April 19th, 1960, when the two leaders met.[363] This meeting led to the creation of

a Joint Officials Committee to examine relevant documents and to report points of disagreement

and agreement regarding the location of the border.

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[359] Coulter, Edwin M. *The Diplomacy of the Sino-Indian Border Dispute: 1950-1962*. University Microfilms International. Ann Arbor, Michigan. 1985. Page 96.

[360] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=171 is the link to incident number 171, China-India Border I, 1959.

[361] Osborn III, George K. *Sino-Indian Border Conflicts: Historical Background and Recent Developments*. University Microfilms International. Ann Arbor, Michigan. 1983. Page 165.

[362] Coulter, Edwin M. *The Diplomacy of the Sino-Indian Border Dispute: 1950-1962*. University Microfilms International. Ann Arbor, Michigan. 1985. Page 131.

[363] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=171 is the link to incident number 171, China-India Border I, 1959.

The challenger was China with an NCI of 1. The target was India with an NCI of 0. The

target wins tactically because India reinforced police border guards with military forces, again

escalating the crisis in order to de-escalate and reach favorable terms. Both Chinese and Indian

strategic objectives were at risk considering the demarcation of an international border is a

fundamental requirement of state integrity. The UN was not involved in this conflict. There was

neither implicit nor explicit nuclear activity displayed in this incident. Sechser acknowledges

both the threat and use of force, but does not see the resolution of the disputed McMahon line as

a partial success for China. For the wrong reasons, Sechser gives the correct outcome to India.[364]

Applied Qualitative Data Specific to India for Phase I

Table 8.1: Indian Crises, Phase I Pre-Nuclear Weapon State

Crisis	Year	CH (NCI)	TA (NCI)	CH Win	Higher NCI Win	Higher NCI CH	IND Win	Nuclear activity	UN involvement
Junagadh	1947	India (0)	Pakistan (0)	Yes	N/A	N/A	Yes	No	No
Kashmir I	1947	Pakistan (0)	India (0)	No	N/A	N/A	Yes	No	Yes - Delay
Hyderabad	1948	India (0)	Pakistan (0)	Yes	N/A	N/A	Yes	No	No
Punjab War Scare	1951	Pakistan (0)	India (0)	No	N/A	N/A	Yes	No	No
Goa I	1955	India (0)	Portugal (1)	Yes	Yes	No	No	No	No
China - India Border I	1959	China (1)	India (0)	No	No	Yes	Yes	No	No

Table 8.1 shows that while India was in phase I as a pre-nuclear weapon state, the state

with the greater nuclear capability won and initiated 50% (1 of 2) of the crises, failing to support

either hypothesis. During this time period, three crisis met Sechser's criteria for a compellent

threat, and these results show that, in that in 100% (1 of 1) of the cases, the higher NCI initiated

[364] https://dataverse.harvard.edu/dataset.xhtml?persistentId=hdl:1902.1/17315 is the MCT dataset, which allows access to all 121 MCT used in this research. http://faculty.virginia.edu/tsechser/MCT-Coding-Document.pdf is the coding document created by Todd Sechser to describe the components of the Militarized Compellent Threat, or MCT, dataset.

crisis and in 100% (1 of 1) of the cases, the higher NCI won.[365] These results lend themselves to challenge Sechser's assertion that nuclear capability at the state level has no compellent value.

Phase II: Potential Nuclear Weapon State (1960-1973)

Under *Atoms for Peace*, the U.S. provided over twenty tons of deuterium/tritium to activate CIR (which then added U.S. to its name), now called CIRUS, which went critical in July 1960.[366] Although the heavy water came with a stipulation, that this reactor would only be used for peaceful purposes, it was clear that without a regulatory mechanism, the fissile material produced by this reactor could be weaponized.   Later analysis of the reactor's output led scientists to estimate that it produced sufficient amounts of plutonium to create two weapons per year from 1964 on, though most sources say that it wasn't until 1974 that India possessed a nuclear weapon, but some as late as 1986 and others not until 1998.[367] This makes some sense regarding why India would choose to weaponize after examination of the Kashmir problem set, especially the escalation in 1965 (see India incident #10 Kashmir II (ICB 216/MCT 132) later in this chapter), but doesn't explain why it took so long to weaponize. What does explain that phenomenon is that, in India, military leaders have always been excluded from the development of nuclear policy and political leaders have been very reluctant to militarize nuclear capabilities.

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[365] Militarized Compellent Threat numbers 109, 110, and 119. In two of the three cases, the states had NCI parity, so one could argue that the higher NCI initiated 33% of the time if NCI parity were taken into account. I will expound on this trend in the conclusion, that in the early days of nuclear activity (pre-1965) when the NCI were small, the results are less supportive than in the later days of nuclear activity (post 1965).

[366] www.nti.org/learn/countries/india/nuclear accessed 16 Mar 2018. Pages 2-3. This source states that CIRUS went critical in 1963 and Dhruva went critical in 1988, providing yet another year of criticality for these devices.

[367] Ibid. Page 5. If so, this would suggest that nuclear testing and possession of weapons are not synonymous.

It is also clear that, after observing Chinese nuclear weapons program expansion in 1964, decided to develop a plutonium processing plant.[368]

After the two initial reactors went critical, India's nuclear program has been a model of self-sufficiency. India does not import nuclear fuel, due to possession of the fifth-largest known uranium reserves in the world at 322,400 tons, and vast deposits of thorium.[369] India's first nuclear power plant was established at Tarapur, going critical in 1969. Currently, India possesses 17 nuclear reactors, but until 2014, only 4 of which were subject to international monitoring by the IAEA.[370] The plutonium output from CIRUS facilitated the nuclear testing India conducted in 1974, and provided the design prototype for an even more powerful nuclear reactor, the 100-megawatt Dhruva plutonium production "research" reactor.[371]

During Phase II, Indian presidents include Rajendra Prasad (1950-1962), Sarvepalli Radhakrishnan (1962-1967), Zakir Husain (1967-1969), and Varahagiri Venkata Giri (1969-1974). Indian prime ministers include Jawaharal Nehru (1947-1964), Lal Bahadar Shastri (1964-1966), and Indira Ghandi (1966-1977). In late Phase II, Indian senior officials were more vocal on the topic of nuclear weapons development. There were several public statements by Prime Minister Nehru regarding nuclear weapons development. In 1961, in the face of Sino-Indian relations deteriorating and the advent of Chinese nuclear weapons capacity, Nehru stated that Chinese actions "will not induce us to jump into the nuclear fray" and again in 1962, after the

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[368] Dixit, J. N. *India-Pakistan in War & Peace*. Routledge. London. 2002. Page 329.

[369] www.nuclearweaponarchive.org/india/indiaorigin.html accessed 16 Mar 2018. Page 4. Since 2008, the nuclear suppliers group has allowed India to conduct nuclear technology transfer from other countries. This is the only such agreement of its kind.

[370] www.nti.org/learn/countries/india/nuclear accessed 16 Mar 2018. Page 8.

[371] www.nuclearweaponarchive.org/india/indiaorigin.html accessed 16 Mar 2018. Page 3. India claims that the 1974 test was "peaceful nuclear explosion" and their first nuclear weapons test was not until 1998.

Sino-Indian War, Nehru said "it will not have the slightest effect on India if they [the Chinese] have a [nuclear] test tomorrow…We are not going to make bombs [although] we are in nuclear science more advanced than China."[372] These statements were not entirely true, because India did eventually create nuclear weapons; the nuclear weapons policy that Nehru fathered gave India the *option* to develop nuclear weapons, which they did more than a decade later. For Nehru, nuclear weapons capability was more of a political tool than a military-security one.[373]

However, the first crisis of Phase II did not include nuclear capabilities. In the seven years between crises involving the Portuguese enclave of Goa, there had been very little activity, until April 1961, when the Indian Parliament passed a bill enabling the merger of Dadra and Nagar Haveli with the Indian Union. During the debate leading up to the passage of the bill, Prime Minister Nehru stated that he did not rule out sending the Indian army into Goa.[374] During the six months after the passage of the bill, Indian public opinion began demanding that more active steps be taken toward the integration of Goa. Tension between India and Portugal escalated when reports of Portuguese military buildup in Goa surfaced, and in fact twice in November 1961, Portuguese defense forces fired on Indian ships from the Portuguese-held island of Anjadev. The first crisis for India in Phase II began on December 5th, 1961, when the Indian government announced that troops would be sent to Goa. Portugal appealed to the UNSC on December 9th, 1961, followed by a statement from Indian Prime Minister Nehru that, regarding Goa, Indian patience was at an end and that he hoped the Portuguese would withdraw from Goa

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[372] Sidhu, Waheguru Pal Singh and Yuan, Jing-dong. *China and India: Cooperation or Conflict?* Lynne Rienner Publishers. Boulder, Colorado. 2003. Page 27.

[373] Frankel, Francine R. and Harding, Harry eds. *The India-China Relationship: What the United States Needs to Know*. Columbia UP. New York. 2004. Page 183.

[374] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=190 is the link to incident number 190, Goa II, 1961.

and the two smaller Portuguese enclaves, Damas and Diu peacefully.[375] By December 12th,

1961, as Indian military forces were massing along the Indian-Portuguese border, Portugal

announced that it had decided to evacuate European women and children from the disputed area

in view of an imminent Indian attack. For the next few days, negotiations by the UN Secretary-

General sought to alleviate the situation, but to no avail.

On December 18th, 1961, Indian troops entered Goa. Portugal called for an urgent

meeting of the UNSC and, while Portugal's Western allies called for a cease-fire, troop

withdrawal, and a peaceful settlement, the resolution was defeated by a Soviet veto. The crisis

ended on December 19th, 1961, with the signing of a surrender agreement, ending four centuries

of Portuguese rule over Goa.

The challenger was India with an NCI of 0. The target was Portugal with an NCI of 1.

The challenger wins tactically because India was able to gain control of all Portuguese territory

in South Asia. Sechser agrees.[376] Indian strategic objectives were at risk, since the territorial

integrity of a state is a primary condition for effective governance. The UN was involved in this

conflict, but ineffective due to a Soviet veto. There was neither implicit nor explicit nuclear

activity displayed in this incident.

The second crisis for India in Phase II began on September 8th, 1962, when the PLA

crossed the Thag La Ridge on the McMahon Line, which was considered Indian territory. The

following day, India began to plan "Operation Leghorn" to bring about the eviction of the

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[375] Ibid.

[376] https://dataverse.harvard.edu/dataset.xhtml?persistentId=hdl:1902.1/17315 is the MCT dataset, which allows access to all 121 MCT used in this research. http://faculty.virginia.edu/tsechser/MCT-Coding-Document.pdf is the coding document created by Todd Sechser to describe the components of the Militarized Compellent Threat, or MCT, dataset.

Chinese, and initiated it on October 4th, 1962.[377]   On October 20th, 1962, the PLA responded

with a massive and coordinated attack on the flanks of the disputed frontier.[378]   The Chinese

arranged for Soviet Premier Khrushchev to contact Prime Minister Nehru and express concern at

reports that India intended to settle the dispute militarily, warning of the inherent dangers and

urging India to accept the Chinese proposals for talks.[379]   Despite an extremely close relationship

with the Soviet Union, India rejected both Khrushchev's warning and the Chinese offer of

mutual withdrawal and opted for military action. At this point, both the U.S. and the UK offered

military aid to India, sensing a shift in geo-alignment.

On November 16th, 1962, the Chinese launched a second offensive into the disputed

territory and soundly defeated Indian army forces in the region.[380] On November 19th, 1962,

Indian Prime Minister Nehru appealed to President Kennedy to dispatch 15 bomber and fighter

squadrons to provide air cover for Indian cities against an anticipated Chinese attack.[381] A U.S.

aircraft carrier was sent from Pearl Harbor to the Bay of Bengal. Shortly thereafter the

destruction of Indian army forces in the region was complete. However, on November 21st,

1962, PLA forces ceased offensive operations, announced a unilateral cease-fire, and withdrew

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[377] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=194 is the link to incident number 194, China-India Border II, 1962.

[378] Sidhu, Waheguru Pal Singh and Yuan, Jing-dong. *China and India: Cooperation or Conflict?* Lynne Rienner Publishers. Boulder, Colorado. 2003. Page 15.

[379] Frankel, Francine R. and Harding, Harry eds. *The India-China Relationship: What the United States Needs to Know*. Columbia UP. New York. 2004. Page 330.

[380] Liu, Xuecheng. *The Sino-Indian Border Dispute and Sino-Indian Relations*. UP of America. Lanham, Maryland. 1994. Page 17.

[381] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=194 is the link to incident number 194, China-India Border II, 1962.

20 kilometers behind the actual control lines of 7 November 1959, in both the Aksai Chin (western sector) and the McMahon Line (eastern sector).[382]

At the Colombo Conference in December 1962, six Asian and African nonaligned states mediated conflict termination. The Indian Parliament approved the Colombo proposals, the PLA implemented unilateral withdrawal, a de facto cease-fire was in place, and the crisis terminated.[383] This was the last border conflict between China and India in the nuclear age. On November 29th, 1996, 34 years after this incident, the presidents of India and China renounced the use of force to solve territorial disputes, by pledging, "neither side shall use its military capability against the other."

The challenger was China with an NCI of 1. The target was India with an NCI of 0. The target wins strategically because India was able to preserve the status quo McMahon line as the internationally recognized border between India and China. India's strategic objectives were at risk, and steps to escalate this conflict by involving the U.S. and the UK was another example of India escalating a conflict to hasten conflict termination. The UN was not involved in this conflict. There was neither implicit nor explicit nuclear activity displayed in this incident.[384] Sechser sees this incident differently, as he states none of India's territorial claims were met,

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[382] Lu, Chih-Hung. *A Border Problem Between China and India*. University Microfilms International. Ann Arbor, Michigan. 1972. Page 115.

[383] Sandhu, Bhim Singh. *Sino-Indian War of 1962: A Framework and Case Study of International Conflict Resolution*. University Microfilms International. Ann Arbor, Michigan. 1972. Page 340.

[384] Frankel, Francine R. and Harding, Harry eds. *The India-China Relationship: What the United States Needs to Know*. Columbia UP. New York. 2004. Pages 187-199.

however Chinese forces actually ceded 20k additional territory to India despite winning the tactical portion of this conflict.[385]

The third crisis for India in Phase II involved the princely state of Kutch, which acceded to the Indian Union in 1947, however Pakistan disputed that and claimed the northern part of the Rann of Kutch should be a part of Pakistan. Minor incidents occurred over the years, but Indian forces maintained control.[386] In January 1965, Pakistani forces began more aggressive patrolling in this region.   This crisis was triggered on April 8th, 1965, when patrols from each state attacked the other's police post in the disputed territory.[387] On April 14th, 1965, both parties agreed to stop fighting, but fighting of even greater intensity resumed at the end of April. Through aggressive negotiation attempts by the UK, there was a cease-fire established and a restoration of the pre-conflict boundary was enacted. By June 30th, 1965, both sides agreed to the cease-fire terms, which included mutual withdrawal of forces, direct negotiations, and the UK as arbiter if a future agreement could not be reached.

The challenger was India with an NCI of 1. The target was Pakistan with an NCI of 1. The challenger wins tactically because India was able to defend and preserve the majority of the disputed territory. Sechser concluded that Pakistan won the conflict because none of India's demands were met, but this is clearly erroneous, as on February 19th, 1968, the Indo-Pakistani Western Boundary Tribunal, established by the U.K.-mediated agreement of 30 June 1965,

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[385] https://dataverse.harvard.edu/dataset.xhtml?persistentId=hdl:1902.1/17315 is the MCT dataset, which allows access to all 121 MCT used in this research. http://faculty.virginia.edu/tsechser/MCT-Coding-Document.pdf is the coding document created by Todd Sechser to describe the components of the Militarized Compellent Threat, or MCT, dataset.

[386] Bajwa, Farooq. *From Kutch to Tashkent: The Indo-Pakistan War of 1965*. Hurst & Company. London. 2013. Page 183.

[387] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=214 is the link to incident number 214, Rann of Kutch, 1965.

awarded India 90 percent of the Rann of Kutch and 10 percent to Pakistan. Indian strategic

objectives were at risk, as defense of disputed territorial claims are integral to maintaining state

sovereignty. The UN was not involved in this conflict; again, like in many cases on the sub-

continent, one or more of the great powers took a major role in mediation and influence. There

was neither implicit nor explicit nuclear activity displayed in this incident.

The fourth crisis for India in Phase II began on August 5th, 1965, when Pakistani forces

infiltrated into the Vale of Kashmir and conducted a large-scale uprising. On August 25th, 1965,

India sent several thousand troops across the Kashmir Cease-fire Line of 1949, capturing most of

the areas through which the infiltrators came.[388] Pakistan responded on September 1st, 1965, by

dispatching an armored column across the cease-fire line in southern Kashmir and threatening

the vital road linking the capital city of Srinagar with the plains of India.[389] India's response was

an invasion of West Pakistan on September 5th, 1965. The UNSC called for a cease-fire and the

withdrawal of armed forces, followed by two unilateral indictments, by China denouncing Indian

aggression and the Soviet Union denouncing Pakistani actions.[390]

The threat of Chinese intervention stimulated the superpowers to seek a rapid termination

of the war between India and Pakistan. New efforts were made through the UNSC, which

produced a resolution on September 17th, 1965. Military hostilities subsided by September 25th,

1965, however, this did not mark the termination of the crisis, for both armies still faced each

other across the Punjab border, each occupied one another's territory, and a series of violations of

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[388] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=216 is the link to incident number 216, Kashmir II, 1965.

[389] Bajwa, Farooq. *From Kutch to Tashkent: The Indo-Pakistan War of 1965*. Hurst & Company. London. 2013. Page 137.

[390] Bindra, S.S. *Indo-Pak Relations: Tashkent to Simla Agreement*. Deep & Deep Publications. New Delhi. 1981. Pages 37-39.

the cease-fire agreement occurred. Finally, due to efforts by Soviet Premier Kosygin and others, India and Pakistan agreed to restore diplomatic, economic, and normalcy in relations with each other, to include repatriation of prisoners of war. This was called the Tashkent Declaration, and it ended the crisis on January 10th, 1966.[391]

The challenger was Pakistan with an NCI of 1. The target was India with an NCI of 1. The target wins tactically because India was able to stop Pakistani border incursions, escalate the conflict to ensure speedy termination, and protect its military force. Sechser provides accurate analysis in that no Pakistani demands were met and that force was used, but it remains unknown just exactly what the Pakistani demands were. Restoration of disputed territory was not honored, but unrest was fomented, so some Pakistani tactical objectives may have been attained. Indian strategic objectives were at risk, as were Pakistani in terms of U.S. sanctions of weapon sales against both sides for continuing conflict. The Tashkent Declaration terminated the conflict, but there was a significant delay from cease-fire to withdrawal of forces. There was neither implicit nor explicit nuclear activity displayed in this incident.

The narrative for the fifth crisis for India in Phase II occurred in 1965, but was not included in Sechser's dataset. However Sechser states that the primary challenger was China with an NCI of 2 and the target was India with an NCI of 1. Sechser states that the target wins because none of China's territorial demands were met. Because of the MCT number, we know this incident was associated with Kashmir II (ICB 216), and we know that while Kashmir II was happening, there was a confrontation between China and India. On September 16th, 1965, the Chinese government demanded that India dismantle all military bases near the Chinese border

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[391] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=216 is the link to incident number 216, Kashmir II, 1965. See also Bindra, S.S. *Indo-Pak Relations: Tashkent to Simla Agreement*. Deep & Deep Publications. New Delhi. 1981. Chapter 3.

and stop border patrols into Chinese territory. India overtly rejected Chinese demands, however by September 21st, 1965, this crisis was terminated without fighting. Chinese media reported that India had complied with the demands, but there was no evidence that the Indian military bases had changed in the slightest way. Sechser states that force was demonstrated and used, and the ICB dataset narrative supports that claim in that Chinese patrols came very close to Indian military bases in the border region, but no actual fighting was reported. We don't know what role the UN played in this conflict and we don't know if there was any type of nuclear activity displayed in this incident, but based on Kashmir II reporting, there was neither.[392]

The narrative for the sixth crisis for India in Phase II also occurred in 1965 and was also with China, but was not included in Sechser's dataset. Sechser states that the primary challenger was China with an NCI of 2 and the target was India with an NCI of 1. Sechser states that the target wins because none of China's territorial demands were met. Sechser describes that force was demonstrated and also used. Unless this is an exact copy of incident #11, we have no frame of reference as to what conflict Sechser was referring to here, as there is no parallel incident in the ICB dataset. As there is no MCT narrative supporting the incident claims, we have no idea whether the UN was involved or if any overt or covert nuclear activity was used, however I suspect that neither was the case.[393]

The seventh crisis for India in Phase II began on March 25th, 1971, when a crisis for Bangladesh (still formally known as East Pakistan) was triggered by a West Pakistani army

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[392] https://dataverse.harvard.edu/dataset.xhtml?persistentId=hdl:1902.1/17315 is the MCT dataset, which allows access to all 121 MCT used in this research. http://faculty.virginia.edu/tsechser/MCT-Coding-Document.pdf is the coding document created by Todd Sechser to describe the components of the Militarized Compellent Threat, or MCT, dataset.

[393] Ibid.

attack on the student dormitories of Dacca University.[394] The response was a declaration of independence by East Bengali political leaders. This triggered a crisis for Pakistan, which responded the same day by suppressing the East Pakistan revolt with violence.[395] While fighting raged over the spring and summer, an estimated nine million refugees fled from Bangladesh to India, causing severe economic problems there.[396] A number of these refugees were then trained and armed by India to fight the West Pakistanis.

Throughout the autumn of 1971 there were minor clashes between the Indian and Pakistani armies until October 12th, when Pakistan concentrated troops along the Indian-Punjabi border. On November 21st, the Indian army crossed the border into West Pakistan. Pakistan responded on December 3rd, 1971, with an air attack against Indian airfields in Kashmir. Indian forces then crossed the border into East Pakistan, overwhelmed the Pakistani troops in the seceding territory, and helped the East Pakistani government consolidate. The war ended on December 17th, 1971, with Pakistan's surrender and the emergence of the new sovereign state of Bangladesh.[397]

The UN declared the problem an internal matter for Pakistan; the UNSC discussed the conflict, but was unable to pass a resolution, due to a Soviet veto. The most important Soviet activity was the signing of a Treaty of Friendship with India in August 1971, providing active support by a superpower in case of war with Pakistan. Besides considerable U.S. political

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[394] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=242 is the link to incident number 242, Bangladesh, 1971.

[395] Dixit, J. N. *India-Pakistan in War & Peace*. Routledge. London. 2002. Page 177.

[396] Bindra, S.S. *Indo-Pak Relations: Tashkent to Simla Agreement*. Deep & Deep Publications. New Delhi. 1981. Page 133.

[397] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=242 is the link to incident number 242, Bangladesh, 1971.

activity, the U.S. Seventh Fleet was moved into the Bay of Bengal on December 13th, 1971, in

support of Pakistan.

Applied Qualitative Data Specific to India for Phase II

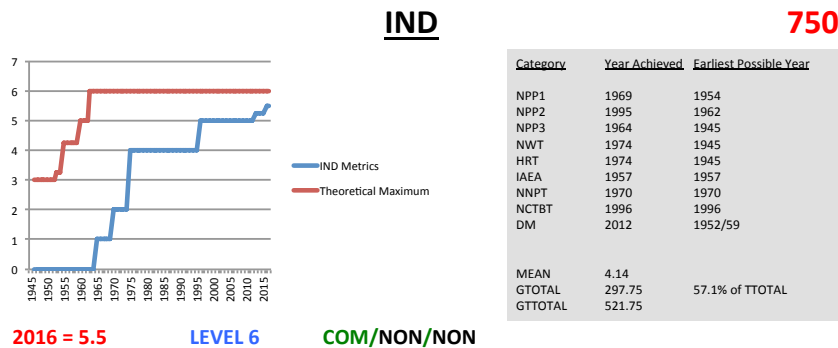**Table 8.2: Indian Crises, Phase II Potential Nuclear Weapon State**

Crisis	Year	CH (NCI)	TA (NCI)	CH Win	Higher NCI Win	Higher NCI CH	IND Win	Nuclear activity	UN involvement
Goa II	1961	India (0)	Portugal (1)	Yes	No	No	Yes	No	No
China - India Border II	1962	China (1)	India (0)	No	No	Yes	Yes	No	No
Rann of Kutch	1965	India (1)	Pakistan (1)	Yes	N/A	N/A	Yes	No	No
Kashmir II	1965	Pakistan (1)	India (1)	No	N/A	N/A	Yes	No	Yes - Delay
China	1965	China (2)	India (1)	No	No	Yes	Yes	No	No
China	1965	China (2)	India (1)	No	No	Yes	Yes	No	No
Bangladesh	1971	Bangladesh (0)	India (2)	No	Yes	No	Yes	No	No

Table 8.2 shows that while India was in Phase II as a potential nuclear weapon state, the

state with the greater nuclear capability won only 20% (1 of 5) of the crises, failing to support

hypothesis one that conjectures the state with the greater nuclear capability should win more

often. The results from table 8.2 show support for hypothesis two, in that 60% (3 of 5) of the

crises during this period were initiated by the state with the greater nuclear capability. During

this time period, four crises met Sechser's criteria for a compellent threat and these results show

that in that in 25% (1 of 4) of the cases the higher NCI initiated crisis, but in 0% (0 of 4) of the

cases, the higher NCI won.[398] These results lend themselves to support Sechser's assertion that

nuclear capability at the state level has no compellent value.

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[398] Militarized Compellent Threat numbers 121, 124, 131, and 132. Removing outcomes of states with NCI parity
shows that 50% higher NCI initiate conflict and 0% higher NCI win. Results of all nine case study tables will be
discussed in the conclusion.

Phase III: Nuclear Weapon State (1974-Present)

IND   750

Category	Year Achieved	Earliest Possible Year
NPP1	1969	1954
NPP2	1995	1962
NPP3	1964	1945
NWT	1974	1945
HRT	1974	1945
IAEA	1957	1957
NNPT	1970	1970
NCTBT	1996	1996
DM	2012	1952/59
MEAN	4.14	
GTOTAL	297.75	57.1% of TTOTAL
GTTOTAL	521.75	

2016 = 5.5   **LEVEL 6**   **COM/NON/NON**

Preliminary data interpretation as monad: IND is a level 6 nuclear state. IND developed a nuclear research facility in 1964 and established a nuclear power plant in 1969, achieving ten nuclear power plants in 1995. IND developed HEU refinement capability in 2015 and nuclear weapons in 1974. IND developed some strategic delivery means for nuclear weapons in 2012. IND is a charter member of the IAEA. IND is non-compliant with the NPT and the CTBT.

Theoretical maximum was 3 until 1952, 3.25 until 1954, 4.25 until 1959, 5 until 1962, and 6 after 1962

Figure 8.1 Nuclear Activity, India

These next few paragraphs detail the information depicted on the chart above. Regarding nuclear activity, India is a powerhouse, but one who recently came into such a high status. India is currently a level six nuclear power, with the highest NAI score of all 193 states. India developed nuclear weapons in 1974, and so therefore had HEU refinement capabilities in 1974 or earlier, although the year India first developed HEU refinement capabilities remains unconfirmed at the unclassified level. As nuclear weapons programs are among the greatest secrets a state possesses, it is far more likely that India has had covert HEU refinement capabilities since the late 1960s. India only developed strategic delivery means for these weapons in 2012; prior to that, India could deliver with short-range ballistic missiles. Strategic delivery systems are essential for a state to be capable of global reach, one of the reasons states pursue nuclear weapons. India was slow to develop a nuclear research facility and slow to

develop an operational nuclear power plant, in 1964 and 1969 respectively, but rapidly achieved ten operational nuclear power plants by 1995. India is one of a small handful of examples of a non-compliant nuclear state regarding the three relevant international nuclear regimes and, in fact, is very similar to Israel in this regard. While India was a charter member of the International Atomic Energy Agency, it remains non-compliant to the Non-Proliferation Treaty, and non-compliant to the Comprehensive Test Ban Treaty. Surprisingly, the spike in India's graph occurred after the time of peak crisis (after 1995), indicating Indian leadership expected an increase in nuclear activity to contribute to deterrence and compellence against long-time rival Pakistan, and also contribute to great power status.

India maintains a "no first use" nuclear policy and, in August 1999, developed nuclear doctrine that describes "minimal credible deterrence".[399] Minimal credible deterrence specifies that India will use nuclear weapons for deterrence and, if required, for massive retaliation if deterrence fails.[400] It bears repeating that, regardless of the size of the initial nuclear attack, India has stated that it will reply with massive retaliation, sufficient to inflict unacceptable damage. This rhetoric may have contributed to the reduction of conflict since the establishment of the nuclear doctrine, or perhaps the scale of conventional military conflict, lest it escalate. In 2003, India established a strategic nuclear command, which manages the nuclear portfolio and hardware for India.[401]

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[399] https://en.wikipedia.org/wiki/india_and_weapons_of_mass_destruction accessed 16 Mar 2018. Page 1. Also see www.nti.org/learn/countries/india/nuclear accessed 16 Mar 2018. Page 9. In this source, the nuclear policy is referred to as "credible minimal deterrence".

[400] www.nti.org/learn/countries/india/nuclear accessed 16 Mar 2018. Page 7.

[401] Ibid. Page 3. This source estimates India's nuclear weapons yield to be between 0.2 and 43 kilotons, with roughly 100 such devices.

India is one of five non-signatories to the treaty on the Non-Proliferation of Nuclear Weapons (NPT), the international treaty with 188 signatories whose objective is to prevent the spread of nuclear weapons and weapons technology and to promote cooperation in the peaceful uses of nuclear energy.[402]   India produces plutonium in its reprocessing plant, as well as HEU, and is unaccountable to any international body concerning quantity of these elements.[403] Interestingly, Israel, India, and Pakistan all continue to operate plutonium production reactors and production rates are expected to increase through 2025.[404] Client states of Israel, India, and Pakistan stand to be very well set should they choose to develop nuclear weapons.

During Phase III, Indian presidents include Varahagiri Venkata Giri (1969-1974), Fakhruddin Ali Ahmed (1974-1977), Neelom Sanjiva Reddy (1977-1982), Zail Singh (1982-1987), Ramaswamy Venkataraman (1987-1992), Shankar Dayal Sharma (1992-1997), Kocheril Raman Narayanan (1997-2002), Avul Pakir Jainulabdeen Abdul Kalam (2002-2007), Pratibha Patil (2007-2012), Pranab Mukherjee (2012-2017), and Ram Nath Kovind (2017-present). Indian prime ministers include Indira Ghandi (1966-1977), Morarji Desai (1977-1979), Charan Singh (1979-1980), Indira Ghandi (1980-1984), Rajiv Ghandi (1984-1989), Vishwanath Pratap Singh (1989-1990), Chandra Shekhar (1990-1991), Pamulaparti Venkata Narasimha Rao (1991-1996), Atal Bihari Vajpayee (1996, 1998-2004), Haradanahalli Doddegowda Dere Gowda (1996-1997), Inder Kumar Gujral (1997-1998), Manmohan Singh (2004-2014), Narendra Modi (2014-present). While somewhat comical, it is possible to think about South Asian nuclear

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[402] https://en.wikipedia.org/wiki/Treaty_on_the_Non-Proliferation_of_Nuclear_Weapons accessed 20 September 2017.

[403] *Global Fissile Material Report 2015: Nuclear Weapon and Fissile Material Stockpiles and Production*. International Panel on Fissile Materials. 2015. Page 3.

[404] Ibid. Page 27, 48, and 49.

security in this way: Pakistan developed nuclear weapons to deter India; India developed nuclear weapons to deter China; China developed nuclear weapons to deter the Soviet Union, and the Soviet Union developed nuclear weapons to deter the U.S. Pakistani officials, such as Benazir Bhutto, routinely made public statements on their right to possess nuclear weapons, but at the same time were willing to support a South Asian nuclear free zone, but only if India agrees. However, as the earlier comment pointed out, India won't agree because they aren't just concerned about Pakistani weapons.[405]

However, the first conflict in India's Phase III had nothing to do with nuclear weapons. According to Sechser, the first crisis for India in Phase III occurred in 1981, but there is no narrative associated with this crisis in his dataset. Sechser states that the primary challenger was Bangladesh with an NCI of 0 and the target was India with an NCI of 4. Sechser states that the challenger wins because Bangladesh was able to extract all territorial demands from India, however since there is no narrative associated with the MCT dataset and, as this incident does not occur in the ICB dataset, we don't know what demands those were. Sechser states that force was demonstrated but not used. We don't know what role the UN played in this conflict and we don't know if there was any type of nuclear activity displayed in this incident.[406]

The second crisis for India in Phase III was far more serious. It began in January 1987, when Pakistani troops crossed the Sutlej River, one of the five major rivers in the Indus river

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[405] Liu, Xuecheng. *The Sino-Indian Border Dispute and Sino-Indian Relations*. UP of America. Lanham, Maryland. 1994. Page 162.

[406] https://dataverse.harvard.edu/dataset.xhtml?persistentId=hdl:1902.1/17315 is the MCT dataset, which allows access to all 121 MCT used in this research. http://faculty.virginia.edu/tsechser/MCT-Coding-Document.pdf is the coding document created by Todd Sechser to describe the components of the Militarized Compellent Threat, or MCT, dataset.

system, and massed troops and equipment in the Pakistani-controlled portion of Punjab.[407] At the same time, a large-scale Indian military exercise code-named "Brass Tacks" was ongoing in the Rajasthan Desert next to the border with Pakistan. As a result of the crossing of the Indus, India increased the alert status for its army and air force, and moved troops closer to the border. Pakistan's high commissioner to New Delhi was summoned to the Ministry of external affairs the same day and was asked to convey to Islamabad India's concern over the continuing deployment of Pakistani troops on the border. At the same time India's view of Pakistan's warlike activities was also communicated to the U.S. and Soviet ambassadors and to the members of the UNSC, with an expression of India's sincere desire to de-escalate the tension.

Pakistan adopted a conciliatory line at once. India's high commissioner (ambassador) to Islamabad was informed on the 23rd of Pakistan's willingness to begin a dialogue in order to wind down the border tension. And the next day Pakistan's high commissioner to Delhi said his country had no aggressive intentions. He described the deployment of Pakistani troops as part of normal military exercises; and he repeated Pakistan's willingness for immediate talks to defuse the tension. An Indian defense ministry spokesman declared that India's escalatory military moves were merely a reaction to the provocative movements of Pakistani forces.

In the frame of diplomatic efforts at accommodation, talks began on 31 January 31st, 1987, in New Delhi at the level of senior civil servants--the foreign secretary of each state. After five days of negotiations, India and Pakistan signed an agreement providing for a gradual troop withdrawal, sector-by-sector, to end the military confrontation within fifteen days. The two countries agreed "not to attack each other" and to avoid provocative actions along the border.

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[407] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=372 is the link to incident number 372, Punjab War Scare II, 1987.

India reportedly agreed that its large-scale military exercise in Rajasthan would remain several kilometers from the border with Pakistan. It was also agreed that further talks would be held in Islamabad later.[408]

The challenger was Pakistan with an NCI of 2. The target was India with an NCI of 4. The target wins tactically because India responded immediately: they escalated military readiness and made diplomatic overtures simultaneously, which is a sure sign of competent and prepared government. India's strategic objectives were not at risk and this incident shows how ready their military is for conflict. Neither the UN nor the superpowers were involved in this incident. There was neither implicit nor explicit nuclear activity displayed in this incident.

The third crisis for India in Phase III regards the Indian Tamils, the one-way migration of Indian Tamils to Sri Lanka over the course of nearly 200 years. During the nineteenth century Indian Tamils migrated in large numbers, pushed by endemic poverty of their homeland, the South Indian province of Madras (later Tamilnadu), and pulled by the opportunities for employment in the labor-intensive rubber plantations of Ceylon.[409] By the time of Indian independence, the Hindu Tamils comprised approximately 20 percent of Ceylon's population, with a vast majority of Buddhist Sinhalese. Like many dispossessed peoples, the Tamils concentrated to stem acute discrimination in all aspects of Sri Lanka's society, economy, and polity. Ethnic resentment erupted into open rebellion in 1983 under the leadership of the most militant and disciplined Tamil group, the Liberation Tigers of Tamil Eelam, the LTTE, best

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[408] Ibid.

[409] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=378 is the link to incident number 378, India Int. in Sri Lanka, 1987.

known as "the Tamil Tigers" or "the Tigers."[410] Their goal for more than a decade has been an independent state for the Tamils of Sri Lanka, the vast majority of who reside in the Northern and Eastern Provinces.

On May 26th, 1987, Sri Lankan forces conducted "Operation Liberation" in another attempt to kill and/or capture LTTE leadership. Not for the first time, the plight of their ethnic and religious kin generated a massive pressure group in Tamilnadu, which urged the government of India to intervene on behalf of Sri Lanka's Tamils. On June 1st, 1987, India's high commissioner to Sri Lanka conveyed a proposal to send unarmed Indian ships, under Indian Red Cross auspices, to deliver relief supplies to the Tamils of Jaffna. Following an emergency cabinet meeting, Sri Lanka's government stated its willingness to consider the idea but vigorously opposed "unilateral action" by India, which would be regarded as a violation of Sri Lankan "independence, sovereignty and territorial integrity."

On June 3rd, 1987, a flotilla of 19 Indian fishing boats sailed from the Tamilnadu port of Rameswaram, carrying food, medicine, and kerosene. Officials from the Indian Red Cross and India's External Affairs Ministry and many journalists were aboard. Three hours later, at 5:00 p.m., the Indian flotilla was stopped by Sri Lankan patrol boats off Kachchative Island and denied entry into Sri Lanka's territorial waters. After four hours of futile talks, the Indian boats returned to Rameswaram. Sri Lanka's act triggered a crisis for India, posing a threat to its regional primacy. New Delhi's initial response, on June 4th, 1987, was to airdrop relief supplies to the Tamils in Jaffna. The plan was implemented the same day: five transport planes, escorted by four Mirage fighter aircraft, dropped 22 tons of supplies over the Jaffna Peninsula. This

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[410] Ibid.

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unilateral Indian operation triggered a crisis for Sri Lanka, a direct challenge to its sovereignty over its northern province.

The Sri Lankan government, angered by the half-hour notice of the Indian operation, sent a formal complaint to New Delhi charging India with a clear violation of Sri Lankan territorial integrity. Soon after, both parties negotiated an interim agreement, which permitted unarmed Indian vessels, without escort, to deliver relief supplies to Sri Lankan officials in Jaffna for distribution to the Tamil residents. An agreement was signed by the Indian prime minister, the Sri Lankan government and the Tamil leadership during a state visit to Sri Lanka on July 30th, 1987, in which Sri Lanka agreed to merge the Tamil-majority Northern and Eastern Provinces into one province, effect an island-wide cease-fire agreement, and an Indian peacekeeping force to supervise the disarming of Tamil militants.[411] The signing of the agreement terminated the crisis.

The challenger was India with an NCI of 4. The target was Sri Lanka with an NCI of 0. The challenger wins tactically because India was able to support and protect a population of dispossessed former Indians with the support of the Sri Lankan government. Indian strategic objectives were not at risk. Neither the UN nor the superpowers were involved in this crisis. There was neither implicit nor explicit nuclear activity displayed in this incident.

The fourth crisis for India in Phase III began on January 13th, 1990, when Indian police opened fire and killed 50 pro-independence demonstrators in the Vale of Kashmir.[412] For the next four months, Kashmir witnessed violent anti-India demonstrations and brutal suppression by

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[411] Ibid.

[412] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=392 is the link to incident number 392, Kashmir III, 1990.

an expanded Indian police and military presence where hundreds of Kashmiris were killed. However, there was evidence that Pakistan was providing paramilitary training, weapons, and funds for Kashmiri militants, which reinforced a near-universal conviction in India that Pakistan was responsible for the turmoil within Kashmir.

On April 6th, 1990, the Jammu and Kashmir Liberation Front killed three Indian hostages. On April 11th, 1990, India's Prime Minister Singh publicly warned Pakistan: "Our message to Pakistan is that you cannot get away with taking Kashmir without a war." and added that Pakistan would not be permitted to achieve nuclear superiority.[413] Over the next few days, the superpowers and Iran expressed concern over the escalating tension in Kashmir. The crisis escalated on May 21st, 1990, with the killing of Kashmir's leading Muslim cleric, Maulvi Muhammad Farooq, and further escalated when Indian security forces killed approximately 100 mourners in a vast throng of 100,000 attending Farooq's funeral.

This movement of forces on both sides seemed like another tit-for-tat conventional military confrontation that triggered or escalated an international crisis, however, in the spring of 1990, a large body of U.S.-intelligence-gathered evidence indicated an ominous dual change in South Asia's balance of power: first, that Pakistan now had developed operational nuclear weapons and that orders had been given by Pakistan's Army Chief of Staff, General Beg, to assemble them at Pakistan's nuclear center, Kahuta. Second, that in order to prevent a repetition of its humiliating defeat by India in the war over Bangladesh in 1971, Pakistani leaders were prepared to respond with a nuclear strike in case of an Indian invasion of Sind.

Both sides responded to the escalating crisis with important gestures, which led to a relatively speedy and safe termination. Pakistan's leaders agreed to close the training camps for

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[413] Ibid.

Kashmiri militants, and India invited U.S. military attaches in Delhi to go to Kashmir and Rajasthan to see that an Indian invasion of Pakistan was not imminent. Most important, on June 3rd, 1990, Pakistan began to withdraw its troops from the Indian border and India responded by pulling its troops back from their forward deployment.[414] The winding down of the crisis took several weeks, and terminated by late June 1990, but it was clear that neither side wanted a nuclear confrontation.

The challenger was Pakistan with an NCI of 2. The target was India with an NCI of 4. The target wins tactically because India was not deterred by Pakistani action to increase violence in Kashmir and was able to force Pakistan to de-escalate. Indian strategic objectives were at risk, since this incident was nearly a nuclear exchange between regional hegemons. The UN was not involved in this conflict, however the U.S. was heavily involved, sending a delegation to explain to Pakistani leadership that they would lose a nuclear exchange with India and that the U.S. would not support Pakistan in a nuclear exchange. There was both implicit and explicit nuclear activity displayed in this incident.

The fifth crisis for India in Phase III began following Indian national elections in March 1998, when the Hindu nationalist Bharatiya Janata party (BJP) formed a coalition government in India. It was widely believed that the coalition government would follow a more aggressive foreign policy towards Pakistan. Shortly after the elections, the government announced that it would exercise the option to develop nuclear weapons, a shift from the country's previously ambiguous stand on the issue.[415]

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[414] Ibid.

[415] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=425 is the link to incident number 425, India-Pakistan Nuclear Tests, 1998.

In April 1998, Pakistan tested its medium-range surface-to-surface Ghauri missile. In May 1998, Indian Defense Minister George Fernandes declared that China posed the greatest potential security threat to India and accused China of providing nuclear technology to Pakistan.[416] At the same time, India's Prime Minister Vajpayee wrote to U.S. President Clinton that there remained distrust between India and China because China "materially helped another neighbor of ours [Pakistan] to become a covert nuclear weapons state."[417] The trigger to the crisis was a series of nuclear tests conducted by India between May 11- 13th, 1998. Tensions rose further on 18 May 18th, 1998, when Indian Home Minster Lal Krishna Advani announced that India would follow a "pro-active" policy towards alleged Pakistani interference in Kashmir, but softened again three days later by announcing a self-declared moratorium on further nuclear tests and offered to negotiate a "no first-use" nuclear pact with Pakistan.

Uncertainty surrounding how Pakistan would respond ended on May 28th, 1998, when it announced that it had detonated five nuclear devices that day.[418] The tests were preceded by intense pressure from the U.S. government, including a telephone conversation between Pakistan Prime Minister Sharif and U.S. President Bill Clinton, when the latter urged Mr. Sharif not to proceed with the tests. In the aftermath of tests, the U.S. imposed sanctions on Pakistan, similar to the ones already imposed on India. In both countries, the tests enjoyed widespread domestic support. The crisis ended on June 11th, 1998, when the Pakistani government also announced a moratorium on nuclear tests and said that it was ready to formalize the arrangement with India.

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[416] Dixit, J. N. *India-Pakistan in War & Peace*. Routledge. London. 2002. Chapter 9.

[417] Sidhu, Waheguru Pal Singh and Yuan, Jing-dong. *China and India: Cooperation or Conflict?* Lynne Rienner Publishers. Boulder, Colorado. 2003. Page 30.

[418] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=425 is the link to incident number 425, India-Pakistan Nuclear Tests, 1998.

The tests provoked international condemnation and the imposition of sanctions by several countries, including the U.S., Japan, Germany and Canada. The UNSC held an emergency session over the issue and called on both countries to sign the Comprehensive Test Ban Treaty, which neither did. The challenger was India with an NCI of 5. The target was Pakistan with an NCI of 3. The challenger wins strategically because India overtly signaled a change in nuclear policy and conducted nuclear tests in the face of nearly complete international condemnation. Pakistan following suit was actually to India's favor, as it signaled three things: solidarity, nuclear status, and the belief that achieving nuclear tests was the ultimate deterrent, hence the willingness to take on the hardship of economic sanctions. Israeli strategic objectives were at risk. UN involvement did not lead to any policy change and did not terminate the conflict, however international sanctions were severe for both India and Pakistan. There was both implicit and explicit nuclear activity displayed in this incident from both parties. Interestingly, this dramatic event in terms of geopolitics, two nuclear powers conducting multiple nuclear tests in the same month, did not negatively affect China's relationship with India, or did it change China's relationship with Pakistan. China, as the President of the UNSC, did condemn Indian nuclear testing, but did not go as far as the U.S. in conducting sanctions. Russia was silent. It was as if non-European nuclear powers were somewhat satisfied that two additional nuclear nations rose from eastern ranks to assert nuclear strength.

The sixth crisis for India in Phase III began on May 9th, 1999, when a rocket attack was launched on the Indian town of Kargil in northern Kashmir. India's leaders blamed Pakistan for the attacks, while Pakistan blamed the attacks on Kashmiri militants. India responded to the attacks on May 26th, 1999, by attacking guerilla positions in Kashmir. The attack, conducted by

jet fighters and helicopter gunships, represented India's first use of air power since 1971.[419]

Pakistan responded to the attacks on the guerillas in Kashmir by shooting down at least two

Indian jets. Fighting continued and forces continued to mobilize through June 1999, as militants

tried to re-occupy the mountains of Kashmir. Late in June, Pakistani military leader General

Musharaf indirectly acknowledged that the Kashmiri guerillas consisted of a strong contingent of

Pakistani forces. Indian leaders continued to demand that the guerillas withdraw to the Pakistani

side of the LOC and after a meeting with U.S. President Clinton, Musharaf announced that

Pakistan would withdraw all troops to its side of the LOC and that a cease-fire would be put in

place following this withdrawal.[420]

The challenger was Pakistan with an NCI of 3. The target was India with an NCI of 5.

The target wins tactically because India was able to gain concessions from Pakistan to cease

outfitting guerillas and to withdraw Pakistani military forces in Kashmir to their side of the LOC.

Indian strategic objectives were not at risk. There was no UN involvement in the conflict, as

both India and Pakistan have always preferred to keep the Kashmir situation an internal problem.

There was neither implicit nor explicit nuclear activity displayed in this incident.

The seventh crisis for India in Phase III began on December 12th, 2001, when a group of

five armed gunmen stormed India's Parliament building in New Delhi, leaving 14 people

(including all of the attackers) dead. New Delhi police stated that all five attackers were

Pakistani nationals, and the Indian government assessed blame for the attacks on two Islamic

separatist organizations, Jaish-e-Mohammed (JeM) and Lashkar-i-Toiba (LiT), both of which

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[419] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=431 is the link to incident number 431, Kashmir IV Kargil, 1999.

[420] Dixit, J. N. *India-Pakistan in War & Peace*. Routledge. London. 2002. Page 46.

India believes to be supplied and trained by the Inter-Service Intelligence (ISI) agency of the Pakistani military.[421] Pakistan's Musharraf condemned the attacks but demanded evidence that the separatist groups were to be blamed for the attacks.

Following the attack and assignment of blame, both India and Pakistan placed their military forces at a heightened alert status and escalated troop mobilization along the LOC as well as along the India-Pakistan border outside of Kashmir. On December 21st, 2001, India recalled its High Commissioner to Pakistan, for the first time since 1971. In addition, India cut off routes for land transport between the countries, and India and Pakistan both imposed a ban on the other country's airlines flying over its airspace. The crisis ended following a televised speech by President Musharraf on January 12th, 2002, in which he condemned sectarian fighting and announced that Pakistan would crack down on terrorists within Pakistan. The conflict terminated after this speech.

The challenger was Pakistan with an NCI of 3. The target was India with an NCI of 5. The target wins tactically because India was able to force public concessions by Pakistani president Musharraf. India's strategic objectives were not at risk. There was no UN involvement in the conflict. There was neither implicit nor explicit nuclear activity displayed in this incident. Sechser describes MCT 210 as a partial victory for India because some policy demands were met. Sechser states that force was demonstrated, but not used.[422]

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[421] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=435 is the link to incident number 435, Indian Parliament Attack, 2001.

[422] https://dataverse.harvard.edu/dataset.xhtml?persistentId=hdl:1902.1/17315 is the MCT dataset, which allows access to all 121 MCT used in this research. http://faculty.virginia.edu/tsechser/MCT-Coding-Document.pdf is the coding document created by Todd Sechser to describe the components of the Militarized Compellent Threat, or MCT, dataset.

The eighth crisis for India in Phase III began on May 14th, 2002, when Kashmiri militants attacked the Indian army base in Kaluchak, in the disputed state of Jammu and Kashmir.[423] Thirty-four people were killed, including civilians and the attacking force.[424] The attack, the bloodiest in the region since October 2001, triggered a crisis for India, and there were calls for the Indian government to retaliate against Pakistan. Though no group claimed responsibility, Indian officials suspected Pakistan-based groups such as Lashkar-e-Toiba and Jaish-e-Mohammed.[425] On May 18th, 2002, India announced the expulsion of the Pakistani High Commissioner to India, and undertook a massive mobilization of troops along the Line of Control. Pakistan appealed for talks with India to defuse the situation, but India replied by saying that it would not negotiate with Pakistan concrete steps were taken to crack down on militants. On May 27th, 2002, Pakistani President Musharraf made a defiant nationwide address where he said that Pakistan did not want war with India, but would respond with full force if attacked.

Both the U.S. and the UK were active in mediation efforts, with the U.S. playing the lead role. Pressure from the U.S. had an important effect in reducing tensions. The crisis ended on October 17th, 2002, when both sides announced a mutual demobilization of troops. This signaled the end of the crisis for both countries. The challenger was Pakistan with an NCI of 3. The target was India with an NCI of 5. The challenger wins tactically because the Pakistani president's speech escalated the conflict until India backed down. India's strategic objectives

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[423] Davis, Zachary S. editor. *The India-Pakistan Military Standoff: Crisis and Escalation in South Asia*. Palgrave. New York. 2011. Page 12.

[424] https://sites.duke.edu/icbdata/ is the website that allow access to the International Crisis Behavior dataset and http://www.icb.umd.edu/dataviewer/?crisno=436 is the link to incident number 436, Kaluchak, 2002.

[425] Davis, Zachary S. editor. *The India-Pakistan Military Standoff: Crisis and Escalation in South Asia*. Palgrave. New York. 2011. Page 5.

were not at risk. There was no substantive UN involvement in the conflict. There was neither

implicit nor explicit nuclear activity displayed in this incident.

Applied Qualitative Data Specific to India for Phase III

Table 8.3: Indian Crises, Phase III Nuclear Weapon State

Crisis	Year	CH (NCI)	TA (NCI)	CH Win	Higher NCI Win	Higher NCI CH	IND Win	Nuclear activity	UN involvement
Punjab War Scare II	1987	Pakistan (2)	India (4)	No	Yes	No	Yes	No	No
India Intervention	1987	India (4)	Sri Lanka (0)	Yes	Yes	Yes	Yes	No	No
Kashmir III	1990	Pakistan (2)	India (4)	No	Yes	No	Yes	Yes	No
India Pakistan Nuclear Test	1998	India (4)	Pakistan (3)	Yes	Yes	Yes	Yes	Yes	No
Kashmir IV Kargil	1999	Pakistan (3)	India (4)	No	Yes	No	Yes	Yes	No
India Parliament Attack	2001	Pakistan (3)	India (4)	No	Yes	No	Yes	No	No
Kaluchak	2002	Pakistan (3)	India (4)	Yes	No	No	No	No	No

Table 8.3 shows that while India was in phase III as a nuclear weapon state, the state with

the greater nuclear capability won 86% (6 of 7) of the crises, supporting hypothesis one that

conjectures the state with the greater nuclear capability should win more often. The results from

table 8.3 do not show support for hypothesis two, in that only 29% (2 of 7) of the crises during

this period were initiated by the state with the greater nuclear capability. During this time

period, only one crisis met Sechser's criteria for a compellent threat and these results show that

in that in 100% (1 of 1) of the cases the higher NCI initiated crisis, and in 100% (1 of 1) of the

cases, the higher NCI won.[426] These results lend themselves to challenge Sechser's assertion that

nuclear capability at the state level has no compellent value. These results indicate that nuclear

capability has value in terms of conflict victory, but not conflict onset.

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[426] Militarized Compellent Threat number 210. Results of all nine case study tables will be discussed in the
conclusion.

Qualitative Findings: India Case Study

In the final case study, India engaged in 20 incidents between 1945 and 2016. India challenged seven times (6-1), was the target 13 times (12-1), and had a higher NCI eight times (lower NCI six times; NCI parity six times). India was victorious in the tactical objectives it set out to accomplish in 18 cases (6 as challenger, 12 as target), lost in two cases (one as challenger, one as target), but in zero cases did India's victories lead to a strategic victory. In 20 incidents, higher NCI has eight victories (57%) (8 of 16), lower NAI has six victories (43%) (6 of 16), and there were six cases of NCI parity.

Based on the graph in figure 8.1, it is clear that nuclear activity rose commensurate with conflict, however it is also clear that nuclear activity was overtly or covertly signaled to influence the outcome three times, only after India indeed had already achieved strategic delivery means and nuclear weapons. This study has shown that India does not bluff regarding nuclear conflict. India's primary opponent, Pakistan, also achieved and demonstrated nuclear weapon capability, but neither has chosen to escalate their decades-long Kashmir conflict. Throughout phase III, India's leadership likely considered their nuclear status as a way to preserve independence in the face of restrictions in the NPT, and counter-intuitively, as a way to continue to guarantee both U.S., Chinese, and Russian support despite repeated indictments and economic sanctions. It is likely that Indian nuclear activity emboldened Indian decision-making, but has not led to further escalation.

When considering table 8.1, we see that India, as a pre-nuclear weapon state, engaged in six state-level conflicts in a fifteen year time period (averaging .033 crises per year). During this period, the state with the greater nuclear capability initiated and won 50% (1 of 2) of the crises, failing to support either hypothesis. During this time period, three crisis met Sechser's criteria

for a compellent threat, and these results show that, in that in 100% of the cases, the higher NCI

initiated crisis and in 100% of the cases, the higher NCI won.[427] These results lend themselves

to challenge Sechser's assertion that nuclear capability at the state level has no compellent value.

These results do not clearly say that nuclear capability has value in terms of conflict onset and

victory, but importantly does not say that they do not.

Upon examination of table 8.2, we see that India, as a potential nuclear weapon state,

engaged in seven state-level conflicts in a fourteen year time period (averaging 0.5 crises per

year). During this period, crises were initiated by the state with the greater nuclear capability

60% (3 of 5) of the time, supporting hypothesis two. The results from table 8.2 do not show

support for hypothesis one, in that only 20% (1 of 5) of the crises were won by the state with the

higher NCI. During this time period, four crises met Sechser's criteria and these results show

that in that in 25% (1 of 4) of the cases the higher NCI initiated crisis, but in 0% (0 of 4) of the

cases, the higher NCI won.[428] These results support Sechser's assertion that nuclear capability at

the state level has no compellent value.

Looking at table 8.3, we see that India, as a nuclear weapon state, engaged in seven state-

level crises in a forty-four year period (averaging 0.16 crises per year). During this time period,

only 29% (2 of 7) of the crises during this period were initiated by the state with the greater

nuclear capability, failing to support hypothesis two, but 86% (6 of 7) of the crises were won by

the state with the higher NCI, supporting hypothesis one. During this time period, only one

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[427] Militarized Compellent Threat numbers 109, 110, and 119. In two of the three cases, the states had NCI parity, so one could argue that the higher NCI initiated 33% of the time if NCI parity were taken into account. I will expound on this trend in the conclusion, that in the early days of nuclear activity (pre-1965) when the NCI were small, the results are less supportive than in the later days of nuclear activity (post 1965).

[428] Militarized Compellent Threat numbers 121, 124, 131, and 132. Removing outcomes of states with NCI parity shows that 50% higher NCI initiate conflict and 0% higher NCI win.   Results of all nine case study tables will be discussed in detail in the conclusion.

crisis met Sechser's criteria for a compellent threat and these results show that in that in 100% (1 of 1) of the cases the higher NCI initiated crisis, and in 100% (1 of 1) of the cases, the higher NCI won.[429] These results challenge Sechser's assertion, indicating that nuclear capability has value in terms of conflict victory.

The overall results from the India case study lend themselves to challenge Sechser's assertion that nuclear capability at the state level has no compellent value. The India results provide mixed support with both hypotheses, showing that nuclear capability has some compellent value in terms of conflict onset and victory.

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[429] Militarized Compellent Threat number 210. Results of all nine case study tables will be discussed in the conclusion.

Chapter 9 - Conclusions

As stated in the introduction, despite thousands of books and articles written about the role of nuclear weapons in modern political society, few substantive results have emerged that address the totality of state nuclear activity. Recent scholarship suggests that activity from nuclear weapons states does deter and does influence other states, that nuclear strategy and posture matter somewhat more than previously thought, and that nuclear weapons can affect aspects of international politics more than previously expected. This research displays empirical results supporting these claims. The results of this study suggest that nuclear capability does affect conflict onset and victory, even with compellent threats. While not true in all cases, nuclear capability with respect to conflict onset and victory seems positively correlated.

The general consensus of the empirical evidence found in current literature results in two assertions: that nuclear weapons contribute to deterrence and do not contribute to compellence. This study explored those assertions and examined not just nuclear weapons but also a more holistic assessment of state level nuclear capability. The findings in this study lend support to the first hypothesis and challenge scholars to examine nuclear capability more deeply.

This study has wrestled with several thorny theoretical challenges. One theoretical challenge was to account for potential nuclear capability of a state. This study gives credit to states for building potential to develop a nuclear weapons program by giving them credit for nuclear power plant production, nuclear research facilities, and so on. An additional theoretical challenge examined by this study is to show a tangible link between a capability and deterrence. It is widely assumed that nuclear weapons are positively correlated with deterrence and this study suggests that is the case. Finally, a limitation of previous studies is that they all compared the advantage gained by states with nuclear weapons to those without nuclear weapons. This

study has displayed that nuclear activity beyond weaponization has a range of benefits to a state, which corresponds to an increased probability to win in crisis situations.

This study developed a Nuclear Capabilities Index in order to better describe and explain the level of nuclear activity within each state. The NCI is comprised of six measures of nuclear activity for each state, and provides a nuclear activity score for each state, between 1945 and 2016, which allows for comparison of corresponding nuclear activity amongst states in conflict. This study utilized two existing datasets to examine the effects of nuclear capability beyond the possession of weapons on crisis initiation and outcomes to great effect. In this study, three cases helped trace changing nuclear capability and foreign policy as it related to conflict. The NCI score of each incident showed which state within the directed dyad had the greater nuclear activity at the time of the conflict, and the resulting research in chapters six, seven, and eight showed who initiated conflict, who won, and who had the higher NCI score.

As described throughout this research, the findings in this research are focused on the two hypotheses discussed in chapter three. Hypothesis one is that challengers with greater nuclear capability will be more successful in foreign policy crises than challengers with less nuclear capability. Hypothesis two is that challengers with greater nuclear capability will initiate conflict more often than challengers with less nuclear capability. To test the two hypotheses, this research examined state level conflict from 1945-2016 for three states: South Africa, Israel, and India. South Africa was chosen as a case study because it is the only state to have possessed nuclear weapons and voluntarily dismantled them under the auspices of the IAEA, and provided insight regarding conflict outcome or frequency during its transition. India was chosen as a case study because it may provide insight regarding high-level NCI conflict with Pakistan and China,

and Israel was chosen as a case study because it is the only state with a policy of nuclear ambiguity, which was examined during this research.

The qualitative findings in this research may have some merit. Through an examination of NCI scores and conflict across three cases, the state with the higher NCI score wins four out of five conflicts. Case study analysis showed moderate support and a positive correlation between crisis onset and higher NCI score and strong support and a positive correlation between crisis victory and higher NCI score. Qualitative results challenged Sechser's primary result, but more research is needed to ensure this result is not affected by case selection bias. Mixed results regarding NCI affecting conflict onset and victory show that nuclear capability does indeed have value in terms of compellent threat assessment. Eighteen of sixty-nine conflicts described in the case study chapters met Sechser's exacting criteria for a compellent threat, and only five of those eighteen displayed results that supported Sechser's claims, meaning in more than two thirds of Sechser's own cases, the results challenge his claims.[430] This study aims to show that we must reexamine state power regarding nuclear activity to determine value in conflict outcome.

In terms of quantitative results, this research replicated the results of Sechser and Fuhrmann's *Crisis Bargaining and Nuclear Blackmail*, and found them to be error free. After modifying the original Sechser work with Lafleur's modifications, thirty-five regressions were run with mixed results. As described in the introduction and also in more depth in chapter five, in table 5.3, while the statistically insignificant and negatively correlated "nuclear challenger" coefficient in regression fifteen suggests that there is no support for the argument that a nuclear-armed challenger is able to make more effective compellent threats, in regression sixteen Sechser finds a statistically significant coefficient for "nuclear challenger", implying mixed results

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[430] To be fair, Sechser specified nuclear weapons, not nuclear capabilities, which is a significant difference.

overall. In several of these cases, the Lafleur modification has the opposite correlation to the

Sechser result (negative rather than positive, or vice versa). The greater specificity of nuclear

capability in states in the Lafleur modification lends to support evidence to challenge Sechser in

terms of nuclear target significance, probably since most target states score a zero in that

variable. Keeping in mind that Lafleur hypothesis one does not refute Sechser's hypothesis;

rather, these findings suggest that Sechser should broaden his original hypothesis, focusing on a

more holistic nuclear capability index to be able to determine whether compellence is affected by

nuclear activity.

Regardless of NCI, Sechser's data shows that challengers win 58% of MCT (with an "n"

of 242). Discounting NCI, challengers in the subset from the MCT (with an "n" of 69) win 60%

of MCT threats, which is consistent with the results from the entire MCT. Of particular value

from this research is that when examining the win percentage based upon NCI, the higher NCI

state wins 79% of the time, providing direct support to hypothesis one. In addition, the data

shows that higher NCI challenger states win five times as often as lower NCI challenger states

(47% vice 9%). Also, higher NCI target states win 3.5 times more often than lower NCI

challenger states (32% vice 9%). Higher NCI confers bargaining power because it wins

significantly more often. Lower NCI states should not initiate conflict because they lose

significantly more often. In the three case studies, there were 12 incidents where both the

challenger and the target had NCI parity; in these 12 incidents, the challenger won eight times

(66%) and the target won four times (33%). With NCI parity, the data showed that the

challenger wins twice as often. Based on the data used, this research shows that hypothesis one

is valid.

When comparing conflict outcomes from Sechser's MCT dataset and Duke University's ICB dataset to determine whether a state with a higher NCI score initiates more crises, the combined data shows that higher NCI challenger states initiated conflict 34 times, lower NCI challenger states initiate conflict 23 times, and NCI parity existed 12 times. Higher NCI states challenge significantly more often than lower NCI states and challenge significantly more often than states with NCI parity, providing support to hypothesis two. The next section will discuss the findings regarding levels of nuclear activity.
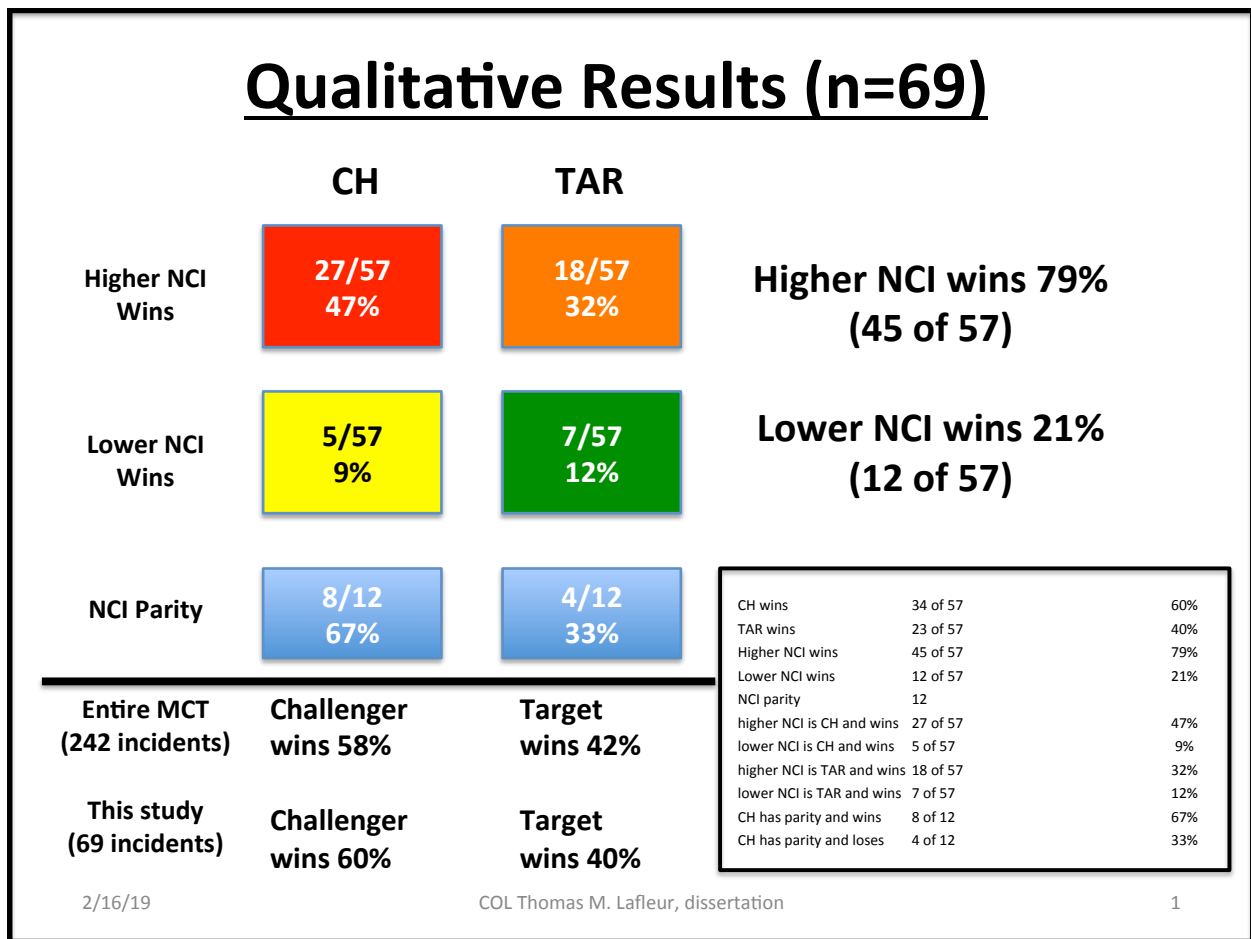
Figure 9.1 Qualitative Results

Future Research

There are three areas where additional research could provide greater clarity to the value of the NCI that may prove fruitful with focused effort. The first one is to expand the number of case studies to include all nuclear states and the second is to expand the number of variables in the NCI. Regarding the first area, conducting case study qualitative analysis on the remainder of the nuclear states (Russia, China, U.S., Pakistan, France, UK) would then provide a complete list of conflict with nuclear powers in the nuclear age. This has the potential of clarifying the level of reliability we have in the relationship between nuclear capability and compellent threat onset and victory.

The second area would focus on expanding the NCI from six variables to nine by including the international nuclear regimes as variables in the NCI, such as the nuclear non-proliferation treaty, the comprehensive test ban treaty, and the International Atomic Energy Agency. To do that successfully, a theoretical framework must be constructed that describes why being a member of an international nuclear regime provides a capability to a state, thereby providing a foundation for the choices states make regarding international relations and state security. Preliminary research in this area has found some interesting results. While nearly 70% of all UN member states have no nuclear capabilities, all of them have made choices to join or not join the international nuclear regimes (IAEA, NPT, CTBT). Of the remaining sixty states, those at NCI level one through four largely comply with international nuclear regimes, and are all IAEA member states. States between NCI level two and four appear to be good examples of non-confrontational states with powerful economies. However, NCI level five and six states do not generally comply with international nuclear norms. Nuclear capability level data suggest that states at the middle levels are less prone to conflict.

After coding when each of the 193 states joined each of the three international nuclear regimes, it seems clear that states could be pooled into seven categories, each describing their level of nuclear activity. The following are generalizable trends that came from this pooling, however more research is required to build conclusive results:

- NCI Level Zero: No nuclear activity. The vast majority of states (133 of 193, or 69%) have no nuclear activity other than membership in international organizations such as the IAEA, or signatories to international nuclear regimes such as the NPT or CTBT. All the non-IAEA members are level zero states. 76% of reluctant NPT ratifiers are level zero states (53 of 70). 33% of non-NPT signatories are level zero states (2 of 6). 93% of reluctant CTBT ratifiers are level zero states (38 of 41).

- NCI Level One: Nuclear research facility established. 31% of the states possess nuclear research facilities (60 of 193). About half of these states use their nuclear research facilities solely to explore and develop advances in medicine, or to train scientists in the fields of nuclear medicine, physics, or nuclear engineering. 100% of level one states are IAEA members. 17% of level one states (10 of 60) were reluctant NPT ratifiers, but fully 100% of level one states are NPT compliant.   5% of level one states were reluctant CTBT ratifiers (3 of 60), while 7% of level one states are non-compliant with the CTBT (4 of 60).   States at level one predominately comply with international nuclear norms.

- NCI Level Two: Nuclear power plant established. In addition to possessing nuclear research facilities, 16% of the states also possess nuclear power (30 of 193) and 13 of those 30 states remain at level two. 100% of level two states are IAEA members. 15% of level two states were reluctant NPT ratifiers (2 of 13), but fully 100% of level two

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states are NPT compliant. 100% of level two states are compliant with the CTBT. States at level two comply with international nuclear norms.

- NCI Level Three: Ten or more nuclear power plants established. Of the 30 states that possess nuclear power, 11 states have achieved ten or more operational nuclear power plants at one time, and three of those states remain at level three. 100% of level three states are IAEA members. 33% of level three states were reluctant NPT ratifiers (1 of 3), but fully 100% of level three states are NPT compliant. 100% of level three states are compliant with the CTBT. States at level three comply with international nuclear norms.

- NCI Level Four: Possesses HEU refinement capability. In addition to possessing nuclear research facilities and nuclear power plants, 14 states also possess HEU refinement capability, and five of those states remain at level four. 100% of level four states are IAEA members. 14% of level four states were reluctant NPT ratifiers (2 of 14), but fully 100% of level four states are NPT compliant. 100% of level four states are compliant with the CTBT. States at level four comply with international nuclear norms.

- NCI Level Five: Possesses strategic delivery systems. In addition to possessing nuclear research facilities, nuclear power plants, and HEU refinement capabilities, there are ten states that possess one or more legs of the "nuclear triad", and two of those states remain at level five. 100% of level five states are IAEA members. 50% of level five states are NPT non-compliant (1 of 2). 100% of level five states are non-compliant with the CTBT. States at level five do not comply with international nuclear norms.

- NCI Level Six: Possesses nuclear weapons. There are eight states that possess nuclear weapons. 100% of level six states are IAEA members. 25% of level six states were reluctant NPT ratifiers (2 of 8), and 38% of level six states are NPT non-compliant (3 of

8).   63% of level six states are non-compliant with the CTBT (5 of 8).   States at level six tend to not comply with international nuclear norms.

Finally, future work regarding conflict avoidance will utilize James Fearon's model of costly war, which may initially show that the greater NCI state will gain greater bargaining leverage, but to develop this line of reasoning further, an understanding of the impact of alliances must be brought into the understanding of NCI level and crisis bargaining to attempt to locate a causal mechanism leading to conflict avoidance. This would take this research from a directed dyadic construct to a more holistic examination of sources of power.

Policy Recommendations

The correlation between nuclear capability and crisis onset and victory that this research has shown has considerable implications for policy makers. As the research shows, higher NCI states both initiate and win conflict more often. With a clear understanding of state NCI levels, conflict outcomes can be more accurately predicted as this very relevant information becomes public knowledge. This may lead to an overall reduction of conflict, as states will negotiate crisis outcomes from a position of greater transparency.

Secondly, this research has uncovered common behaviors at different NCI levels that, if adjusted, may bear fruit in terms of reduction of conflict frequency and intensity. As NCI level one states seem to be far more stable regarding initiating conflict and amount of conflict, policy makers should seek to encourage level zero nuclear states to develop nuclear research reactors so they rise to a level one nuclear capability state. Benefits of IAEA membership and medical research, funding and training generations of local STEM scholars, and transforming fossil fuel dependencies should be incentive enough for level zero states to seek to develop a nuclear

energy program. The UN should encourage transition of level one states to level two,

underwriting low interest loans from the World Bank for construction of nuclear power plants.

This is because level two, three, and four states are the most stable in terms of conflict avoidance

as well as following established international nuclear norms. Because international nuclear

norms are not being universally met by the states on the higher end of the nuclear activity scale,

states should be encouraged to cease nuclear development after establishment of HEU

refinement capability.

Finally, this research has uncovered the potential value in membership in international

nuclear regimes. While not identified as capabilities in this research, membership (or purposeful

non-membership) in the three major international nuclear regimes may have a greater impact

regarding bargaining leverage than previously thought. As a topical example, in June 2018,

President Trump met with the leader of the Democratic People's Republic of Korea, Kim Jung

Un. During this summit, Kim offered to cease nuclear weapons testing in return for several

concessions by the U.S., to include reduction or elimination of major military exercises,

easement or removal of sanctions, and reduction of influence by major U.S. allies, and initial

reports indicate that the U.S. agrees. If one does not value the NCTBT as a capability, these

concessions must seem incredible, but if compliance with the Comprehensive Test Ban Treaty is

indeed such a sought-after international behavior that the United States is willing to suspend

military exercises, reduce or eliminate sanctions, and irk long-standing allies, it must have

significant value. The June 2018 summit is an example of a state converting potential energy

(NCTBT membership) into kinetic energy (reduction of sanctions, suspension of military

exercises, reduction of nuclear tension, etc.), showing the bargaining leverage possessing nuclear

capabilities can provide a state. This is indeed remarkable, and should be explored in future

research, when empirical evidence can clearly describe the trade space considered in this and other similar actions.

It is evident that each of the three states examined in this research considered the application of nuclear capability in defense planning. It is also evident that the level of research done in this project does not definitively answer the "why" question that most defense analysts need to have an answer to in order to competently advise a decision maker. The simple reason this lack of certainty exists is that information about the development of nuclear weapons or the use of nuclear capabilities for defense purposes was classified as well as restricted; it was considered a state secret, often kept from cabinet members, academics, and reporters alike. It is also clear that when spies gained access to information, such as the case with Israel, there was no knowing whether the spy was indeed fed misinformation to mislead a rival state decision making apparatus into making the wrong policy choices. The qualitative portion of this research is interesting for this reason, as dissatisfying as it may be, as it helps to uncover the layers of secrecy surrounding nuclear activity, a very potent source of state power. A quote that summarizes this insight best comes from Soviet Deputy Foreign Minister Vladimir Semyonov, who, discussing Soviet Communist Party history, reminds us "…this history, like any other history…was never recorded on tape. It was a history of passing encounters, passing exchanges of opinions. If the annals of the Party were to be written … [it would have to be] according to these encounters and passing phenomena … the revolution is conducted not on paper but rather in conversation."[431] Thus, state activity based on nuclear capability must be observed empirically, both by statements issued by officials, as well as by state actions.

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[431] Ginor, Isabella and Remez, Gideon. *Foxbats over Dimona: The Soviets' Nuclear Gamble in the Six-Day War*. Yale UP. New Haven. 2007. Page 51.

References

Achen, Christopher H. and Duncan Snidal. *Rational Deterrence Theory & Comparative Case Studies*. World Politics. 1989. Vol. 41(2). Pp. 143-170.

Albright, David. *Revisiting South Africa's Nuclear Weapons Program: Its History, Disarmament, and Lessons For Today*. Institute for Science and International Security. Washington DC. 2016.

Allison, Graham. *Essence of Decision: Explaining the Cuban Missile Crisis*. New York. Longman. 1999.

Anderson, Benedict. *Imagined Communities: Reflections on the Origin and Spread of Nationalism*. London. Verso. 1983.

Aron, Raymond. *Peace and War: A Theory of International Relations*. New York. Doubleday. 1966

Axelrod, Robert. *The Complexity of Cooperation: Agent-based Models of Competition and Collaboration*. 1997.

Bailey, Thomas A. *America Faces Russia: Russian-American Relations From Early Times To Our Day*. Ithaca. Cornell University Press. 1950.

Bajwa, Farooq. *From Kutch to Tashkent: The Indo-Pakistan War of 1965*. Hurst & Company. London. 2013.

Bar-Joseph, Uri. *The Best of Enemies: Israel and Transjordan in the War of 1948*. Frank Cass. London. 1987.

Bearce, David H. and Bondanella, Stacy. *Intergovernmental Organizations, Socialization, and Member-State Interest Convergence*. International Organization, Vol. 61, No. 4, pp. 703-733.

Beardsley, Kyle and Asal, Victor. *Nuclear Weapons Programs and the Security Dilemma*. Unpublished. Paper presented at the annual meeting of the International Studies Association Annual Conference "Global Governance: Political Authority in Transition". Le Centre Sheraton Montreal Hotel, Montreal, Quebec, Canada, Mar 16, 2011.

Beardsley, Kyle and Asal, Victor. *Nuclear Winning with the Bomb*. Journal of Conflict Resolution, vol. 53 (2009), pp. 278-301.

Beres, Louis Rene. *Mimicking Sisyphus: America's Countervailing Nuclear Strategy*. Toronto. Lexington Books. 1983. (Chapter 6 has thoughts on the future of nuclear deterrence)

Bertram, Christoph. *Strategic Deterrence in a Changing Environment*. Hampshire. Gower Publishing Company, Limited. 1981.

Bertram, Christoph. *The Future of Strategic Deterrence*. London. The MacMillan Press. 1981.

Bindra, S.S. *Indo-Pak Relations: Tashkent to Simla Agreement*. Deep & Deep Publications. New Delhi. 1981.

Bissell, Richard E. and Crocker, Chester A. eds. *South Africa into the 1980s*. Westview Press. 1979.

Blake, Nigel and Pole, Kay eds. *Dangers of Deterrence: Philosophers on Nuclear Strategy*. London. Routledge & Kegan Paul. 1983.

Brodie, Bernard. *Strategy in the Missile Age*. Princeton. Princeton University Press. 1959.

Bueno de Mesquita, Bruce, & Lalman, David. (1988). *Empirical Support for Systemic and Dyadic Explanations of International Conflict*. World Politics, *41*(1), 1-20.

Bueno de Mesquita, Bruce and David Lalman. *Reason and War*. The American Political Science Review. 1986, Vol. 80(4), pp. 1113-1129.

Bueno de Mesquita, Bruce and Morrow, James D. *Sorting Through the Wealth of Notions*. International Security. Vol. 24. No. 2. 1999

Bueno de Mesquita, Bruce. *The Logic of Political Survival*. Cambridge. MIT Press. 2003.

Bueno de Mesquita, Bruce, et al. *Capabilities, Perception, and Escalation*. The American Political Science Review. 1997. Vol. 91(1). Pp. 15-27.

Byers, R.B. ed. *Deterrence in the 1980s: Crisis and Dilemma*. London. Croom Helm. 1985.

Carter, Donald Alan. *Eisenhower Versus the Generals*. Journal of Military History (71). October 2007.

Carter, Gwendolen M. and O'Meara, Patrick Ed. *Southern Africa in Crisis*. Indiana UP. 1977.

Catudal, Honore M. *Nuclear Deterrence: Does it Deter*? Highlands. Humanities Press International, Inc. 1985.

Cimbala, Stephen J. ed. *Challenges to Deterrence: Resources, Technology, and Policy*. New York. Praeger. 1987.

Cimbala, Stephen J. ed. *Deterrence and Nuclear Proliferation in the Twenty-First Century*. New York. Praeger. 2001. (Chapter 2 has thoughts on rethinking deterrence)

Cimbala, Stephen J. *Force and Diplomacy in the Future*. New York. Praeger. 1992.

Cimbala, Stephen J. *Military Persuasion: Deterrence and Provocation in Crisis and War*. University Park. The Pennsylvania State University Press. 1994.

Cimbala, Stephen J. *The Past and Future of Nuclear Deterrence*. New York. Praeger. 1998.

Cleveland, William L. and Bunton, Martin. *A History of the Modern Middle East*. Westview Press. 2016

Craig, Campbell and Sergey Radchenko. *The Atomic Bomb and Origins of the Cold War*. New Haven. Yale University Press. 2008.

Coulter, Edwin M. *The Diplomacy of the Sino-Indian Border Dispute: 1950-1962*. University Microfilms International. Ann Arbor, Michigan. 1985.

Dauber, Cori Elizabeth. *Cold War Analytical Structures and the Post Post-War World: A Critique of Deterrence Theory*. New York. Praeger. 1993

Davenport, Rodney and Saunders, Christopher. *South Africa: A Modern History*. St. Martin's Press. NY. 2000.

Davis, M. Thomas. *40Km Into Lebanon*. National Defense UP. Washington D.C. 1987.

Davis, Zachary S. ed. *The India-Pakistan Military Standoff: Crisis and Escalation in South Asia*. Palgrave. New York. 2011

Diehl, Paul F. and Crescenzi, Mark J. C. *Reconfiguring the Arms Race-War Debate*. Journal of Peace Research. Vol. 35. No 1. 1998. 111-118

Diplomacy for Democracy: A Collection of Keynote Speeches and Contributions by Mr. Johnny Makhathini at the United Nations in New York, towards the liberation struggle of South Africa. The Department of International Relations and Cooperation. 2012.

Dixit, J. N. *India-Pakistan in War & Peace*. Routledge. London. 2002.

Dorussen, Han and Ward, Hugh. *Intergovernmental Organizations and the Kantian Peace: A Network Perspective*. The Journal of Conflict Resolution, Vol. 52, No. 2, April 2008.

Eade, Deborah. *From Conflict to Peace in a Changing World: Social Reconstruction in Times of Transition*. Oxfam. 1998.

El Badri, Hassan, El Magdoub, Taha, and Dia El Din Zohdy, Mohammed. *The Ramadan War, 1973*. Dupuy Associates, Inc. Dunn Loring, Virginia. 1974.

Fearon, James D. *Rationalist Explanations for War*. International Organization. Vol. 49. No. 3 (Summer 1995), pp. 379-414.

Fearon, James D. *Signaling Foreign Policy Interests: Tying Hands versus Sinking Costs*. Journal of Conflict Resolution. Vol. 41. No. 1 (Feb., 1997). Pp. 68-90.

Ferrell, Robert H. *Harry S. Truman and the Cold War Revisionists*. 2006.

Finnis, John et al. *Nuclear Deterrence, Morality, and Realism*. Oxford. Clarendon Press. 1987.

Fitzpatrick, Sheila. *Russia's Twentieth Century in History and Historiography*. The Australian Journal of Politics and History, Vol. 46, 2000

Frankel, Francine R. and Harding, Harry eds. *The India-China Relationship: What the United States Needs to Know*. Columbia UP. New York. 2004.

Freedman, Lawrence. *Deterrence*. Cambridge. Polity Press. 2004.

Freedman, Lawrence. *The Evolution of Nuclear Strategy*. Palgrave McMillan. London. 1983.

Freedman, Lawrence. *The First Two Generations of Nuclear Strategists*. in *Makers of Modern Strategy: From Machiavelli to the Nuclear Age*. Peret, Peter. ed. Princeton. Princeton University Press. 1986.

Friedan, Jeffry A. and Lake, David A. *International Relations as a Social Science: Rigor and Relevance*. Annals of the American Academy of Political and Social Science. Vol. 600. July 2005. Pp. 136-156.

Gaddis, John Lewis, *We Now Know: Rethinking Cold War History*. 1998.

Gaddis, John Lewis, *The Cold War: A New History*. New York. The Penguin Press. 2005.

Gaddis, John Lewis. *The Emerging Post-Revisionist Synthesis on the Origins of the Cold War*. Diplomatic History. Summer 1983: 171-190.

Gaddis, John Lewis. *The United States and the Origins of the Cold War, 1941-1947*. New York. Columbia University Press. 1972.

Gaddis, John Lewis. *Strategies of Containment: A Critical Appraisal of American National Security Policy During the Cold War*. 2005.

Garden, Timothy. *Can Deterrence Last? Peace Through a Nuclear Strategy*. London. Buchan & Enright. 1984.

Gardner, Lloyd C. ed. *American Foreign Policy, Present to Past: A Narrative with Readings and Documents*. London. Collier Macmillan Publishers. 1974.

Garraty, John A. and Gay, Peter (eds.) *The Columbia History of the World*. New York. Harper & Row. Page 1082.

Gartzke, Erik and Dong-Joon Jo. *Bargaining, Nuclear Proliferation, and Interstate Disputes*. Journal of Conflict Resolution. Vol. 53 (2009). Pp. 209-233.

Gartzke, Erik and Kroenig, Matthew. *Nukes with Numbers: Empirical Research on the Consequences of Nuclear Weapons for International Conflict*. Annual Review of Political Science. 2016. 19: 397-412.

Gartzke, Erik and Kroenig, Matthew. *A Strategic Approach to Nuclear Proliferation*. Journal of Conflict Resolution. Vol. 53 (2009). Pp. 151-160.

George, Alexander. *Case Studies and Theory Development: The Method of Structured Focused Comparison*. In P. G. Lauren (Ed.), Diplomacy: New Approaches in History, Theory, and Policy. New York: Free Press. 1979.

George, Alexander, & Bennett, Andrew. *Case Studies and Theory Development in The Social Sciences*. Cambridge, MA: MIT Press. 2005.

George, Alexander L. and Smoke, Richard. *Deterrence and Foreign Policy*. World Politics. Vol. 41. No 2. 1989. 170-182

George, Alexander L. and Richard Smoke. *Deterrence in American Foreign Policy*. New York. Columbia University Press. 1974.

Gerring, John. *Social Science Methodology: A Critical Framework*. Cambridge University Press. 2001.

Ginor, Isabella and Remez, Gideon. *Foxbats over Dimona: The Soviets' Nuclear Gamble in the Six-Day War*. Yale UP. New Haven. 2007.

Gray, Colin S. *The Strategy Bridge: Theory for Practice*. Oxford. Oxford University Press. 2010.

Green, Philip. *Deadly Logic: The Theory of Nuclear Deterrence*. The Ohio State University Press. 1966.

Guimaraes, Fernando A. *The Origins of the Angolan Civil War: Foreign Intervention and Domestic Political Conflict*. St. Martin's Press. NY. 1998.

Hammel, Eric. *Six Days in June: How Israel Won the 1967 Arab-Israeli War*. Scribner's. New York. 1992.

Hardin, Russell et al Eds. *Nuclear Deterrence: Ethics and Strategy*. Chicago. The University of Chicago Press. 1985.

Harms, Gregory and Ferry, Todd M. *The Palestine-Israel Conflict: A Basic Introduction*. Pluto Press. London. 2005.

Harris, Verne, Hatang, Sello, and Lieberman, Peter. *Unveiling South Africa's Nuclear Past*. Journal of Southern African Studies. Vol. 30. No. 3. September 2004.

Hertzog, Chaim. *The Arab-Israeli Wars: War and Peace in the Middle East*. Vintage Books. New York. 1984.

Hobbes, Thomas. *Leviathan*. Cambridge. Cambridge University Press. 1996.

Howard, Michael. *The Use and Abuse of Military History*. Parameters. 9:1. Carlisle, PA. 1981.

http://www.worldometers.info/world-population/population-by-country/

http://faculty.virginia.edu/tsechser/MCT-Coding-Document.pdf is the coding document created by Todd Sechser to describe the components of the Militarized Compellent Threat, or MCT, dataset.

http://www.icb.umd.edu/dataviewer/?crisno=244 is the link to incident number 244, Caprivi Strip, 1971.

http://www.icb.umd.edu/dataviewer/?crisno=260 is the link to incident number 260, War in Angola, 1975.

http://www.icb.umd.edu/dataviewer/?crisno=291 is the link to incident number 291, Cassinga Incident, 1978.

http://www.icb.umd.edu/dataviewer/?crisno=297 is the link to incident number 297, Angola Invasion Scare, 1978.

http://www.icb.umd.edu/dataviewer/?crisno=302 is the link to incident number 302, Raid on SWAPO, 1979.

http://www.icb.umd.edu/dataviewer/?crisno=308 is the link to incident number 308, Raid on Angola, 1979.

http://www.icb.umd.edu/dataviewer/?crisno=313 is the link to incident number 313, Operation Smokeshell, 1980.

http://www.icb.umd.edu/dataviewer/?crisno=323 is the link to incident number 323, Mozambique Raid, 1981.

http://www.icb.umd.edu/dataviewer/?crisno=331 is the link to incident number 331, Operation Protea, 1981.

http://www.icb.umd.edu/dataviewer/?crisno=339 is the link to incident number 339, Lesotho Raid, 1982.

http://www.icb.umd.edu/dataviewer/?crisno=347 is the link to incident number 347, Operation Askari, 1983.

http://www.icb.umd.edu/dataviewer/?crisno=355 is the link to incident number 355, Raid on Botswana, 1985.

http://www.icb.umd.edu/dataviewer/?crisno=360 is the link to incident number 360, Raid on Lesotho, 1985.

http://www.icb.umd.edu/dataviewer/?crisno=365 is the link to incident number 365, Cross-Border Raid, 1985.

http://www.icb.umd.edu/dataviewer/?crisno=380 is the link to incident number 380, Angola, 1987.

http://www.icb.umd.edu/dataviewer/?crisno=120 is the link to incident number 120, Palestine PRT/Israel Independence, 1947.

http://www.icb.umd.edu/dataviewer/?crisno=128 is the link to incident number 128, Sinai Incursion, 1948.

http://www.icb.umd.edu/dataviewer/?crisno=134 is the link to incident number 134, Hula Drainage, 1951.

http://www.icb.umd.edu/dataviewer/?crisno=143 is the link to incident number 143, Qibya, 1953.

http://www.icb.umd.edu/dataviewer/?crisno=149 is the link to incident number 149, Gaza Raid/Czechoslovakia Arms, 1955.

http://www.icb.umd.edu/dataviewer/?crisno=152 is the link to incident number 152, Suez Nationalization War, 1956.

http://www.icb.umd.edu/dataviewer/?crisno=153 is the link to incident number 153, Qalqilya, 1956.

http://www.icb.umd.edu/dataviewer/?crisno=173 is the link to incident number 173, Rottem, 1960.

http://www.icb.umd.edu/dataviewer/?crisno=203 is the link to incident number 203, Jordan Waters, 1963.

http://www.icb.umd.edu/dataviewer/?crisno=220 is the link to incident number 220, El Samu, 1966.

http://www.icb.umd.edu/dataviewer/?crisno=222 is the link to incident number 222, Six Day War, 1967.

http://www.icb.umd.edu/dataviewer/?crisno=226 is the link to incident number 226, Karameh, 1968.

http://www.icb.umd.edu/dataviewer/?crisno=229 is the link to incident number 229, Beirut Airport, 1968.

http://www.icb.umd.edu/dataviewer/?crisno=232 is the link to incident number 232, War of Attrition, 1969.

http://www.icb.umd.edu/dataviewer/?crisno=238 is the link to incident number 238, Black September, 1970.

http://www.icb.umd.edu/dataviewer/?crisno=251 is the link to incident number 251, Libyan Plane, 1973.

http://www.icb.umd.edu/dataviewer/?crisno=253 is the link to incident number 253, Israel MBL, 1973.

http://www.icb.umd.edu/dataviewer/?crisno=255 is the link to incident number 255, October – Yom Kippur War, 1973.

http://www.icb.umd.edu/dataviewer/?crisno=270 is the link to incident number 270, Entebbe Raid, 1976.

http://www.icb.umd.edu/dataviewer/?crisno=275 is the link to incident number 275, Syria MBL, 1976.

http://www.icb.umd.edu/dataviewer/?crisno=324 is the link to incident number 324, Iraq Nuclear Reactor, 1981.

http://www.icb.umd.edu/dataviewer/?crisno=327 is the link to incident number 327, Al-Biqa Missiles I, 1981.

http://www.icb.umd.edu/dataviewer/?crisno=337 is the link to incident number 337, War in Lebanon, 1982.

http://www.icb.umd.edu/dataviewer/?crisno=357 is the link to incident number 357, Al-Biqa Missiles II, 1985.

http://www.icb.umd.edu/dataviewer/?crisno=409 is the link to incident number 409, Operation Accountability, 1993.

http://www.icb.umd.edu/dataviewer/?crisno=418 is the link to incident number 418, Operation Grapes of Wrath, 1996.

http://www.icb.umd.edu/dataviewer/?crisno=443 is the link to incident number 443, Haifa Suicide Bombing, 2003.

http://www.icb.umd.edu/dataviewer/?crisno=451 is the link to incident number 451, Israel – Lebanon War II, 2006.

http://www.icb.umd.edu/dataviewer/?crisno=118 is the link to incident number 118, Junagadh, 1947.

http://www.icb.umd.edu/dataviewer/?crisno=119 is the link to incident number 119, Kashmir I, 1947.

http://www.icb.umd.edu/dataviewer/?crisno=124 is the link to incident number 124, Hyderabad, 1948.

http://www.icb.umd.edu/dataviewer/?crisno=135 is the link to incident number 135, Punjab War Scare I, 1951.

http://www.icb.umd.edu/dataviewer/?crisno=151 is the link to incident number 151, Goa I, 1955.

http://www.icb.umd.edu/dataviewer/?crisno=171 is the link to incident number 171, China-India Border I, 1959.

http://www.icb.umd.edu/dataviewer/?crisno=190 is the link to incident number 190, Goa II, 1961.

http://www.icb.umd.edu/dataviewer/?crisno=194 is the link to incident number 194, China-India Border II, 1962.

http://www.icb.umd.edu/dataviewer/?crisno=214 is the link to incident number 214, Rann of Kutch, 1965.

http://www.icb.umd.edu/dataviewer/?crisno=216 is the link to incident number 216, Kashmir II, 1965.

http://www.icb.umd.edu/dataviewer/?crisno=242 is the link to incident number 242, Bangladesh, 1971.

http://www.icb.umd.edu/dataviewer/?crisno=372 is the link to incident number 372, Punjab War Scare II, 1987.

http://www.icb.umd.edu/dataviewer/?crisno=378 is the link to incident number 378, India Int. in Sri Lanka, 1987.

http://www.icb.umd.edu/dataviewer/?crisno=392 is the link to incident number 392, Kashmir III, 1990.

http://www.icb.umd.edu/dataviewer/?crisno=425 is the link to incident number 425, India-Pakistan Nuclear Tests, 1998.

http://www.icb.umd.edu/dataviewer/?crisno=431 is the link to incident number 431, Kashmir IV Kargil, 1999.

http://www.icb.umd.edu/dataviewer/?crisno=435 is the link to incident number 435, Indian Parliament Attack, 2001.

http://www.icb.umd.edu/dataviewer/?crisno=436 is the link to incident number 436, Kaluchak, 2002.

https://dataverse.harvard.edu/dataset.xhtml?persistentId=hdl:1902.1/17315 is the MCT dataset, which allows access to all 121 MCT used in this research.

https://omalley.nelsonmandela.org/omalley/index.php/site/q/03lv01538/04lv01600/05lv01638/06lv01639.htm. Accessed 3 January 2019.

https://www.ddialliance.org/sites/default/files/09905.pdf is the Correlates of War, or COW project.

https://www.iaea.org/about/history/atoms-for-peace-speech

https://www.sahistory.org.za/archive/extract-speech-made-koffiefontein-11-august-1967. Accessed 3 January 2019.

https://www.un.org/disarmament/wmd/nuclear/npt/

https://www.youtube.com/watch?v=xL3u2nZnWWM speech given at Columbia University by John Lewis Gaddis on nuclear deterrence, August 12, 2010.

Huntington, Samuel P. *The Clash of Civilizations and the Remaking of World Order*. New York. Simon & Schuster. 1996.

Huth, Paul and Bruce Russett. *What Makes Deterrence Work? Cases from 1900-1980*. World Politics. 1984. Vol. 36(4). Pp. 496-526.

Huth, Paul K. *Deterrence and International Conflict: Empirical Findings and Theoretical Debates*. Annual Review of Political Science, 1999, 2:25-48.

Huth, Paul K. *Extended Deterrence and the Prevention of War*. New Haven. Yale University Press. 1988.

Ikle, Fred C. *Annihilation from Within: The Ultimate Threat to Nations*. New York. Columbia University Press. 2006.

Jervis, Robert et al. *Psychology and Deterrence*. Baltimore. The Johns Hopkins University Press. 1985.

Jervis, Robert. *The Meaning of the Nuclear Revolution*. Ithaca. Cornell University Press.1989.

Johnson, Jeannie L. ed. et al. *Strategic Culture and Weapons of Mass Destruction: Culturally Based Insights into Comparative National Security Policymaking*. New York. MacMillan. 2009.

Jo, Dong-Joon and Gartzke, Erik. *Determinants of Nuclear Weapons Proliferation*. Journal of Conflict Resolution. Vol. 51 (2007). Pp. 167-194.

Kapstein, Ethan B. and Mastanduno, Michael eds. *Unipolar Politics: Realism and State Strategies After the Cold War*. New York. Columbia University Press. 1999.

Kavka, Gregory S. *Moral Paradoxes of Nuclear Deterrence*. New York. Cambridge University Press. 1987.

Kenny, Anthony. *The Logic of Deterrence*. London. Firethorn Press. 1985.

Keohane, Robert O. *After Hegemony*. Princeton. Princeton University Press.1984

King, Gary, Keohane, Robert O. , & Verba, Sidney (1994). *Designing Social Inquiry: Scientific Inference in Qualitative Research*. Princeton, New Jersey: Princeton University Press.

Kort, Michael. *The Columbia Guide to the Cold War*. 1998.

Kugler, Jacek and Zagare, Frank C. Eds. *Exploring the Stability of Deterrence*. Boulder. The University of Denver. 1987.

Kydd, Andrew. *Arms Races and Arms Control: Modeling the Hawk Perspective.* American Journal of Political Science. Vol. 44. No. 2. 2000. 228-244

LaFeber, Walter. *America, Russia, and the Cold War, 1945-2002*. Ninth Edition. New York. McGraw-Hill. 2004.

Lemke, Douglas, & Reed, William. (2001). *The Relevance of Politically Relevant Dyads*. Journal of Conflict Resolution*, 45* (1), 126-144.

Levy, Jack S. *Case Studies: Types, Designs, and Logics of Inference.* Conflict Management and Peace Sciences. 25:1. 2008.

Lilienthal, David E. *Change, Hope, and the Bomb*. Princeton. Princeton University Press. 1963.

Liu, Xuecheng. *The Sino-Indian Border Dispute and Sino-Indian Relations*. UP of America. Lanham, Maryland. 1994.

Long, J. Scott. (1997). *Regression Models for Categorical and Limited Dependent Variables (Advanced Quantitative Techniques in the Social Sciences)*. Thousand Oaks, CA: Sage Publications.

Luttwak, Edward N. *Strategy: The Logic of War and Peace*. Cambridge. Belknap Press. 1987.

Lu, Chih-Hung. *A Border Problem Between China and India*. University Microfilms International. Ann Arbor, Michigan. 1972.

MacLean, Douglas ed. *The Security Gamble: Deterrence Dilemmas in the Nuclear Age*. New Jersey. Rowman & Allanheld. 1984.

Mahoney, James. *The Logic of Process Tracing Tests in the Social Sciences.* Sociological Methods & Research. 41:4. 2012.

Mahoney, James, & Goertz, Gary. (2004). *The Possibility Principle: Choosing Negative Cases*. American Political Science Review*, 98*(4). Pp. 653-699.

Mahoney, James, & Goertz, Gary. (2006). *A Tale of Two Cultures: Contrasting Quantitative and Qualitative Research*. Political Analysis. *4*(3). Pp. 227-249.

Mansfield Edward D. (ed.) and Pollins, Brian M. (ed.) *Economic Interdependence and International Conflict: New Perspectives on an Enduring Debate*. Ann Arbor. University of Michigan Press. 2003.

Martin, Lisa and Simmons, Beth A. *Theories and Empirical Studies of International Institutions*. International Organization. Vol. 52. No. 4. Pp. 729-757.

Masse, Todd. *Nuclear Terrorism: Conventionalists, Skeptics, and the Margin of Safety*. 2009.

Matlock, Jack E. "The End of the Cold War". *Harvard International Review*. Vol. 23. 2001.

McLean, Scilla ed. *How Nuclear Weapons Decisions Are Made*. London. The MacMillan Press. 1986. (This text should help me understand what Stalin thought from 1945-1949 and then again from 1950-1953 regarding nuclear weapons)

Moller, Bjorn. *Common Security and Non-offensive Defense: A Neorealist Perspective*. London. UCL Press. 1992.

Moller, Bjorn and Wiberg, Hakan Eds. Non-offensive Defense for the Twenty-First Century. Oxford. Westview Press. 1994.

Moore, John Norton ed. *Deception and Deterrence in "Wars of National Liberation", State-Sponsored Terrorism and Other Forms of Secret Warfare*. Durham. Carolina Academic Press. 1997.

Morgenthau, Hans J. *Politics among Nations: The Struggle for Power and Peace*. 4th Ed. New York. Alfred A. Knopf. 1967.

Morrow, James D. *Capabilities, Uncertainty, & Resolve: A limited information model of crisis bargaining*. American Journal of Political Science. 1989. Vol. 33(4). Pp. 941-972.

Mueller, John. *Atomic Obsession: Nuclear Alarmism from Hiroshima to Al-Qaeda.* 2009.

Muthoo, Abhinay. *A Non-Technical Introduction to Bargaining Theory*. World Economics. Vol. 1. No. 2. April-June 2000. 146

Myerson, Roger B. *On the Value of Game Theory in Social Science*. Rationality and Society. 1992. Vol. 4(1). Pp. 62-73.

Naroll, Raoul et al. *Military Deterrence in History: A Pilot Cross-Historical Survey*. Albany. State University of New York Press. 1974.

Nye, Joseph S. Jr. *Understanding International Conflicts: An Introduction to Theory and History*. Longman. 2003.

Oakes, Amy *Diversionary War: Domestic Unrest and International Conflict*. Palo Alto. Stanford University Press. 2012.

Osborn III, George K. *Sino-Indian Border Conflicts: Historical Background and Recent Developments*. University Microfilms International. Ann Arbor, Michigan. 1983.

Pape, Robert A. *Bombing to Win: Air Power and Coercion in War*. Ithaca. Cornell University Press. 1996.

Parker, Richard B. *The Six-Day War: A Retrospective*. UP of Florida. 1996.

Paterson, Thomas G. *Soviet-American Confrontation: Postwar Reconstruction and the Origins of the Cold War*. Baltimore. The Johns Hopkins University Press. 1973.

Paul, T. V. et al Ed. *Complex Deterrence: Strategy in the Global Age*. Chicago. University of Chicago Press. 2009.

Payne, Keith B. *The Fallacies of Cold War Deterrence and a New Direction*. Lexington. The University Press of Kentucky. 2001.

Plato. *The Republic*. Cambridge. Cambridge University Press. 2000.

Polack, Peter. *The Last Hot Battle of the Cold War: South Africa vs. Cuba in the Angolan Civil War*. Casemate. 2013.

Powell, Robert. *Nuclear Deterrence Theory: The Search for Credibility*. Cambridge. Cambridge University Press. 1990.

Powell, Robert. *War as a Commitment Problem*. International Organization. 2006. Vol. 60(1). Pp. 169-203.

Powell, Robert. *Bargaining Theory and International Conflict*. Annual Review of Political Science. 2002. 5: 1-30

Powell, Robert. *In the Shadow of Power: States and Strategies in International Politics*. Princeton UP.

Powell, Robert. *Stability and the Distribution of Power*. World Politics. Vol. 48. No. 2. 1996. 239-267.

Questor, George H. *The Future of Nuclear Deterrence*. Toronto. Lexington Books. 1986. (Chapter 3 on the "newness" of deterrence; Chapter 6 on the tension between deterrence and morality; Chapter 9 on Soviet Military Doctrine).

Reed, William. *Information, Power, and War*. American Political Science Review. 2003. Vol. 97(4). Pp. 633-641.

Reed, William, Clark, David H. Nordstrom, Timothy, and Hwang, Wonjae. *War, Power, and Bargaining*. The Journal of Politics. Vol. 70. Issue 4. October 2008. 1203-1216.

Rumble, Greville. *The Politics of Nuclear Defence – A Comprehensive Introduction*. Cambridge. Polity Press. 1985.

Sagan, Scott and Kenneth Waltz. *The Spread of Nuclear Weapons: A Debate*. New York. Norton. 1995.

Sagan, Scott. *Why Do States Build Nuclear Weapons: Three Models in Search of a Bomb*. International Security. 1996. Vol. 21(3).

Samaan, Jean-Loup. *From War to Deterrence? Israel-Hezbollah Conflict since 2006*. Strategic Studies Institute. Carlisle, Pennsylvania. 2014.

Sample, Susan G. *Arms Races and Dispute Escalation: Resolving the Debate*. Journal of Peace Research. Vol. 34. No. 1. 1977. 7-22

Sandhu, Bhim Singh. *Sino-Indian War of 1962: A Framework and Case Study of International Conflict Resolution*. University Microfilms International. Ann Arbor, Michigan. 1972.

Schelling, Thomas C. *The Strategy of Conflict*. Cambridge. Harvard University Press. 1960.

Schiff, Ze'ev and Ya'ari, Ehud. *Israel's Lebanon War*. Simon and Schuster. New York. 1984.

Schultz, Kenneth A. *Democracy & Coercive Diplomacy*. Cambridge. Cambridge University Press. 2001.

Schultz, Kenneth A. *Domestic Opposition and Signaling in International Crises*. The American Political Science Review. *92*(4), 829-844. 1998.

Schultz, Kenneth A. *Looking for Audience Costs*. The Journal of Conflict Resolution. *45*(1), 32-60. 2001.

Schultz, Kenneth A. *Domestic Opposition and Signaling in International Crises*. The American Political Science Review. Vol. 92. No. 4. 829-844. 1988.

Schweller, Randall L. *Unanswered Threats: Political Constraints on the Balance of Power*. Princeton. Princeton University Press. 2006.

Sechser, Todd S. *Militarized Compellent Threats, 1918-2001*. Conflict Management and Peace Science. Vol. 28. No. 4. Pp. 377-401. 2011.

Sechser, Todd S. and Fuhrmann, Matthew. *Crisis Bargaining and Nuclear Blackmail*. International Organization. Vol. 67. Pp. 173-195. 2013.

Shepherd, William G. *The Ultimate Deterrent: Foundations of U.S.-USSR Security under Stable Competition*. New York. Praeger. 1986.

Sidhu, Waheguru Pal Singh and Yuan, Jing-dong. *China and India: Cooperation or Conflict?* Lynne Rienner Publishers. Boulder, Colorado. 2003.

Smith, Derek D. *Deterring America: Rogue States and the Proliferation of Weapons of Mass Destruction*. Cambridge. Cambridge University Press. 2006.

Smith, Derek D. *Deterrence and Counter proliferation in an Age of Weapons of Mass Destruction*. Security Studies. June 2010

Smith, Theresa C. *Trojan Peace: Some Deterrence Propositions Tested*. Denver. University of Denver. 1982.

Snyder, Glenn H. *Deterrence and Defense: Toward a Theory of National Security*. Princeton. Princeton University Press. 1961.

Sobel, Lester A. ed. *Israel & the Arabs: The October 1973 War*. Facts on File. New York. 1974.

Speech by South African President F.W. de Klerk to a Joint Session of Parliament on Accession in the Non-Proliferation Treaty. History and Public Policy Program Digital Archive. Archives.un.org. Contributed by Jo-Ansie van Wyk. Accessed 1 February 2019.

Speed, Roger. *Strategic Deterrence in the 1980s*. Stanford. Hoover Institution Press. 1979.

Steinbruner, John D. *Principles of Global Security*. Washington D.C. Brookings Institution Press. 2000. (Chapter 2 on managing deterrent operations)

Stern, Paul C. et al Eds. *Perspectives on Deterrence*. New York. Oxford University Press. 1989.

Strachey, John. *On the Prevention of War*. New York. St. Martin's Press. 1962.

Sultan, Cathy. *Tragedy in South Lebanon: The Israeli-Hezbollah War of 2006*. Scarletta Press. Minneapolis. 2008.

Sun Tzu. *The Art of War*. Boston. Shambhala Publications Inc. 1988.

Suri, Jeremi. *Explaining the End of the Cold War: A New Historical Consensus?* Journal of Cold War Studies - Volume 4, Number 4, Fall 2002, pp. 60-92.

Thompson, William. *Polarity, the Long Cycle, and Global Power Warfare*. Journal of Conflict Resolution. Vol. 30(4). Pp. 587-615. 1986.

Trachtenberg, Marc Ed. *The Development of American Strategic Thought: Writings on Strategy, 1961-1969, and Retrospectives*. New York. Garland Publishing, Inc. 1988.

Trachtenberg, Marc. *The Marshall Plan as Tragedy*. Journal of Cold War Studies. 7(1): 135-140. 2005.

Truman Library. *Draft of the State of the Union Message. 29 December 1949*. Accessed 14 September 2012.

Truman Library. *Fifth Draft of Speech to Lay the Cornerstone at the United Nations Headquarters in New York. 21 October 1949*. Accessed 14 September 2012.

Truman Library. *President's Secretary's Files. Press Conferences*. Boxes 54-1, 52-5, 53-1. Accessed 14 September 2012.

Truman Library. *President Truman's Confidential Files*. Accessed 14 September 2012.

Truman Library. *National Security Council Files (1947-1953)*. Accessed 14 September 2012.

Truman Library. *Psychological Strategy Board. Box 9. Folder 091 Russia #1. 3 of 3*. Accessed 14 September 2012.

Truman Library. *Public Papers of the Presidents*. Accessed 14 September 2012.

Tucker, Robert W. *The Nuclear Debate: Deterrence and the Lapse of Faith*. New York. Holmes & Meier. 1985.

United Nations Institute for Disarmament Research. *Non-offensive Defense: A Global Perspective*. New York. Taylor & Francis. 1990.

Von Clausewitz, Carl. *On War*. Princeton. Princeton University Press. 1976.

Walker, J. Samuel. *Historians and Cold War Origins: The New Consensus*, in Gerald K. Haines and J. Samuel Walker, ed. American Foreign Relations: A Historiographical Review. 1981.

Wallace, Michael D. *Arms Races and Escalation: Some New Evidence. The Journal of Conflict Resolution*. Vol. 23. No. 1. Pp. 3-16. 1979.

Walt, Lewis W. *America Faces Defeat*. Woodbridge. Apollo Books. 1972.

Walt, Stephen M. *Rigor or Rigor Mortis? Rational Choice and Security Studies*. International Security. Vol. 23(4). Pp. 5-48. 1999.

Walt, Stephen M. *The Origins of Alliances*. Ithaca. Cornell University Press. 1987.

Waltz, Kenneth N. *Realism and International Politics*. New York. Routledge. 2008.

Waltz, Kenneth N. *The Spread of Nuclear Weapons: More May be Better*. London. International Institute for Strategic Studies. 1981.

Waltz, Kenneth N. *Man, the State, and War: A Theoretical Analysis*. New York. Columbia University Press. 1959.

Waltz, Kenneth N. *Nuclear Myths and Political Realities*. The American Political Science Review. Vol. 84. No. 3. 731-745. 1990.

Waltz, Kenneth N. *Thoughts about Virtual Nuclear Arsenals*. The Washington Quarterly. 20:3. 153-161.

Weigert, Stephen L. *Angola: A Modern Military History, 1962-2002*. Palgrave MacMillan. 2011.

Werner, Susan. *Choosing Demands Strategically: The Distribution of Power, the Distribution of Benefits, and the Risk of Conflict*. Journal of Conflict Resolution. Vol. 43. Pp. 705-723. 1999.

Westad, Odd Arne. *The New International History of the Cold War: Three (Possible) Paradigms*. Diplomatic History. Vol. 24. 2000.

Westad, Odd Arne, ed. *Reviewing the Cold War: Approaches, Interpretations, and Theory*. 107th Nobel Symposium. 1998.

White, Timothy J. *Cold War Historiography: New Evidence Behind Traditional Typographies.* International Social Science Review. 2000.

Williams, William Appleman. *The Tragedy of American Diplomacy* (1958) (1988 edition).

www.archivalplatform.org/registry/entry/archival_collections_of_south_african_heads_of_state_ part_two/ accessed 8 Jan 2019.

www.nuclearweaponarchive.org/india/indiaorigin.html accessed 16 Mar 2018

www.nti.org/learn/countries/india/nuclear accessed 16 Mar 2018.

Yarger, Harry R. *Strategy and the National Security Professional: Strategic Thinking and Strategy Formulation in the 21st Century*. New York. Praeger. 2008.

Zagare, Frank C. *The Dynamics of Deterrence*. Chicago. University of Chicago Press. 1987.

Appendix A - International Nuclear Regimes:
Nuclear Control and Management

The U.S. had a nuclear monopoly from 1945-1949 and attempted to control every aspect of nuclear technology for as long as possible. During that time, several management tools were developed to determine how the U.S. would control and manage the nuclear technology it had jointly developed with the UK and Canada. In the Atomic Energy Act of 1946, the U.S. stated that nuclear power management would be civilian led, rather than under military control. To that end, the U.S. established the U.S. Atomic Energy Commission (AEC).[432] The AEC controlled all restricted data concerning the manufacture or utilization of atomic weapons, the production of fissionable material, and the use of fissionable material in the production of power, and excluded allies from receiving any such information or data. This decision surprised allies, because it was contrary to both the 1943 Quebec Agreement and the 1944 Hyde Park Agreement, which stated that the U.S. would share information on nuclear technology with the UK and Canada. These two agreements were not made public for over ten years, when Congress modified the Atomic Energy Act in 1958 to allow the U.S. to share nuclear technology with the UK.[433]

After the Soviet Union developed the atomic bomb in 1949, there was a frenzy of work revolving around creating more powerful weapons to ensure the U.S. maintained a strategic advantage. Edward Teller finalized work on the hydrogen bomb, the Soviets followed in hot pursuit, and both sides began to amass sufficient nuclear weapon devices to destroy the majority of the populated world. The Cold War began. It was unclear which side of this bipolar world had a strategic advantage, if any, until the strategy of mutually assured destruction was

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[432] https://science.energy.gov/~/media/bes/pdf/Atomic_Energy_Act_of_1946.pdf accessed 19 September 2017.

[433] Ibid.

developed. Mutually assured destruction acknowledged that regardless of who fired first, both the U.S. and the Soviet Union had sufficient second strike capability to destroy the other, leaving both sides of the bipolar world annihilated, thereby removing the rationality of starting a nuclear conflict. An impasse ensued.

But there was another side to the nuclear story: energy. In December 1953, President Eisenhower addressed the UN in what was termed the *Atoms for Peace* speech. The *Atoms for Peace* program became a tipping point for international focus on peaceful uses of atomic energy. Some argue that *Atoms for Peace* was a carefully crafted narrative to focus on the hopes of a nuclear future while at the same time convince NATO allies that they needed to go along with the shift from conventional to nuclear forces regarding European defense from the Soviet threat, but on the surface it seemed to provide hope to a frightened world that atomic power could be used for positive means. In that speech, President Eisenhower highlighted his desire to use nuclear power for positive means by stating that he wanted to "encourage world-wide investigation into the most effective peacetime uses of fissionable material, and with the certainty that the investigators had all the material needed for the conducting of all experiments that were appropriate."[434]

The program made available nuclear equipment and technical information to all states for development of schools, hospitals, and research institutions throughout the world. In that speech, President Eisenhower highlighted his desire to use nuclear power for positive means. He said "Who can doubt that, if the entire body of the world's scientists and engineers had adequate amounts of fissionable material with which to test and develop their ideas, this capability would

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[434] https://www.iaea.org/about/history/atoms-for-peace-speech accessed 20 September 2017

rapidly be transformed into universal, efficient and economic usage?"[435] The *Atoms for Peace*

program opened up nuclear research to civilians and countries that had not previously possessed

nuclear technology and eventually exported over 25 tons of HEU to 30 countries, mostly to fuel

research reactors. The Soviet Union also exported over 11 tons under a similar program.[436]

Under the *Atoms for Peace* program, American Machine and Foundry built the first nuclear

reactors in Iran, Israel, and Pakistan.[437]

     In that speech, President Eisenhower set the conditions to distribute the means held by

the two nuclear powers, the U.S. and the Soviet Union to develop peaceful nuclear energy by

"make(ing) joint contributions from their stockpiles of normal uranium and fissionable materials

to an international atomic energy agency…under the aegis of the United Nations."[438] Thus the

idea of the IAEA was formed, an "atomic energy agency (that) could be made responsible for the

impounding, storage and protection of the contributed fissionable and other materials."[439]

Eisenhower continued to frame the nascent international atomic energy agency by stating that:

     "The more important responsibility of this atomic energy agency would be to devise

methods whereby this fissionable material would be allocated to serve the peaceful pursuits of

mankind. Experts would be mobilized to apply atomic energy to the needs of agriculture,

medicine and other peaceful activities. A special purpose would be to provide abundant

electrical energy in the power-starved areas of the world."[440]

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[435] Ibid.

[436] Ibid.

[437] Ibid. AMF is better known for making bowling alley supplies.

[438] Ibid.

[439] Ibid.

[440] Ibid.

But President Eisenhower also urged that this international organization guard against development of nuclear weapons capabilities in non-nuclear countries. Unfortunately, there were 13 years between the *Atoms for Peace* speech and the creation of the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) and during that time, several states began to develop NWP, including France and China (for two other examples, see case studies about South Africa and Israel).[441] For many policymakers, attempting to regulate which states would develop a NWP became a most troublesome aspect of global security.

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[441] The UK had already developed nuclear weapons prior to the *Atoms for Peace* speech.

Fissile Material: The Fuel Cycle

The nuclear fuel cycle includes developing uranium mining, fuel fabrication, conversion, enrichment, reprocessing, and radioactive waste management. At the time of this research, uranium is the only fuel supplied for nuclear reactors, however thorium can also be used in a certain type of reactor that allows it to capture a neutron while fueling the reactor to become fissile uranium.[442] As was previously mentioned, weapons-grade nuclear material is any fissionable nuclear material, primarily plutonium or uranium, which is pure enough to be used in nuclear weapons. Other elements such as neptunium-237, americium-241, or thorium-229 can theoretically be used to make nuclear weapons, but it is not clear that this has ever been implemented.

The uranium story. Uranium 238 is found in the soil, rock formations, and in seawater worldwide. Uranium is also a by-product of coal ash; over a two-decade period in the U.S., approximately 1,100 tons of uranium was recovered from that source.[443] The state with the greatest abundance of uranium resources is Australia. At the current commercial monetary value, uranium is not cost effective to extract from seawater or most rock formations, but it is a naturally occurring element. But fissile materials that can be directly used in a nuclear weapon do not occur in nature in sufficient quantity for weapon use, they must therefore be produced through complex physical and chemical processes. For example, uranium-235 makes up only

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[442] http://www.world-nuclear.org/information-library/nuclear-fuel-cycle/uranium-resources/supply-of-uranium.aspx accessed on 7 September 2017.

[443] Ibid.

.7% of all natural uranium, but to be viable for weapon use, uranium-238 has to be enriched to the point it is composed of at least 20% uranium-235.[444]

In terms of refined uranium, there are currently three international fuel reserves governed by the International Atomic Energy Agency (IAEA) that hold low-enriched uranium (LEU). The Russian LEU reserve has approximately 123 tons, the IAEA LEU bank in Kazakhstan has approximately 90 tons, and the American assured fuel supply has approximately 230 tons of LEU available to any IAEA member state in good standing at current market rates.[445] The global stockpile of highly enriched uranium (HEU) at the end of 2014 was estimated to be about 1,370 tons (plus or minus 125 tons), enough for more than 76,000 fission implosion weapons. The vast majority of this material is held by the nuclear weapon states. The uncertainty of the estimate is due to a lack of public information about Russian HEU production and consumption.[446] Other than the U.S., France, and the UK, no other state releases public information about their HEU holdings, so official estimates could be low. The estimated percentage of uncertainty for this data is from 20% to 40%. All the HEU in non-weapon states is supposed to be declared and monitored by the IAEA.[447]

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[444] Global Fissile Material Report 2015: Nuclear Weapon and Fissile Material Stockpiles and Production. International Panel on Fissile Materials. 2015. Page 44.

[445] http://www.world-nuclear.org/information-library/nuclear-fuel-cycle/uranium-resources/supply-of-uranium.aspx accessed on 7 September 2017.

[446] Global Fissile Material Report 2015: Nuclear Weapon and Fissile Material Stockpiles and Production. International Panel on Fissile Materials. 2015. Page 2.

[447] Ibid. Page 12. An estimate of on-hand HEU for China is 18 tons, 26 tons for France, 3.2 tons for India, .3 tons for Israel, 3.1 tons for Pakistan, 19.8 tons for the UK, 650 tons for Russia, 600 tons for the U.S., and 15 tons for the non-weapon states.

The non-nuclear weapon states account for an estimated 15 tons of HEU, almost all of which was provided to them as research reactor fuel by the weapon states.[448] As of 2015, uranium enrichment plants exist in Argentina, Brazil, China, France, Germany, India, Iran, Japan, Netherlands, North Korea, Pakistan, Russia, the UK, and the U.S.[449] These plants are incredibly expensive to establish and successful ones seem to be state-owned or state-controlled. In most cases, plants run by huge international corporations have encountered financial difficulties.[450]

The Plutonium story. The IAEA defines all plutonium as a "direct use material", meaning it can be used for the manufacture of nuclear explosives. All the newest nuclear reactors use plutonium in their operation and produce plutonium 239 as a by-product. Plutonium is not a naturally occurring element, but rather an artificial isotope produced in nuclear reactors after uranium-238 absorbs a neutron creating uranium-239, which subsequently decays through neptunium-239 to plutonium-239. The longer plutonium-239 remains in a nuclear reactor, the greater the likelihood that it will absorb a second, third, or fourth neutron and become plutonium-240, 241, or 242. According to a 1997 U.S. Department of Energy report, any combination of plutonium isotopes can be used to make a nuclear weapon.[451]

There are two ways to harvest plutonium, both requiring a nuclear reactor. Reactor-grade plutonium is recovered as a by-product from the spent fuel in a nuclear reactor, whereas

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[448] Ibid. Page 3.

[449] Ibid. Page 19. The 11 countries are Argentina, Brazil, China, France, Germany, Iran, Japan, Netherlands, Russia, the UK, and the U.S.

[450] Ibid. Page 10. HEU production start and end: U.S. 1944-1992, Russia 1949-, UK 1953-1963, China 1964-1989, France 1967-1996, South Africa 1978-1990, Pakistan 1983-, India 1992-, Israel and North Korea are unknown.

[451] Ibid. Page 46-7.

irradiating uranium fuel in a plutonium production reactor makes weapons-grade plutonium. In terms of energy production, plutonium is superior to uranium, as one kilogram of plutonium can produce sufficient heat to generate nearly eight million kilowatt-hours of electricity.[452]

There is approximately 1,300 tons of plutonium in the world today, with around 900 tons being used as fuel for NPPs and approximately 400 tons extracted in storage facilities. Of that amount, approximately 123 tons reside at the UK plutonium stockpile; 80 tons are at the stockpile in France, and nearly 32 tons in a storage facility in Russia.[453] According to the world nuclear association, it takes about ten kilograms of P-239 to make a bomb.[454] Pakistan has an estimated 190 kg of plutonium, North Korea approximately 30 kg of plutonium.[455] As of 2015, reprocessing plants to separate plutonium from uranium are located in China, France, India, Israel, Japan, North Korea, Pakistan, Russia, the UK, and the U.S.[456]

Fissile Material: Access to and Accountability of Fissile Material

Access to fissile material in sufficient quality and quantity to plausibly pursue a NWP can be achieved in four basic ways, listed here in descending order of likelihood. The most likely is that the state possesses uranium deposits, can extract U-238 from them, has built operational nuclear power plant reactors, and is able to create and accumulate sufficient U-235 and plutonium as a by-product of nuclear energy program. This would require a state to possess

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[452] http://www.world-nuclear.org/information-library/nuclear-fuel-cycle/fuel-recycling/plutonium.aspx accessed on 13 September 2017.

[453] Ibid.

[454] Ibid. However, the International Panel on fissile materials in their 2015 Global Report estimates that number to be between 3 and 4 kg of plutonium.

[455] Global Fissile Material Report 2015: Nuclear Weapon and Fissile Material Stockpiles and Production. International Panel on Fissile Materials. 2015. Page 27.

[456] Ibid. Page 48-9.

operational nuclear power plants and a top 20% GDP to be able to afford not only a robust

conventional military defense, but also the billions of dollars required to construct and secure

nuclear weapon making facilities.[457] The second way is to build or have help building nuclear

power plants from legitimate IAEA sources, purchase U-238 to operate them, and then

clandestinely store U-235 and plutonium from them by evading IAEA fissile material detectors

long enough to have amassed sufficient weaponized fissile material as to have the option to

weaponize. The third way is to become a sponsor state to a nuclear power outside the NPT

regime, such as India, Pakistan, or Israel, and get resources from them. Finally, a state could buy

or steal fissile material of sufficient quality and in sufficient quantities to have the option to

weaponize. It is the option to weaponize that makes a state near nuclear, not the intent to do so

or any physical manifestation of a NWP.

As if the loopholes in the *Atoms for Peace* and NPT weren't enough, it is well known that

after the collapse of the Soviet Union, thousands of radioactive sources suitable for use in a dirty

bomb were lost, abandoned, or stolen.[458] There have been several cases of attempted illicit sales

of such fissile materials over the years. While legislative acts within the U.S. such as the 2006

U.S. dirty bomb bill, the Yucca Flats proposal, and the Nunn-Lugar act have attempted to

prevent access to such materials, in the present day, the U.S. Nuclear Regulatory Commission

has estimated that within the U.S. on average one radioactive source suitable for use in a dirty

bomb is lost, abandoned, or stolen every day. Within the EU, the annual estimate is 70 sources

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[457] Top 20% GDP is an estimate, based on costs to build nuclear power plants, uranium enrichment facilities, and the like, which is clearly far outside the available resources of the majority of the world's countries. Another case such as North Korea, or possibly Pakistan, where a state has chosen to forego state services to pool resources into weapon making facilities, is possible.

[458] Burgess 2003, Van Tuyle and Mullen 2003, Sohier and Hardeman 2006.

lost, abandoned, or stolen per year.[459] In addition, security and conditions at storage sites has

been lax. In just one example, the U.S. has 4.5 tons of plutonium stored at the Waste Isolation

Pilot Plant (WIPP) in New Mexico, which was shut down in 2014 after a radiation waste drum

accident attributed to systemic failures of procedures, lack of hazard analysis, poor operator

training, and inadequate oversight and management.[460] 4.5 tons of plutonium is enough material

to produce the bang for over 5000 nuclear weapons. Finally, Uranium-235 and Uranium-238 are

virtually identical chemically and differ in weight by only 1%, making it possible to substitute U-

238 for U-235 during inspection, detection, and transference of fissile material to IAEA control.

Nuclear Weapons 101

A few short paragraphs on how nuclear weapons are made provide both perspective on

the difficulty of this act and the reason any state would want to pursue a NWP. First, decades of

nuclear weapon design, development, and testing has allowed for a many-fold decrease in

warhead size while enabling large increases in destructive power.[461] Nuclear weapons are no

longer relegated to ICBMs in silos, as was the case in the Cold War, the primary means of

delivery remains sub-launched missile, as current air defense capability will not allow a bomb-

laden aircraft to reach its target. Depending on the air defense array of the target state, countries

may use aircraft, land-based ballistic missiles, or even trucks, but will probably continue to use

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[459] Brown, Chad. Transcendental Terrorism and Dirty Bombs: Radiological Weapons Threat Revisited. Occasional paper: Center for Strategy and Technology. 54:24-27. Feb 2006. Also see Ferguson et al. 2003, Zimmerman and Loeb 2004.

[460] Global Fissile Material Report 2015: Nuclear Weapon and Fissile Material Stockpiles and Production. International Panel on Fissile Materials. 2015. Page 26.

[461] Ibid. Page 4.

sea-based cruise missiles as the primary means of delivery.[462] It is estimated that the global

fissile material stockpile could produce 200,000 simple implosion type weapons, each exceeding

the explosive yield of the bombs used at Hiroshima or Nagasaki.[463] On the civilian side, enough

plutonium has been separated to make a similarly large number of weapons. HEU is used in

civilian reactor fuel in more than 100 locations.[464] In modern nuclear weapons, the yield of the

fission explosion is typically boosted by a factor of ten by introducing a mixed gas of two heavy

isotopes of hydrogen, deuterium and tritium into a hollow shell just before the device is

imploded.[465]

Nuclear weapons make use of the "strong nuclear force" which holds positively charged

particles (protons) together in an atom's nucleus. Though it only acts over very small distances,

the "strong nuclear force" is like a magnet about 10 to the 38th power times stronger than gravity

(a hundred trillion, trillion, trillion times stronger). There are two types of nuclear weapons, and

they make use of the strong nuclear force by either splitting very large atoms apart (nuclear

fission in an atomic bomb) or by squeezing very small atoms together (nuclear fission in a

hydrogen (or thermonuclear) bomb). Both processes release vast amounts of energy.[466] Fission

bombs require uranium and plutonium, while fusion bombs require deuterium to make tritium.

Amassing weapons-grade uranium is not easy, as it typically requires separating U-235 from U-

238, which needs a great deal of energy to accomplish. Once one amasses enough U-235,

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[462] Ibid. Page 8. In 2015, the global stockpile of nuclear weapons was estimated at over 15,800 weapons, with the
U.S. and Russia together holding about 14,700 of these weapons and the remaining 7 nuclear states holding a
combined total of about 1,100 weapons.

[463] Ibid. Page 34-5.

[464] Ibid. Page 1.

[465] Ibid. Page 42.

[466] Rathi, Akshat. Quartz Media. 7 Jan 2016 at https://qz.com/588519 accessed 20 September 2017.

creating critical mass is a relatively easy process. Fission weapons, however, require intense

heat and pressure. This is typically generated by a small fusion bomb ignition, which then

causes the fission bomb to explode with force a thousand times more powerful than a fusion

bomb.[467]

Nuclear weapons are limited in size and yield, not only based on the type, quality, and

amount of fissile material used, but also the means of delivery. Smaller amounts of less pure

fissile material may require a larger means of deliver than a traditional ICBM, and may produce

a smaller yield. Many would argue that the employment of a nuclear weapon of this type is not

worth the cost in reparation, world opinion, and difficulty of implementation, but bargaining

theory suggests that every state would prefer to have multiple levels of response to contend with

a diverse array of security threats. As such, the yield may be purposefully kept small and the

means of delivery diverse. Thus, the idea of the dirty bomb, sometimes called a radiological

dispersal device, or RDD, was born. RDD can be coupled with conventional explosives to cause

mass casualties and deny large areas, such as an urban center, port facility, or seat of power, to

organic life forms for an extended period of time. At the time of this research, there has never

been a successful use of a dirty bomb, however, this research is only concerned with the ability

of a state to create such a device and use it as a tool in crisis bargaining, not the actual creation of

the device.

The remainder of this chapter lists seven potential case studies that seek to describe the

conditions under which specific states became near nuclear, with the goal of explaining the

conditions under which any state could become near nuclear. Further examination of each case

study would examine whether possessing near nuclear status gains state level bargaining

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[467] Ibid.

advantage in a variety of ways, to include United Nations General Assembly voting, World Bank loans, settlement of international disputes, and tourism (which may amount to billions of dollars of additional revenue annually as well as an increased perception of state security).

Appendix B - International Nuclear Regimes:
Proliferation and the Non-Proliferation Treaty

In 2004 the director of the IAEA, Mohamed El Baradei, said that 35 to 40 states could have the knowledge to develop nuclear weapons.[468] This was partially due to technology transfer during the *Atoms for Peace* years, but also due to assistance with both nuclear technology and fissile materials from sponsor states such as Pakistan. But Pakistan is not the only state that transferred both technology and fissile materials. In 2006, the U.S., under President Bush, agreed to transfer nuclear material to India, despite its status outside the NPT, and in 2008, India was granted a waiver to accept nuclear material by the Nuclear Suppliers Group, a subunit of the IAEA. In 2011, Australian Prime Minister Gillard allowed exports of uranium to India, culminating in a 2014 uranium deal between Prime Minister Abbott and Indian Prime Minister Modi. Because India is outside the strictures of the NPT, it could transfer or sell these nuclear materials to any state.[469] By 2010, China had reportedly signed a civil nuclear agreement with Pakistan to supply nuclear materials and technology. According to a report by the U.S. Department of Defense in 2001, China provided Pakistan with nuclear materials and has given critical technological assistance in the construction of Pakistan's nuclear weapons development facilities.[470] China has also exported miniature neutron source reactors (MNSR) to Ghana, Iran, Nigeria, Pakistan, and Syria that included HEU.[471] Thus, the NPT has been

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[468] https://www.un.org/disarmament/wmd/nuclear/npt/ accessed 20 September 2017.

[469] Ibid.

[470] Ibid.

[471] Global Fissile Material Report 2015: Nuclear Weapon and Fissile Material Stockpiles and Production. International Panel on Fissile Materials. 2015. Pages 18 and 20. The U.S. is against helping Pakistan, due to the illicit procurement network of Pakistani scientist A.Q. Khan, who aided the nuclear programs of Iran, Libya, and North Korea by providing a number of gas centrifuges designed for uranium enrichment.

weakened by a number of bilateral nuclear materials deals by the U.S., China, and Australia and potential client states of Israel, India, and Pakistan stand to benefit, should they choose to develop an NWP.

Non-Proliferation Treaty

The Treaty on the Non-Proliferation of Nuclear Weapons (NPT) is an international treaty with 188 signatory countries whose three-pronged objective is to prevent the spread of nuclear weapons and weapons technology, to promote cooperation in the peaceful uses of nuclear energy, and to further the goal of achieving nuclear disarmament.[472] The treaty defines nuclear weapon states as those that have built and tested a nuclear explosive device before 1 January 1967. Those include the U.S., Russia, the UK, France, and China. Four other states are known or believed to possess nuclear weapons: India, Pakistan, Israel, and North Korea, and interestingly, the same four states are not party to the NPT.[473]

The NPT is built on an agreement that non-nuclear weapon states agree never to acquire nuclear weapons and the nuclear weapon states agree to share nuclear technology as well as pursue nuclear disarmament. Several measures have been adopted to make it difficult for non nuclear states to acquire the capability to produce nuclear weapons, including export controls of the nuclear suppliers group and verification measures of the IAEA, however several high ranking UN officials have said that they can do little to stop states from using nuclear reactors to produce nuclear weapons.[474]

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[472] https://en.wikipedia.org/wiki/Treaty_on_the_Non-Proliferation_of_Nuclear_Weapons accessed 20 September 2017.

[473] Ibid. India, Pakistan, Israel, and South Sudan never signed the NPT. North Korea originally signed the NPT, but later officially withdrew from the NPT in 2012.

[474] Ibid.

Under article I of the NPT, nuclear weapon states pledge not to transfer nuclear weapons or other nuclear explosive devices to any recipient or in any way encourage or induce any non-nuclear weapon state in the manufacture or acquisition of a nuclear weapon. Under Article II of the NPT, non-nuclear weapons' states pledge not to acquire or exercise control over nuclear weapons or other nuclear explosive devices and not to seek or receive assistance in the manufacture of such devices. Under Article III of the NPT, non nuclear weapon states pledge to accept IAEA safeguards to verify that their nuclear activities serve only peaceful purposes.[475] However, there are several loopholes. First, four of the five non-NPT signatories are nuclear or assumed nuclear states, and as non-NPT members, can sell fissile material or nuclear technology to NPT states without breaking the treaty. Each signatory state may withdraw from the NPT 90 days after providing a written reason for withdrawal. As an example, take North Korea, a non-nuclear state under the NPT. North Korea was the beneficiary of technology, fissile material, and assistance in making nuclear power plants under the *Atoms for Peace* program as well as a sponsor state under Pakistan. North Korea then built up sufficient HEU and plutonium to weaponize, then give 90 days notice and quit the regime right before the IAEA could collect the HEU and plutonium. The penalties for leaving the NPT are possible sanctions and loss of international reputation, but the IAEA does not possess any physical means to wrest fissile material back.

Under the NPT, nuclear states agree to transfer nuclear technology and materials to NPT signatory countries for the development of civilian nuclear energy programs as long as they continue to demonstrate that their nuclear programs are not being used for the development of nuclear weapons. This makes it difficult, but not impossible, for non-nuclear states to develop

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[475] Ibid.

nuclear weapons. As the commercially popular light water reactor nuclear power station uses

enriched uranium fuel, it follows that these states must be able to enrich uranium themselves or

purchase it on an international market. The spread of enrichment and reprocessing capability

makes it more likely that reprocessed fissile material could be used to build nuclear weapons,

making every state the capability to enrich and reprocess uranium a virtual nuclear weapons

state.[476] Keep in mind that there were seventeen years between the *Atoms for Peace* program

beginning and the NPT entering into force; between 1953 and 1970 nuclear technology and

fissile materials were transferred to 30 states. While in 1970 the five official nuclear states in the

NPT agreed to not transfer nuclear weapons or other nuclear explosive devices and not in any

way assist, encourage, or induce a non nuclear weapon state to acquire nuclear weapons, this has

not always been followed.

International Nuclear Regimes:
The Comprehensive Test Ban Treaty (CTBT)

Another attempted safeguard to proliferation is the Comprehensive Nuclear Test Ban

Treaty (CTBT) adopted by the UN General Assembly in September 1996. Many policymakers

believe that nuclear testing is an important step in creating nuclear weapons, and without the

ability to test, states will not be able to make viable nuclear weapons. The CTBT established a

monitoring protocol to ensure all signatory states comply with the treaty, however, many nuclear

and near nuclear states, such as China, Iran, Egypt, India, Pakistan, North Korea, Israel, and the

U.S. neither signed nor ratified the CTBT. In addition, with the advent of sophisticated

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[476] Ibid.

computer modeling, live testing is no longer required. The CTBT is not an obstacle for a state to produce viable nuclear weapons.[477]

The four mechanisms described in the previous section attempt to limit access and purpose of nuclear technology and fissile materials, but even if a state were able to circumvent those mechanisms, there is still the physical act of creating the infrastructure to convert uranium into viable fissile materials.[478] As previously mentioned, this would require a state to possess either a steady source of fissile material from a sponsor state or operational nuclear power plants to continue to develop fissile material and a top 20% GDP to be able to afford not only a robust conventional military defense, but also the billions of dollars required to construct and secure nuclear weapon making facilities.[479] The following section will briefly describe the challenges in developing the uranium fuel cycle, a brief narrative about uranium and plutonium, and a very brief material requirement discussion on making nuclear weapons. The point of this portion of the research is to describe the difficulty and cost involved in making this decision, one only a small handful of states could realistically make.

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[477] https://en.wikipedia.org/wiki/Comprehensive_Nuclear-Test-Ban_Treaty accessed 19 September 2017.

[478] The four mechanisms are the *Atoms for Peace* restrictions, the monitoring mechanisms of the IAEA, the NPT, and the CTBT.

[479] Top 20% GDP is an estimate, based on costs to build nuclear power plants, uranium enrichment facilities, and the like, which is clearly far outside the available resources of the majority of the world's countries. Another case such as North Korea, or possibly Pakistan, where a state has chosen to forego state services to pool resources into weapon making facilities, is possible.