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NUCLEAR TERRORISM:
RETHINKING THE UNTHINKABLE
by

Robert W. Marrs

December, 1994

Thesis Advisor: John Arquilla

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Many policymakers and scholars contend that nuclear weapons remain inaccessible to terrorists, and that nuclear means are inconsistent with or disproportionate to their goals. Nevertheless, the historical pattern of nuclear proliferation suggests a trend toward nonstate actor acquisition, a notion supported by recent developments in the black market. Additional evidence suggests that some specific groups have expressed an interest in nuclear weapons. This thesis proposes that there is a terrorist *demand* for nuclear weapons. Further, its findings suggest that the possibility of terrorist acquisition has grown; and that these nonstate adversaries will enjoy significant advantage over states during nuclear crisis.

Terrorists, like states, pursue political objectives and have similar concerns regarding power and security. Lacking state resources, terrorists employ instrumental targeting in pursuit of those objectives, while remaining relatively invulnerable to retaliation. This dynamic will encourage terrorists to acquire and exploit nuclear potential, thereby overturning traditional theories of deterrence.

Wishful thinking about nuclear terrorism has discouraged thoughtful analysis of this dilemma. The prospect is sufficiently dire that a preventive campaign must be launched to stop terrorist acquisition of nuclear capabilities. Policymakers must also prepare for the possible failure of preventive efforts, and search for options that may mitigate nuclear terrorism.

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NUCLEAR TERRORISM: RETHINKING THE UNTHINKABLE

by

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Captain, United States Army
B.S., Methodist College 1990

Submitted in partial fulfillment
of the requirements for the degree of

MASTER OF ARTS IN NATIONAL SECURITY AFFAIRS

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ABSTRACT

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EXECUTIVE SUMMARY

Nuclear terrorism is often downplayed by scholars and experts as a minimal threat to international security. Although there is widespread concern regarding nuclear proliferation with respect to states, many policymakers contend that nuclear weapons and materials remain inaccessible to terrorists. Further, it is frequently argued that the use of nuclear weapons is inconsistent with or disproportional to terrorist goals. However, nuclear proliferation has essentially followed a path from the superpowers, to major states, and then to small states. This may indicate a trend toward nonstate actors, one supported by the fact that nonstate actors are attempting to sell and buy nuclear materials on the black market. There is also evidence that suggests some terrorist organizations have actively sought nuclear weapons. This thesis argues that there is reason for concern about terrorist *demand* for nuclear weapons. Further findings suggest that necessary and sufficient conditions already exist for terrorists to acquire, and exploit, nuclear potential.

The theoretical framework of the study assumes for heuristic purposes, that terrorists are rational actors within the international system. No attempt is made to assess or interpret pure rational or irrational behavior. Rather, the rational actor model is applied in the sense that systemic actors are sensitive to costs in decision-making.

Although terrorists typically lack the institutions and territory of the state, they have similar concerns with respect to security, power, and prestige. Further, like states, terrorists usually pursue specific political objectives. Lacking the resources and options of state adversaries, terrorists employ instrumental violence as a means of pursuing those objectives. The decision to use violence is one of strategic choice and doctrinal innovation,

a means of balancing internally to compensate for a disadvantage against state adversaries. Through the use of instrumental targeting, terrorists are able to conduct violent activities while remaining relatively invulnerable to retaliation.

The post-cold war environment is particularly conducive to nuclear proliferation. This is the result of two primary considerations - the increase in accessibility of nuclear weapons and the absence of Soviet influence over former satellite and client states. The demise of the Soviet Union catalyzed an abrupt shift in the balance of power. Whereas during the cold war, the United States and other Western nations were kept in relative check, thereby limiting large scale western exploitation of superior force, the post-Soviet era has introduced an asymmetric vulnerability, a situation in which the United States and its allies can impose their will while other states are forced to endure it.

American preponderance of power and democratic enlargement policies may likely be viewed as threatening by many states, as well as by terrorists. This may stimulate states who feel threatened to support terrorist proliferation efforts, passively or actively. The absence of external balancing prospects, such as were provided by the Soviet Union during the cold war, has encouraged many states to pursue a nuclear internal balancing option. These states recognize the coercive potential of nuclear weapons, and seek their acquisition as a means to shore-up security and/or limit Western influence. The most recent support for this assertion is the American-North Korean accord. Regardless of the actual North Korean capability or intent, the perception that the United States will succumb to nuclear coercion is compelling.

States will always remain vulnerable, on some level, to nuclear attack. Consequently, they have fundamentally tied themselves to traditional theories of deterrence. Traditional deterrence theory predicts that mutual vulnerability renders

nuclear use nonrational. However, terrorist invulnerability to retaliation and instrumental targeting, generate conditions in which exercising nuclear influence may become rational. Importantly, this rational option extends beyond nuclear deterrence, to provide sufficient conditions for nuclear compellence as well. This challenges the argument of those who view nuclear proliferation as potentially enhancing international stability. That is, rational calculations will encourage, rather than discourage, terrorists to exploit nuclear potential, thereby increasing the prospects for instability.

Preventing terrorist acquisition of nuclear weapons is the best means of avoiding nuclear terrorism. A decisive and relentless campaign must be launched to stop proliferation by these actors, as well as to control and/or destroy errant nuclear stockpiles. If agreement among existing nuclear states cannot be achieved, the United states must act unilaterally to ensure long-term global stability. This policy against terrorists will have the additional benefit of curbing proliferation among states as well.

While prevention is the best solution, policymakers must also be prepared for the failure of prevention efforts. The number of potential scenarios involving nuclear terrorism are every bit as complex as those which have plagued nuclear strategists for nearly fifty years. Yet wishful thinking about the unlikelihood of nuclear terrorism has discouraged thoughtful analysis of this complicated and dangerous problem. Waiting for nuclear terrorism to become a *reality* before considering the options will surely result in a greater problem still.

I. INTRODUCTION

A. BACKGROUND

Nuclear terrorism is often downplayed by scholars and experts as a minimal threat to international security. This sense of complacency derives, in part, from the historical absence of a nuclear terrorist incident. Further resistance to the notion of nuclear terrorism may also stem from wishful thinking. That is, the hope to avoid the fear and anxiety generated by nuclear terrorism may lead to its being cast aside as highly unlikely. Critics of those who propose the plausibility of nuclear terrorism often argue that the use of nuclear weapons is inconsistent with or disproportionate to terrorist goals.[1] Terrorists, it is argued, "want a lot of people watching, not a lot of people dead."[2] This perspective is problematic for several reasons. First, it implies a superficial understanding of the strategic framework for terrorism. Terrorism utilizes instrumental violence as a mechanism for coercion. The decision to utilize instrumental violence is one of strategic choice and may reflect self-recognition of weak power relative to state adversaries. Nuclear weapons offer the terrorists a unique vehicle to shift this balance, a means already recognized by many small states. Second, it neglects the coercive potential of nuclear weapons.[3] The primary utility in possessing a nuclear

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[1]Peter deLeon, Bruce Hoffman, with Konrad Kellen, Brian Jenkins, The Threat of Nuclear Terrorism: A Reexamination, (Santa Monica: Rand, 1988), p.15; Brian Jenkins, The Potential For Nuclear Terrorism, (Santa Monica: Rand, 1977), p.8.

[2]Brian Jenkins, The Potential for Nuclear Terrorism, (Santa Monica: RAND, 1977, p.8.

[3]Patrick Garrity and Steven Maaranen, Nuclear Weapons in a Changing World, (New York: Plenum Press, 1992), pp.4-6.

capability is from the *threat* of detonation. Finally, adopting an optimistic view of nuclear terrorism disregards the consequences of inaccurate speculation. A minimal threat still leaves a window of vulnerability; a window that, because of the potentially dire consequences, cannot be ignored.

Meaningful insights regarding the possibility of nuclear terrorism require a careful analysis of both the *supply* and *demand* for nuclear weapons. On the supply-side, nuclear proliferation and suspect control of nuclear weapons and materials are a matter of increasing international concern. Aggressive nation-states with nuclear aims, such as Iraq and North Korea (both known to sponsor terrorism), serve as a particularly important sources of concern.[4] Questionable control of nuclear weapons within the former Soviet Union is also cause for alarm.[5] These concerns, combined with apprehension over the spread of other weapons of mass destruction (WMD), led the United States to introduce the "Defense Counterproliferation Initiative (DCI)" in December, 1993. According to former Secretary of Defense, Les Aspin, "the proliferation of nuclear weapons is now the chief security threat we face in the post cold war era."[6]

The text of the DCI and the Nonproliferation Treaty (NPT) suggest that international concern is primarily confined to state actors. Thoughtful analysis regarding the potential for non-state actor acquisition is limited. This assertion is supported by recent efforts to halt the development of nuclear weapons in North Korea and Iraq. Although the justification

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[4]ibid., pp.8-9.

[5]ibid., p.2.

[6]Les Aspin Speech, National Academy of Sciences Committee on International Security and Arms Control, Dec 7, 1993.

for such efforts often involve a linkage to terrorism, international anxiety does not appear connected to non-state actor acquisition.

The narrow focus of the international community is not surprising given that nuclear development and corresponding strategies have, historically, only involved state actors. However, this study disputes the state-actor paradigm and asserts terrorists may seek the acquisition of nuclear weapons as well. The implication of this assertion represents two key challenges to contemporary views on terrorism and nuclear strategy. First, the strategic environment in which terrorism operates provides favorable conditions for an offensive coercive doctrine. Second, the existence of this permissive environment implies that nuclear strategy must now emphasize more than the traditional deterrence theory, and concentrate on the exploitation of potential nuclear force as well.

As with the state in the international system, a terrorist organization which achieves a nuclear capability ascends to a higher position of relative power and prestige. The absence of territorial boundaries in the case of the terrorist, does not change the fundamental utility of nuclear strategy, only its dynamics.[7] The primary component that catalyzes this change in dynamics is the difficulty in targeting terrorists. Specifically, aterritoriality may serve to vitiate retaliatory threats.

Nuclear deterrence depends upon the ability to target and threaten an opponent. The working dynamics of this threat rest upon the uncertainty that unacceptable damage will result from retaliation if one decides to attack an adversary. If the ability to target an opponent is lost, this threat becomes

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[7]Thomas Schelling, "Thinking about Nuclear Terrorism," International Security, 6:4, (Spring 1982), pp.68-75.

empty, and credibility is subsequently lost. In this sense, once a terrorist organization achieves a nuclear capability, traditional deterrence theories begin to break down. Not only does the terrorist organization achieve a shift in relative power at the expense of the state, it experiences a role reversal. A strategic asymmetry emerges that changes the dynamics of nuclear strategy and opens up the possibility of *offensive* nuclear coercion.[8]

Rationality and bargaining are integral components of most strategic interaction theories.[9] However, the paradox of rational behavior is that it does not always pay to be perceived as rational.[10] Despite the rational actor assumption adopted by this study, terrorists are often viewed as nonrational.[11] This potential misperception may enhance the bargaining position of the terrorist organization. Consequently, uncertainty about rationality may greatly increases the strength of a terrorist group possessing nuclear weapons.

The overall objective of this thesis is to illustrate potential demand for nuclear weapons by terrorist organizations. With this goal in mind, the study provides a framework that encourages modifications to existing notions of terrorism and nuclear deterrence theory. By analyzing the dynamics of this framework a more accurate threat assessment

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[8] This alteration removes mutual vulnerability, the dynamic that encourages mutual cooperation.

[9] Thomas Schelling, The Strategy of Conflict, (New York: Oxford University Press, 1963,) pp.3-19.

[10] Thomas Schelling, Arms and Influence, (New Haven: Yale University Press, 1966), p.37.

[11] Brian Jenkins, The Consequences of Nuclear Terrorism, (RAND: Santa Monica, 1979), p.2.

can be made that moves beyond the preconceptions that typically cloud this issue. Based on this assessment, proactive policies and strategies might then be identified that will minimize the potential impact of this problem. The decision to exclude chemical and biological weapons from this study is based on the observation that nuclear weapons represent the single most dangerous international security threat of the post-cold war era.[12] However, the findings may have implications for chemical and biological weapons as well. Further, although terrorists may target nuclear facilities or storage cites, the parameters that encompass that threat are beyond the scope of this thesis.

B. PROBLEM STATEMENT

The central goal of the study is to profile terrorist demand for nuclear weapons. The intent is to deduce demand by analyzing the parameters of terrorism and nuclear interaction. The logic of this approach is relatively straight forward, as the utility of any weapon generally rests in the logical basis for its employment. The analysis will focus on identifying the *necessary and sufficient* conditions for terrorists to exploit nuclear potential. Importantly, the study is geared toward the exploitation of *potential* nuclear force as opposed to its actual application (detonation). However, the atomic detonations at Hiroshima and Nagasaki are powerful reminders of the coercive potential that can result from detonation. Equally important, these detonations illustrate that *sufficient conditions* can develop which enable the offensive use of nuclear weapons. Hence, actual application is not dismissed as a possibility, but it is not considered a prerequisite for nuclear coercion.

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[12]Les Aspin Speech, National Academy of Sciences Committee on International Security and Arms Control, Dec 7, 1993.

The analysis of terrorism and traditional deterrence theory is expected to reveal a dichotomy, in that terrorist strategy essentially revolves around *offensive* coercion, while traditional nuclear strategy keys on *defensive* deterrence.[13] The implication of this dichotomy is that terrorist acquisition of nuclear weapons may alter the dynamics of strategic interaction. The elimination of mutual vulnerability represents the key to this viable shift in dynamics. If the analysis reveals a strategic logic conducive to terrorist use of nuclear weapons, then demand grows correspondingly. In contrast, if the analysis reveals dynamics that are unfavorable, then demand for acquisition lessens.

C. THEORETICAL FRAMEWORK

The theoretical framework assumes for heuristic purposes that terrorists are rational actors. The application of the rational actor model is accomplished with full appreciation for the debate surrounding the concept. No attempt is made to assess or interpret pure rational or irrational behavior. Similar to those who adopt variations of the rational actor model,[14] this study does not view rationality as a one-dimensional concept that moves from the irrational to rational. Rather, rationality is employed in the sense that

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[13] Bernard Brodie, Strategy in the Missile Age, (Princeton: University Press, 1965), pp.271-289. (The term "defensive" is used because "first strike capability" and "second strike survivability" defend against nuclear war and nuclear blackmail).

[14] Frank Zagare, "Rationality and Deterrence," World Politics, (January 1990) 42:2, pp.229-233. Zagare has useful insight regarding bounded and limited rationality, which he refers to as procedural and instrumental. Also see Herbert Simon, Models of Bounded Rationality, (London; Cambridge University Press, 1982), for a comprehensive review of bounded rationality.

systemic actors are sensitive to costs in decision-making.[15] The application of the rational actor model to terrorists will lead to a challenge to those who suggest that the spread of nuclear weapons may promote stability.[16] These advocates maintain that new proliferators will be encouraged to behave cautiously once a nuclear capability is achieved. This proposal is flawed, however, in that it fails to address the issue of deterrence failure. It is important to recognize that the rational actor model helps to predict how actors should act, not how they will act. Too often the issue of nuclear interaction is approached with a false certainty. In reality, it is arguably plagued by uncertainty.

1. Rational Actor Model

The assumption of rationality asserts that systemic actors have externally driven preference and choice options. Accordingly, actors seek to optimize preferences with respect to the choices of other actors. Variation in outcomes is a function of differing opportunities. Actors usually have options in the course of decisionmaking, each of which has different costs and benefits. Importantly, however, these

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[15]Kenneth Waltz, "Reflections on Theory of International Politics," in Neorealism and its Critics, ed. Robert Keohane, (New York: Columbia University Press, 1986), p.331.

[16]Kenneth Waltz, "The Spread of Nuclear Weapons: More May be Better," Adelphi Papers, No. 171, (London: IISS, 1981), pp.1-29; Also see Bruce Bueno de Mesquita and William Riker, "An Assessment of the Merits of Selective Nuclear Proliferation," Journal of Conflict Resolution, 26:2 (June 1982), 283-305. David Rosenbaum also suggests a benefit in his article, "Nuclear Terror," International Security, 1:3, p.151, (Winter 1977), pp.140-161. Scott Sagan argues against proliferation, however, in "The Perils of Proliferation," International Security, 18:4, (Spring, 1994).

decisions are often made under conditions of uncertainty.[17] Access to complete information about alternatives and resources is elusive, thereby prohibiting the review of all possible courses of action. When actions are based on poor decisions, there is an inherent cost that may cause one to fare badly relative to other actors.[18] Therefore, the *assumption of rationality* integrates the time and information constraints of bounded rationality, which stresses the importance of reaching a satisfactory solution, and, elements of limited rationality, which strive to connect ends with means under conditions of uncertainty.[19]

Survival is a prerequisite for achieving any goal, short of self-destruction, and plays a fundamental role in the calculations of cost-sensitive actors.[20] Terrorist organizations, like states, seek to ensure their own survival. This does not preclude, however, risking survival in an attempt to secure a particular goal. Ultimately, the expected benefits may outweigh expected costs, even if these costs may risk survival. In nuclear terms, risk acceptance was illustrated with the Cuban missile crisis. The Kennedy administration risked a nuclear exchange between the United States and the Soviet Union by imposing a naval blockade and by demanding the withdrawal of nuclear weapons from Cuba. By

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[17]Robert Keohane, "Theory of World Politics," in Neorealism and its Critics, p.165; Also see Christopher Achen and Duncan Snidal, "Rational Deterrence Theory and Comparative Case Studies," World Politics, 41:2 (Jan 1989), p.150.

[18]Kenneth Waltz, "Reflections on Theory of International Politics," in Neorealism and its Critics, p.331.

[19]Frank Zagare, "Rationality and Deterrence," World Politics, pp.229-233.

[20]ibid., p.85.

contrast, risk avoidance is delineated by the recent American agreement with North Korea. The accord outlines a 10-year timetable for dismantling North Korean nuclear facilities and halts inspections of those facilities for the next five years.[21] Despite a limited capability at best, the United States chose a strategy of accommodation rather than the acceptance of risk.

2. Structural Realism

Given the assumption of terrorist rationality, a structural level of analysis readily facilitates the integration of terrorists, nation-states, and nuclear strategy. Hence, like state actors, terrorists are analyzed in terms of ordering principles, specifications of functions between differentiated units, and the distribution of capabilities across units.[22] Grievances advanced by terrorists are a function of the environment in which they exist. The goals and strategies of terrorists are constrained or facilitated by systemic factors. Perceived success or failure is contingent upon interaction with other systemic actors.

The decision to adopt the structural approach does not discount the utility of organizational or other levels of analysis. The comprehensive analysis of any political interaction will typically involve a synthesis of unit, organizational, and structural levels. Yet, it seems prudent to analyze first the influences of the international system prior to investigating peculiarities relevant to individual organizations or units. This logic is supported by Kenneth Waltz in his discussion of political structures. Waltz argues

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[21]Michael Gorgon, "U.S. North Korea Accord Has a 10-year Timetable," New York Times, (21 Oct 94), A4.

[22]Kenneth Waltz, "Political Structures," in Neorealism and its Critics, p.96.

that structural analysis protects research from becoming skewed by actor personality, behavior, and interaction, thereby permitting a purely positional picture of society. From this assertion he advances three hypotheses. First, structures may persist while personality, behavior, and interaction vary. Second, given certain modifications, structural definitions can be applied to substantially different medium, provided that the arrangement of parts is similar. Finally, the reality of the first two propositions allows for theoretical application between different types of structures.[23]

3. Summary

The theoretical framework, therefore, controls for incentives, characteristics, and interaction of specific organizations and individuals. It facilitates a means to analyze terrorism and nuclear strategy, and to evaluate the implications for strategic interaction. It readily accommodates the integration of non-state actors and state actors into one of the accepted theories of international relations.

D. METHODOLOGY

The thesis utilizes heuristic analysis of nuclear acquisition and strategy to illustrate the utility of nuclear terrorism. Following a literature review, the study analyzes the acquisition of nuclear weapons by state actors. Particular attention is devoted to the analysis of small states that have or seek a nuclear capability. These findings are then applied to terrorist organizations. The rationale for this approach is based on the systemic relative power deficit which characterizes both small states and terrorist organizations. Further analysis focuses on the dynamics of nuclear strategic

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[23]ibid., p.71.

interaction. This portion of the study centers on identifying the necessary and sufficient conditions for the exploitation of potential nuclear force. Specific attention is aimed at identifying the conditions which led to prevailing nuclear strategies, and how nuclear terrorism alters these conditions to render traditional deterrence dysfunctional.

E. ORGANIZATION OF THE STUDY

Chapter II, A Literature Review, outlines three key components relative to the study which include: "Nuclear Proliferation and the Security of Weapons and Material," "Terrorism: Definition and Strategy," and "Nuclear Strategy: Transcending Today's Paradigm." The intent of the literature review is to establish a foundation for the subsequent analysis. Central themes introduced by the review include the inadequacies of current nonproliferation measures, the instrumental nature of terrorism, and how nuclear strategy has evolved from the offense to the defense.

Chapter III, Why go Nuclear analyzes the necessary and sufficient conditions for nuclear acquisition. A comparative analysis of small states serves as the means of establishing terrorist acquisition parameters. The rationale for this approach stems from the notion that small states and terrorist organizations have similar concerns with respect to weak relative power, prestige, and security. Although specific attention is focused on small states, key ideas are derived from large nuclear states as well. Critical concepts introduced include offensive and defensive motivations, long-term resource expenditures, similarities between alliance formation and terrorist sponsorship, and internal versus external balancing means.

Chapter IV, The Dynamics of Nuclear Terrorism, models nuclear terrorist strategy. The initial analysis focuses on mutual vulnerability and mutual cooperation, the two key

components of contemporary nuclear strategy. The study then keys on the notion that invulnerability removes the need for cooperation between actors, which renders the nuclear option rational for terrorists. That is, once vulnerability becomes asymmetrical, sufficient conditions are generated for terrorists to pursue objectives by nuclear means. The ensuing model for nuclear terrorist strategy is based on this invulnerability, as well as covert instrumental targeting, multiple targets of influence, and special means of delivery.

Chapter V, Conclusions, finds that the necessary and sufficient conditions exist for terrorists to exploit nuclear potential. Specifically, the necessary components of supply, demand, and strategy, are present for terrorists to engage in offensive nuclear exploitation. The study recommends exhaustive and relentless counterproliferation measures to prevent the acquisition of nuclear weapons by terrorists. If necessary, these measures should include unilateral action by the United States.

II. LITERATURE REVIEW

A. NUCLEAR PROLIFERATION

It is not the purpose of this thesis to conduct an exhaustive study of available supply of nuclear weapons and materials. However, the study proceeds with the assertion that an increase in the accessibility of nuclear weapons and materials may increase the number of proliferators. Given that accessibility must be considered a necessary condition for nuclear terrorism, the issues relating to the supply of nuclear weapons and materials must be reviewed.

In June 1985, the Nuclear Control Institute held a conference on nuclear terrorism.[1] There was limited consensus regarding the possibility of nuclear terrorism, but virtual unanimity regarding the dire consequences of such an event. The conclusions of the committee reveal several important points that are relative in 1994. First, the committee determined that an act of nuclear terrorism would indeed be a problem because of the potential for blackmail. Second, the "high-consequence" but low probability atmosphere of 1985 still persists in 1994, as indicated by the DCI and NPT focus on state proliferation. These measures seem to focus on control without considering the consequences of failure. The nuclear age has already shown that nuclear proliferation is a reality, a fact becoming even more problematic in the post cold war period. Finally, and perhaps most crucial to this thesis, the group determined that "there are no guarantees

[1]The 1985 conference on nuclear terrorism was held in Washington D.C. and sponsored by the Nuclear Control Institute. Members of the conference concluded that nuclear terrorism was perceived as a high consequence but low probability threat. This in turn prohibits appropriate preventive action.

that the present constraints on terrorist groups will persist indefinitely."[2]

The 1990s confront the international community with grave concerns regarding these constraints. The dissolution of the Soviet Union is a source of particular anxiety, given the unknown status of its nuclear weapons and materials.[3] The seriousness of this problem is self-evident given the four German interceptions of plutonium 239 (weapons grade nuclear material) since May 1994. Russia is believed to be the point of origin for these recent shipments of plutonium.[4]

The quantities of plutonium intercepted to date are not sufficient to construct nuclear weapons. However, Leopold Schuster, Chief of Organized Crime Division, Wiesbaden, stated that the material seized in May 1994 is believed to be only a sample for prospective buyers, although he would not divulge the identity of such buyers. Schuster stated that he estimates as much as 264 pounds of weapons grade plutonium (enough for 15 small nuclear devices) is available on the black market in Europe.[5] The Germans also seized 500 grams of plutonium on 10 August 1994. It was later revealed that the Russian military was suspected in the 10 August incident. The

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[2]Peter deLeon, Bruce Hoffman, with Conrad Kellen, Brian Jenkins, The Threat of Nuclear terrorism: A Reexamination, (Santa Monica: RAND, 1988), p.8.

[3]Patrick Garrity and Steven Maaranen, Nuclear Weapons in a Changing World, (New York: Plenum Press, 1992), pp.1-6. Also see Frank Barnaby, "Weapons of Mass Destruction: A Growing Threat in the 1990s," (London: RISCT, Oct/Nov 90), Conflict Studies. No. 235.

[4]William Broad, "Russians Suspect 3 Sites as Source of Seized A-Fuel," New York Times, (19 Aug 94), A1.

[5]Ferdinand Protzman, "Germany Reaffirms Origin of Seized Plutonium in Russia," New York Times, (20 Aug 94), A1.

500 kilogram sample was believed to be part of a four kilogram shipment of plutonium 239, which was to be exchanged for $250 million. Gunther Beckstein, Interior Minister of Bavaria, stated that "the Russian officials involved may include underpaid Russian scientists, former KGB security agents, or other Russian security officials."[6] Berstein was confident that the plutonium originated from the military sector of the Russian government. Subsequent Russian reports identify three sites as suspected sources for the plutonium shipments. These include the Kyshtym Complex in Mayak, the Bochvar Institute of Inorganic Materials in Moscow, and the Institute of Atomomic Reactors in Dimitrovgrad.[7] It would be foolish to assume that all the loose plutonium or uranium within the black market has been confiscated.

> *One kilogram of plutonium or uranium is about the size of a golf ball. A typical one-kilogram brick of marijuana is about 12" X 6" X 2.5", or about twenty times as large. If we intercept less than ten percent of the more than 4,000 tons of marijuana smuggled into the United States each year, it is clear that we, or any other country with reasonably open borders, has little chance of intercepting a few weapons quantities of special nuclear material.*[8]

It remains unclear which states or organizations are attempting to purchase nuclear materials. Iraq was implicated

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[6]Craig Whitney, "Germans Suspect Russian Military in Plutonium Sales," New York Times, 16 Aug 94, A1.

[7]William Broad, "Russians Suspect 3-Sites As Source of Seized A-Fuel," New York Times, (Aug 19, 94), A1.

[8]David Rosenbaum, "Nuclear Terror," International Security, 1:3, (Winter 1977), p.143. However the sources of nuclear materials are far more scarce than for marijuana or other illegal drugs. Nevertheless, the comparison is valid for purposes of highlighting the interdiction dilemma faced by the international community.

in the May 1994 seizure, and two men from the Basque region, a Colombian, and a Spaniard in the 10 August interception.

If potential buyers involve terrorist organizations, there is considerable debate whether a nuclear device could be constructed without detection. The disagreement regarding the ability of terrorists to construct a nuclear device is partially explained by the significant number of design possibilities. A crude nuclear device requires less technical competence than a state-of-the-art mechanism. Yet, discussions involving the construction of such devices often do not articulate the level of sophistication involved. It is worth reiterating at this point that the computer technology of the 1990s is capable of providing substantial assistance in the construction of nuclear weapons. To augment this technology, vast amounts of Soviet scientists and technicians are potentially available. A 1977 report by the Office of Technology Assessment (OTA) of the U.S. Congress states that it would not be difficult for a sub-national group to construct a nuclear explosive, assuming it had enough fissionable material. Within the publication *Nuclear Proliferation and Safeguards,* the OTA states:

> *A small group of people, none of whom have ever had access to the classified literature, could possibly design and build a nuclear device. They would not necessarily require a great deal of technological equipment or have to undertake any experiments. Only modest machine shop facilities that could be contracted for without arousing suspicion would be required. The financial resources for the acquisition of necessary equipment on the open market need not exceed a fraction of a million dollars. The group would have to include, at a minimum, a person capable of researching and understanding the literature in several fields and a jack of all trades technician... There is a clear possibility that a clever and*

competent group could design and construct a device which would produce a significant nuclear yield.[9]

Notwithstanding the debate over nuclear material and the construction of a nuclear device, suspect control of nuclear material has implications for the security of nuclear weapons themselves. Failure to confiscate a nuclear device from the black market, such as a Soviet 152mm nuclear projectile, does not imply the security of such weapons. With respect to the Soviet problem, commercial and military diversification of nuclear material and weapons production/storage is less stringent than in the United States.

As resources (technically competent personnel, nuclear weapons and material, and technology) become more readily available, new players are likely to enter the nuclear arena. To assume that nuclear technology will remain confined to the nation-state is at best wishful thinking, and at worst irresponsible. Given this overview of the proliferation and control problem, six critical elements that impact on the possibility of nuclear terrorism in 1994 and beyond are postulated:[10]

* Despite arms control measures there is significant numbers of tactical nuclear devices, including those that are man-portable, that could be stolen, concealed, and utilized.

* an increase in the stocks of weapons grade plutonium/uranium.

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[9]Office of Technology Assessment, U.S. Congress (1977), Nuclear Proliferation and Safeguards (Washington D.C.) as cited in Frank Barnaby, The Invisible Bomb: The Nuclear Arms Race in the Middle East, (I.B. Tauras & CO LTD, 1989), p.133.

[10]Peter deLeon, Bruce Hoffman, with Konrad Kellen, Brian Jenkins, The Threat of Nuclear Terrorism: A Reexamination, p.8. Also see Patrick Garrity and Steven Maaranen, Nuclear Weapons in a Changing World, pp.1-14.

* known state-sponsors of terrorism, such as Iraq, North Korea, Libya, and Iran, were/are engaged in nuclear programs that may yield nuclear weapons.

* construction and/or operation of nuclear weapons is less cumbersome given new technology and computer capabilities.

* the dissolution of the Soviet Union and the agreement with North Korea raises serious questions about the control of nuclear weapons and materials.

* Many former Soviet nuclear scientists and technicians are available on the open market.

B. TERRORISM: DEFINITION AND STRATEGY

1. Definition

There is no consensus regarding the definition of terrorism. Many governments tend to label the violent acts of political opponents as terrorist while many extremists claim to be victims of government terror.[11] This seemingly elastic application of the term terrorism, is likely tied to its negative connotation. To successfully label one's opponent a terrorist is surely a means of gathering support. Yet, this type of haphazard application is detrimental to the study of terrorism. It tends to draw from a moral perspective that is tied to the emotion of a given issue.[12]

Much of the problem with defining terrorism seems to be a matter of scope. Most experts would likely agree to the dictionary definition:, "the systematic use of terror, violence, and intimidation to achieve an end."[13] The

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[11]Martha Crenshaw, Terrorism, Legitimacy, and Power, (Middletown: Wesleyan University Press, 1983), pp.1-5

[12]ibid.

[13]The American Heritage Dictionary, (Boston: Houghton Mifflin Co, 1982), p.1255.

controversy arises from fine tuning the definition to account for specific motivations. Terrorists, like state actors, have political motivations that are paramount to their decision-making processes. They employ premeditated intentional violence in an effort to facilitate political change. Like Clausawitz's view of war, terrorism is a continuation of policy by other means. This desired change may encompass either government modification or replacement, and can occur in a democratic or authoritarian regime. It is this political component that most closely links terrorist organizations to their state actor counterparts. For the purposes of this study, terrorism is defined as: *the use or threat of violence, for political purposes, against an instrumental target in order to communicate to a primary target the threat of future violence.*[14]

2. Strategy

Given this definition, terrorist acts can be seen as largely symbolic in nature. Acts or threats of violence are not intended to deplete the forces of the direct target - they are intended to *influence* the direct target through coercion. As noted by Thomas Schelling, coercion is a bargaining process that is based on the power to hurt and intimidate as opposed to the direct application of military force.[15] There is no specific relationship between the instrumental target and the target of influence. The intent of the terrorist is to create a psychological impact by generating fear and anxiety

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[14]Jordon J. Paust, "A Survey of Possible Legal Responses to International Terrorism," Journal of International and Comparative Law, 5 (1975), pp.434-435, as cited in Chalmers Johnson, Revolutionary Change, (Stanford: Stanford University Press), pp.152-53.

[15]Thomas Schelling, Arms and Influence, (New Haven: Yale University Press, 1966), pp.6-10.

out of proportion to the violent act itself. In doing so, the terrorist seeks to coerce the direct target into meeting a specific political objective.[16]

The decision to utilize instrumental violence is one of strategic choice. It reflects the recognition of weak relative power with respect to the direct target, which is usually a nation-state adversary. The 20th century Palestine problem epitomizes the impact of this power differential upon strategic choice. Utilizing terrorism, Jewish nationalists conducted a campaign of violence against the British during the 1940s. Two of the more serious acts were the May 1944 assassination of Lord Moyne, the British High Commissioner, and the July 1946 destruction of the King David Hotel. This Jewish campaign of terror played an important role in displacing the British in 1948 and Israeli independence.[17]

Palestinian Arabs responded to the formation of Israel with their own variety of terrorism that continues in 1994. In many respects, the historical legacy of Palestinian bombings, hijacking, and kidnappings, serve as a defining benchmark of contemporary terrorism. Despite the recent 1993 Israeli-PLO accords, which permit limited Palestinian self-rule, this terror persists by factions external to the Palestine Liberation Organization (PLO). Hamas, a Palestinian terrorist organization bent on eradication of the Israeli state, claimed responsibility for the 20 October 1994 bombings.[18] This bombing, and the multitude of violent acts

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[16] Chalmers Johnson, Revolutionary Change, pp.152-154.

[17] D.M. Condit and Bert Cooper et al, "Challenges and Response in Internal Conflict: Israel 1945-1948," SSRI (March 1967), 2:14, pp.423-426.

[18] Alan Cowell, "Bombing Fatal to 21 Gives a Sense of Vulnerability," New York Times, (21 Oct 94), A1.

before it, are typical of Palestinian terrorism. Similar to the Jewish experience in the 1940s, they illustrate the recognition of weak relative power driving strategic choice. Palestinian terrorism also demonstrates that targets of influence are not necessarily limited to one actor. Although the Israeli government must be considered a primary target of influence, the PLO must also be considered a secondary target. That is, Hamas undoubtedly hopes to undermine the PLO since Yasir Arafat has recognized Israel's right to exist; a right inconsistent with Hamas's pledge to eradicate Israel.[19] Further, lonstanding United States support of Israel, occasionally causes Hamas to target American interests as well.

Regardless of ideological foundation, all terrorist groups face this relative power dilemma. The use of instrumental violence attempts to compensate for this problem. In systemic terms, this means of compensation can be viewed as internal balancing through the employment of doctrinal innovation that enhances their direct capabilities. Terrorists balance against nation-states by adopting a doctrine that is inconsistent with accepted international norms, but which maximizes their striking power. Figure 1 illustrates terrorist instrumental targeting.

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[19]Ziad Abu-Amr, Islamic Fundamentalism in the West Bank and Gaza, (Bloomington: Indiana University Press), pp.51-52.

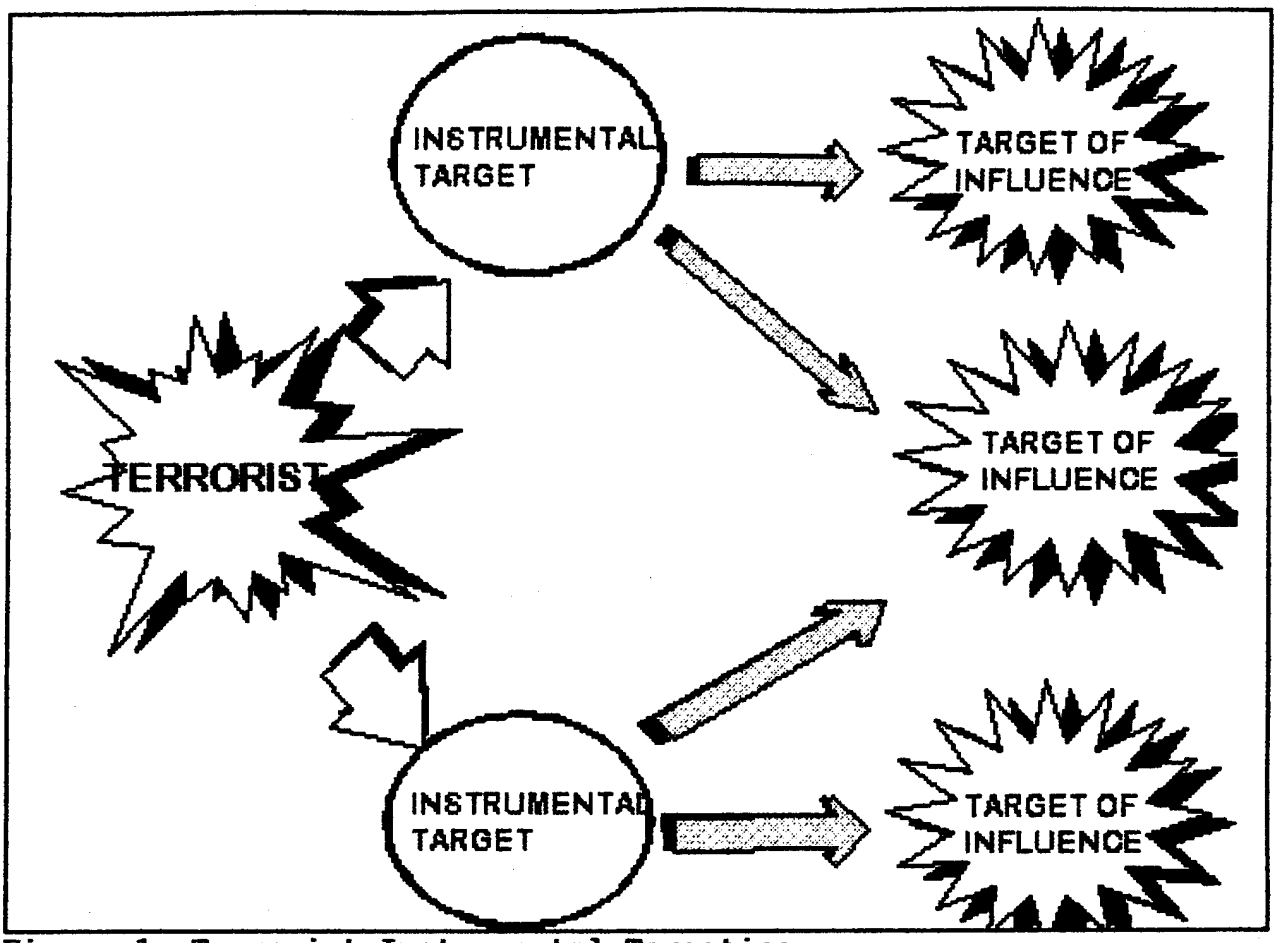

Figure 1. Terrorist Instrumental Targeting

Terrorists also exhibit external balancing behavior by aligning with other terrorist organizations and nation-states. This notion is exhibited by alliances such as those between

the PLO and the Japanese Red Army in the 1980s[20] and multiple links between right-wing groups in the United States under the Christian Identity movement in 1994.[21] Similarly, nation-state alliances are evidenced by links between the Abu Nidal Organization and Iraqi, Syria, and Libya, and Hizballa's ties to Iran. In gaining sponsorship, terrorist organizations enjoy the resources of the patron state. Of course, resource accessibility is at the discretion of the state, a factor that may ultimately generate additional means of internal balancing behavior.

C. NUCLEAR STRATEGY AND TODAY'S PARADIGM.

The American decision to detonate atomic bombs at Hiroshima and Nagasaki represents a unique moment in the history of nuclear strategy. Unique because the United States decided to apply nuclear force knowing retaliation in kind was not possible. In doing so, it temporarily depleted its nuclear arsenal. Unique as it was, it also represented something else - terrorism! This claim is not intended to raise an ideological debate over justified use or number of lives saved. However, such a debate would serve to illustrate that justification is relative to one's belief system.[22] Rather, the relevant point is that there was virtually no military utility in attacking Hiroshima or Nagasaki. The intended and realized affect of these attacks were premised on nuclear coercion. That is, the United States used nuclear

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[20]William Farrell, The Story of the Japanese Red Army, (Lexington: D.C. Heath and Co, 1990), pp.105-107.

[21]Brent L. Smith, Terrorism in America, (Albany: State University of New York Press, 1994), pp.53-76.

[22]Martha Crenshaw, Terrorism, Legitimacy and Power: The Consequences of Political Violence, p.5.

terrorism to coerce the Japanese emperor into surrender.[23] The resultant damage with respect to Japanese material strength was minor. In contrast, the fear and anxiety created by these weapons was monumental. In this sense, the Japanese people served as the *instrumental target* and the Japanese emperor the *target of influence*.

Hiroshima and Nagasaki leave us with a dilemma regarding contemporary nuclear strategy. Despite this first offensive means of nuclear coercion, the evolution of nuclear strategy is now based primarily on a defensive posture. Defensive in the sense that, "in the context of deterrence, offensive weapons are those that provide a defense."[24] These parameters have evolved with the dynamics of international relations, particularly with respect to relations between the United States and the former Soviet Union. Doctrinal shifts in nuclear strategy such as massive retaliation, flexible response, mutual assured destruction, and limited or finite deterrence are evidence of the American response to those dynamics. The cold war conditioned the international community to think of nuclear weapons primarily, if not totally, as defensive weapons that were unlikely to be used. A paradox surfaces, however, in that the dynamics of the international system catalyzed past changes in nuclear strategy. The apparent thinking on nuclear strategy, the resistance to the notion of offensive nuclear coercion, implies that the international system is static.[25] In reality,

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[23]Thomas Schelling, Arms and Influence, pp.16-17.

[24]Robert Jervis, "Cooperation Under the Security Dilemma," World Politics, 30:2, (June 78), p.206.

[25]John Lewis Gaddis, "Nuclear Weapons, the End of the Cold War, and the Future of the International System," in Nuclear Weapons in a Changing World, ed. Patrick Garrity and Steven

the system is anarchic and subject to constant change. Terrorists may play an increasingly important role in the development of this change.

D. SUMMARY

The availability of nuclear weapons and materials is cause for great concern. The demise of the former Soviet Union has introduced a change in the constraints that, in the past, provided a certain degree of optimism regarding the control of nuclear weapons and materials. The recent agreement with North Korea, which delays inspections of reactor cites for another five years, may give the international community yet another source of concern. The agreement also illustrates that when a potential nuclear threat is looming, the United States is hesitant to act aggressively. This has obvious implications with respect to offensive coercion and nuclear weapons, particularly since the North Koreans are past champions of terrorist sponsorship.[26]

Terrorists engage in instrumental violence as a means of reaching a political end. The decision to utilize instrumental violence is one of strategic choice that reflects a relative power deficit with respect to nation state adversaries. Like these adversaries, terrorists engage in balancing behavior. Examples of this behavior include the employment of instrumental violence, alliance with other terrorist groups, and alliance with state sponsors. Past balancing behavior by terrorists must be considered in terms of extant systemic constraints. Similarly, future balancing behavior must consider likely future constraints. The potential availability of nuclear weapons represents a

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Maaranen, (New York: Plenum Press), pp.15-30.

[26] Office of the Secretary of State, Patterns of Global Terrorism: 1993, (Department of State, 1991), p.33.

loosening of one of those constraints. Additionally, the post cold war environment may prove more conducive to internal balancing. That is, sponsorship may be viewed as more costly to state actors, which in turn may leave terrorists more inclined seek new internal means of balancing. To assist in understanding terrorist balancing behavior, a closer look at the dynamics of state behavior is appropriate. This analysis will begin with a brief consideration of why state actors seek a nuclear capability.

III. WHY GO NUCLEAR

A. INTRODUCTION

One of the most challenging aspects of the *demand* component of nuclear proliferation is understanding its acquisition and nonacquisition parameters. Despite accessible supply and advances in technology, many states choose not to enter the nuclear arena. These states may balance externally through alliance with nuclear states, or may discount the possibility of a nuclear threat.[1] In contrast, states such as Iran, Iraq, Libya, and North Korea, balance internally by seeking the covert acquisition of nuclear weapons. Others, who enjoy nuclear protection from an ally, such as Great Britain, elect to acquire an independent nuclear capability - characteristic of both external and internal balancing.

There are many structural differences between states and terrorist organizations, the most prominent being that terrorist organizations lack the territorial boundaries and government institutions typical of states[2]. However, as noted by Thomas Schelling:

> *If a government that exploited any genuine or pretended nuclear capability would appear to 'descend' to the level of a terrorist organization by doing so, an organization other than a national government that possesses or could credibly claim to possess nuclear weapons conversely might 'ascend' to the status of government. It might seek its own permanence a nuclear ministate, even if lacking territory. Or it might claim a territory or seek a homeland, identifying itself as*

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[1]Examples of external balancers include Germany, Japan, Canada, Belgium, and the Netherlands. Sweden and Switzerland are cases of nonaligned states that have eschewed nuclear weapons.

[2]Some organizations appear "state like" in this regard. Examples include the Palestine Liberation Organization and the Irish Republican Army.

the rightful claimant to legitimate authority in some existing state.[3]

Schelling's insight raises the notion that there are parallels between states, particularly *small* states, and terrorist organizations. *Small* states and terrorist organizations are relatively weak in terms of power, prestige, and security, when contrasted with larger states. These factors are key to understanding the dynamics of nuclear acquisition and strategy.

1. Defining Power

The theoretical framework of this study maintains that relative power differentials exist between terrorist organizations and state actors. Similarly, power differentials also exist between large and small nation-states. In systemic terms, therefore, the most profound differential exists between large states and terrorist organizations.

Defining power or understanding its operating parameters is often difficult. This is particularly true with respect to international politics because there may be an asymmetric perception of power between actors. Hans Morgenthau defines power as "man's control over the minds and actions of other men. By political power, we refer to the mutual relations of control among the holders of public authority and between the latter and the people at large."[4] However, Harold Laswell and Abraham Kaplan insist that the analysis of power must also consider its scope and domain. "*Domain* of power consists of the persons over which power is exercised and *scope* of power

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[3]Thomas Schelling, "Thinking About Nuclear Terrorism," International Security, 6:4, (Spring 1982), p.68.

[4]Hags Morgenthau, Politics Among Nations, (New York: Knoph, 1950), p.13.

consists of the values whose shaping and enjoyment are controlled."[5]

A comprehensive analysis of power may indeed include the notion of *domain and scope* as described by Lasswell and Kaplan. The most relevant aspect with respect to terrorists, however, is their struggle for power against state adversaries. In this regard, Morgenthau's definition reveals that the possession of power is really the possession of *coercive potential*. The exploitation of this potential, through deterrence or compellence, is central to the dynamics of international relations.

The fundamental difference between this exploitation by states, versus by terrorists, rests in an ill-defined sense of acceptability. The mystique surrounding international tolerance for coercion is revealed by comparing the employment of state sanctions and terrorism. The United States often imposes sanctions against other states as a means of coercion. The most recent cases of this include sanctions against Iraq, Haiti, and Bosnia. Although the intent of these sanctions is government coercion, a goal that is rarely realized, the most profound effect is the residual killing of innocent civilians. Yet this type of coercion is either passively or tacitly accepted by the international community. In contrast, terrorist coercive activities, such as the bombing of Pan Am Flight 103 over Scotland or the bombing of the Marine barracks in Beirut, generates incredible international condemnation. Despite the fact that the incidents in Scotland and Beirut represent unusually vitriolic terrorist activities, their resultant death toll pales in comparison to those that often

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[5]Harold Lasswell and Abraham Kaplan, Power and Society: A Framework for Political Inquiry, (New Haven: Yale University Press, 1950). p.77.

emerge from state sanctions. What this paradox illustrates is that the acceptable exploitation of potential force, that is coercion, is based predominantly on perception. The corresponding theme is that the exploitation of coercive potential is a fundamental component of both state and terrorist behavior.

Historically, the ability of states to exercise power has been limited. Indeed, prominent states such as Great Britain during the 19th century or the United States during the first two decades following second world war, could not lay claim to absolute power. Rather these nations possessed a preponderance of power that enabled them to have a higher degree of influence and control relative to other states. Similarly, the bipolar world of the cold war did not facilitate control by either the United States or the Soviet Union, even within their own alliances. This reveals that, regardless the systemic structure, the struggle for power keys on the contest for relative superiority.

Importantly, power does not necessarily exist in a form that can be readily measured. Actors can often possess a potential for power that is also relative to other actors. This is difficult to measure since the potential power of an actor may involve intangibles such as resolve and leadership. For instance, it can be argued that Emperor Hirohito misjudged the ability of the United States to mobilize its potential power prior to the Japanese attack on Pearl Harbor. Similarly, Adolf Hitler also misjudged American mobilization power prior to the German invasion of Poland. The perception of potential power may often prove as important as power

itself. The dynamics that facilitate power are predominantly generated by military, economic, and technological resources.[6]

2. Defining Prestige

Related to power, and also an integral component of international relations, is prestige. Like power, prestige is relative to other actors and is subject to constant change. Robert Gilpin notes: "Prestige refers primarily to the perceptions of other states with respect to a state's capacities and its ability and willingness to exercise its power. In the language of contemporary strategic theory, prestige involves the credibility of a state's power and its willingness to deter or compel other states in order to achieve its objectives."[7] Gilpin later notes that a conflict between power and prestige can occur due to a lag between prestige and power capabilities.[8] It also appears that prestige can be lost despite capabilities. The American experience in the 1990s with Iraq and North Korea provide two examples of such a breakdown. Although the United States had preponderant capabilities, it lacked enough prestige to influence Iraq prior to the onset of the Gulf War.[9] This breakdown led to an American credibility problem, which eventually resulted in the air and ground campaigns of 1991. Given Iraq's subsequent move toward Kuwait in 1994, a problem with American prestige may still persist. Similarly, although the United States had the capability to influence North Korea,

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[6]Robert Gilpin, War and Change in World Politics, (Cambridge: University Press, 1981), p.31.

[7]ibid.

[8]ibid.

[9]Also, Iraq may have been influenced by other factors such as unclear signaling from the United States and/or its allies, as well as other Arab states.

it lacked the necessary prestige and political will to alter its nuclear aims.[10] Realizing this breakdown in American credibility, North Korea prospered with a *smoke and mirrors* agreement in 1994. When the smoke clears, the accord may reflect a further erosion of American prestige, and ultimately, its credibility.

The discussion thus far illustrates an important point with respect to nuclear acquisition. Coercive potential is contingent upon perceived power and prestige. The dynamic that makes this true is credibility. For actors to be perceived as credible, they must be perceived as powerful and prestigious. Despite the traditional passive use of nuclear weapons as a means of deterrence, there is a mythical sense of power and prestige that accompanies nuclear ownership.[11] Perceived power and prestige may be generated by this sense of myth.[12] That is not to say that actual power and prestige can not emerge from a nuclear capability. In the final analysis myth and reality may have the same utility, in that either may provide sufficient conditions for the exploitation of coercive potential.

3. Security

The concept of security is undoubtedly connected to power. Indeed as an actor becomes more secure it may be more likely to exercise or expand its power. British and French colonialism provide evidence of this phenomenon as does the American post-cold war strategy of enlargement. This

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[10]Of course the lack of political will may influence American prestige in future disputes.

[11]Peter Lavoy, "Nuclear Myths and the Causes of Nuclear Proliferation," Security Studies, 2:3/4 (Spring/Summer 1993), pp.199-202.

[12]ibid.

assertion is one of the arguments raised by opponents of antiballistic missile defense (BMD) systems. If a state emplaced an effective BMD system, it is argued that such a state might be more prone to engage in offensive nuclear activities. The Soviet argument against the Strategic Defense Initiative (SDI) was based on this notion.[13] What this argument suggests is that nuclear options become more *rational* as actors become more invulnerable. This theory gathers historical support by again remembering Hiroshima and Nagasaki, in that security from retaliation appears to satisfy a necessary condition for offensive use of nuclear weapons.

B. NUCLEAR ACQUISITION ANALYSIS

Mutual vulnerability requires states to adopt deterrence strategies to defend against nuclear attack. Yet, the dynamic that provides deterrence really encompasses elements of offense as well. That is, offensive first-and second-strike capability defends states by encouraging mutual cooperation. Further, it is not necessarily clear that states seek nuclear weapons for purely defensive measures. That is, states may be willing to employ nuclear weapons offensively if they are invulnerable. Hence, the ensuing analysis will consider offense, defense, and deterrence, as possible motivations for state acquisition of nuclear weapons.

1. The First Five Nuclear States

The acquisition of atomic weapons by the United States in 1945 represented the most abrupt shift in the balance-of-power ever experienced by the world. It reenforced the fact that although systemic change is often incremental, it may also be

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[13]Scott Sagan, Moving Targets, (Princeton: Princeton University Press, 1989), pp.126-128.

revolutionary.[14] Furthermore, it also illustrates that change, particularly sudden change, is often difficult to predict.

Atomic weapons afforded the United States unparalleled power, prestige, security, and credibility, at the expense of other states. This heightened capability was particularly disturbing to the Soviet Union, in that it aggravated existing tension in American-Soviet relations. During the second world war, this tension was overshadowed by the need to cooperate within the alliance. The end of the war allowed this tension to resurface, subsequently, stimulating competition between the two nations. American atomic weapons not only threatened Soviet security, they challenged its international standing as well. This threat, when combined with the disproportionate number of Soviet war casualties, served to exacerbate an already existing notion of insecurity within the Russian Empire.[15]

Kenneth Waltz argues that great powers always imitate other great powers.[16] Although historically this may be true, the dynamics of this imitation more likely stem from power, prestige, and security. Imitation has little value unless it yields some perceived utility. The Soviet nuclear program during the late 1940s was a response to strategic asymmetry, an American nuclear monopoly that yielded unacceptable Soviet vulnerability and international status. The successful Soviet atomic test in 1949 did little to diminish anxiety regarding

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[14]Robert Gilpin, War and Change in World Politics, pp.44-47. The prospect of revolutionary change illustrates the importance of not adopting a totally deterministic framework when considering the notion of nuclear terrorism.

[15]Colin S. Gray, Nuclear Strategy and National Style, (Lanham: Hamilton press, 1986), pp.65-87.

[16]Kenneth Waltz, "The Spread of Nuclear Weapons: More May Be Better," Adelphi Papers, No. 171, (London,IISS, 1981), p.7.

America's nuclear arsenal. The Soviet leadership was particularly fearful of a preventive strike by the Americans. This fear was justified, in that during the 1950s, the American leadership contemplated just such an attack in an effort to sustain its policy of Communist containment.[17]

Tension with respect to the American threat was bolstered by John Dulles in 1954. In his speech, Dulles delineated what later became known as the policy of *massive retaliation*, a doctrine intended to contain all forms of Soviet and Chinese aggression. The *New Look* was designed to limit military spending by relying heavily upon a nuclear, rather than conventional, force structure. Although it was aimed at deterring Communist aggression, the *New Look* had distinct offensive overtones. "The general idea," the President told Congressional leaders late in 1954, was "to blow the hell out of them in a hurry if they start anything."[18] From the Soviet and Chinese perspectives, it is difficult to imagine anything but an offensive perception of American strategic policy during the 1950s. Failure of the *New look* to contain Communism combined with the growing Soviet nuclear threat, led the Kennedy administration to adopt a new strategy known as *flexible response*. This new doctrine represented a shift away from the offensive overtones of the *New Look*.

The Soviets responded to the American threat with a vigorous nuclear program. Although their nuclear build-up can be viewed as defensive, Soviet approach to nuclear warfighting was consistently offensive. That is, Soviet

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[17]John Lewis Gaddis, The Long Peace, (New York: Oxford University Press, 1987), pp.115-123. Also see Gaddis, Strategies of Containment, (New York: Oxford University Press, 1982), pp.54-88 for insight regarding the implementation of U.S. containment policy.

[18]John Lewis Gaddis, Strategies of Containment, pp.149-150.

doctrine embraced the notion that nuclear war was survivable and would have distinct winners and losers.[19] This offensive view of nuclear war is further evidenced by the enormous civil defense effort engaged by the Soviets. Similar efforts were all but abandoned by the United States by the early 1960s.

The emplacement of Soviet nuclear missiles in Cuba in 1962 can be classified as offensive, although the Soviets argued that the maneuver was defensive. From a Soviet perspective, the move was necessary to shore up security against American nuclear supremacy. Soviet propensity for the nuclear offense was also evident, in that nuclear release authority was given to tactical commanders in Cuba.[20]

Anxiety generated by the *New Look* and American support for Taiwan and South Korea, contributed to the Chinese acquisition of nuclear weapons in 1964.[21] Subsequent Chinese development was premised on the Sino-Soviet rift (which delayed their acquisition after Soviet nuclear sharing ended in the late 1950s) and the continued American influence in Asia.[22] China also feared the emerging American-Soviet nuclear detente and wanted to be recognized as a world power. Yet, Chinese acquisition appeared defensive in that its nuclear program remained relatively modest, apparently a *sufficient deterrence* strategy similar to that of France. This is

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[19]Colin S. Gray, Nuclear Strategy and National Style, pp.70-71; 87-89. Also see V.D. Sokolovskii, Soviet Military Strategy, (Englewood Cliffs, NJ: Prentice-Hall, 1963).

[20]This seems even more so since, doctrinally, centralized control is typical of Soviet leadership style and command structure.

[21]Bernard Brodie, Escalation and Nuclear Options, (Princeton: University Press, 1966), pp.27; 47-48.

[22]Michael Schaller, The United States and China in the Twentieth Century, (Oxford: University Press, 1979), pp.153-154.

consistent with the China's *third front* policy, which advocated prolonged struggle to defend the Chinese homeland from outside intervention.

The successful testing of British and French atomic weapons in 1952 and 1960 respectively, can again be portrayed as great powers imitating other great powers. The colonial legacy of the British and French likely contributed to their demand for nuclear weapons. That is, by the 1950s, both empires had decreased in size, leaving a void in perceived power and prestige. Nuclear weapons offered the British and French a means of recapturing filling this void. Yet, security likely played a larger role, in that both the British and the French questioned the credibility of the extended American nuclear shield.[23] The United States did not withdrawal its nuclear guarantee, but the perception of its effectiveness generated an independent demand by the British and French. This uncertainty led Great Britain and France to balance internally in order to bolster their own security. France, believing in sufficient deterrence (a strategy the United States appears to be aiming for in the 1990s), shifted further in the direction of balancing internally by detaching from NATO in 1966.[24]

The acquisition of nuclear weapons by each of these initial states involved internal balancing behavior. America internally balanced against the Japanese, the Soviets against the Americans, the Chinese against the Americans and Soviets, and British and French in response to uncertainty regarding an

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[23]Robert Rothstein, Alliances and Small Powers, (New York: Columbia University Press, 1968), pp.278-285.

[24]Lawrence Freedman, "The First Two Generations of Nuclear Strategies," in Peter Paret ed. Makers of Modern Strategies, (Princeton: University Press, 1986), pp.771.

American nuclear guarantee. However, elements of external balancing were also present, as shown by American nuclear assistance to Great Britain and Soviet nuclear assistance to China. France and its policy of *sufficient deterrence*, internally balanced by detaching itself from NATO. While the British, French and Chinese were focused on the defensive aspect of nuclear weapons, the Americans and the Soviets, whose nuclear forces were substantially larger, were particularly keyed on offensive strategy. Additionally, at the height of the cold war nearly fifty states balanced externally through nuclear security agreements with the United States.

2. Small States and Nuclear Weapons

a. India[25]

India successfully tested its first atomic weapon in 1974. Its decision to go nuclear was based on a perceived regional threat from both China and Pakistan. India suffered a defeat at the hands of China during the 1962 Himalayan war, and fought three wars with Pakistan between 1947 and 1971.[26] Pakistan's last defeat by India resulted in the loss of what is now Bangladesh. Since India sought a nuclear deterrent with Pakistan and China in mind, its acquisition of nuclear weapons appears defensive. Unlike previous nuclear states, India's perceived threat was regional. Additionally, in the case of Indio-Pakistani relations, it was deterring future conventional conflict, by nuclear means. That is, India had suffered great losses and had expended substantial resources

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[25]Although India is not a small state geographically or in terms of population, it is a small power. In this sense it has analytical utility regarding the acquisition of nuclear weapons.

[26]Seymour Hersh, "On the Nuclear Edge," The New Yorker, 69:6, (March 29, 1993), p.56.

waging conventional war with Pakistan. Nuclear weapons offered a means to deter future similar costs.

b. Pakistan

Pakistan countered India's nuclear capability with its own atomic arsenal, although it has not publicly acknowledged its existence. Facilitated by American technology and questionable support, Pakistan likely acquired its nuclear capability by late 1989 or early 1990. Evidence suggests that Pakistan's primary motive for acquiring nuclear weapons was its defeat by India in the 1971.[27] This lends further support to the notion that continuous expenditure of resources may satisfy a necessary condition for nuclear acquisition. Additionally, neither Indian or Pakistan could claim an alliance with a nuclear power, further catalyzing the need to balance internally against the perceived threat.

Pakistan's acquisition of nuclear weapons may also provide some important insight regarding offensive intent. It is alleged by the CIA that Pakistan and India were on the brink of nuclear war in the spring of 1990.[28] Fearing a conventional attack, Pakistan allegedly prepared its F-16 aircraft for a preemptive nuclear strike against Indian forces. Furthermore, Pakistan was evacuating thousands of workers in the city of Kahuta, the suspected cite of an Indian retaliatory nuclear strike. If this scenario is factual, it illustrates that sufficient conditions for the offensive use of nuclear weapons can be achieved, despite mutual vulnerability. That is, Pakistan was willing to accept the risk of a nuclear exchange as means of coercing Indian withdrawal.

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[27]ibid., p.56; 64.

[28]ibid., pp.56-64.

c. *Israel*

Israel has not publicly claimed a nuclear capability. However, it is widely believed that it possessed such a capability by the late 1960s. Israel does not have a nuclear guarantee from the United States, which may have contributed to its acquisition of nuclear weapons. Similar to India and Pakistan, Israel's acquisition is premised on a regional threat, one that emanates from the Arab community. At the time of acquisition, this threat was solidified by the 1967 and 1973 wars. The seriousness with which Israel perceives this threat is also evidenced by its substantial conventional military build-up.[29] Additionally, American interest in the Persian Gulf may also drive Israel to balance internally.

A unique aspect of Israel's nuclear capability is the amount of time that has elapsed without acknowledging it. Since Israel does not openly claim its nuclear capability, power and prestige may be less of a motive than security. The uncertainty regarding Israeli nuclear status is apparently sufficient to provide some deterrent value. This is difficult to measure, however, in that its conventional military power is quite formidable. Israeli silence is also designed to limit tension between the United States and the Arab community. Breaking that silence would provide the Arabs with justification for their own nuclear capability. Given the substantial conventional build-up by Israel, and its willingness to use that force regularly, Israeli nuclear aims are viewed as defensive. Nevertheless, Israeli silence illustrates that a nuclear coercive potential can exist absent a demonstrated capability.

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[29]Shai Feldman, Israeli Nuclear Deterrence, (New York: Columbia University Press, 1982) pp.2-14.

d. Iraq

In response to the suspected Israeli capability, Iraq began to develop its nuclear program in the 1960s. With French assistance, Iraq was very close to developing its own nuclear weapon by 1981. However, in June of that year, Israel launched a successful preemptive strike against Iraq's Osiraq Reactor. Iraq continued its nuclear program until the 1991 Gulf War.[30] Reportedly, Iraq was far closer to achieving a nuclear weapons capability than was suspected just prior to the invasion.[31]

There is little doubt that Iraq perceived a Israel as a regional threat to its security. The Iran-Iraq war likely reenforced Saddam Hussein's anxiety in this regard. Additionally, Iraq surely recognized the potential for power and prestige that would emerge from being the first nuclear Arab state. Yet, in the wake of the Gulf War, Iraq likely perceives a global threat as well, particularly from the United States. It is questionable whether the United States or the coalition forces would have invaded Iraq in 1991, had it possessed a nuclear capability. Regardless of the source of perceived threat, Iraq clearly balanced internally to shore-up its security. Given Iraq's its nature, which includes the use of chemical weapons, offensive nuclear intentions by Iraq are plausible.

3. Terrorists and Nuclear Weapons

There is fundamental evidence of terrorist demand for nuclear weapons. According to Senator Jeremiah Denton, in 1981 the Red Brigade questioned James Dozier, a kidnapped American

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[30]Shai Feldman, Israeli Nuclear Deterrence, pp.74-76.

[31]Baker Spring, "Controlling the Bomb: International Constraints on Nuclear Weapons Are Not Enough," Backgrounder, No. 941, (May 19, 1993), pp.1-2.

general, regarding the locations of nuclear weapons in Europe. Denton also claims that a member of the Red Army Faction (RAF) was captured with maps and sketches of nuclear storage locations and security routes.[32]

In 1987, a British documentary reported that the Palestine Liberation Organization (PLO) attempted to buy weapons grade material on the black market. Evidence of PLO interest in nuclear weapons also surfaced in 1984 during the trial of Glauco Partel, an Italian arms smuggler. Partel was charged with attempting to sell three atomic devices on the black market. It was later revealed that Partel's sale was a ruse designed to lure potential arms buyers. What is important, however, is that the PLO expressed an interest in buying such weapons.[33]

The Christian Identity Movement (CIM), a right-wing umbrella organization in the United States, openly advocates the use of nuclear weapons to meet its white supremacist objectives. The group's strategy was originally outlined in a novel, *The Turner Diaries*, by National Alliance founder, William Pierce. It was later adopted by the *Order*, the operational arm of *CIM*, as the blueprint for the right-wing movement in the United States. According to the scheme, *CIM* intends to take over California with the assistance of right-wing sympathizers from the military. They plan to gain access and control of the American nuclear arsenal (somewhere) and

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[32]Jeremiah Denton, "International Terrorism: The Nuclear Dimension," in Leventhal and Alexander, Preventing Nuclear Terrorism, 1986, p.152-153. Also see Peter deLeon, Bruce Hoffman, with Konrad Kellen, Brian Jenkins, The Threat of Nuclear Terrorism: A Reexamination, (Santa Monica: RAND, 1988), p.15; Brian Jenkins, The Potential For Nuclear Terrorism, (Santa Monica: RAND, 1977), p.8.

[33]Frank Barnaby, The Invisible Bomb, (London: I.B. Tauras, 1989), p.127.

launch a strike against New York and Tel Aviv, in an effort to cleanse the world of Jews. Following the attack, mass hangings of blacks, Jews, and other minorities will be ordered nationwide.[34]

These examples of possible terrorist interest in nuclear weapons are disturbing, though not necessarily compelling in and of themselves. Yet the post-cold war environment gives cause for concern about such reports and strategies. It is worth noting that the PLO, numerous Palestinian factions, and the right-wing groups have committed extraordinary amounts of resources in pursuit of their respective causes. Yet, the central focus of each group, Palestinian statehood and white supremacy respectively, are unlikely to be resolved in the near future. Both groups are particularly violent and relatively well financed. Despite the recent PLO-Israeli accords, civil war and political opposition is rampant in the occupied territories. Further, the right-wing movement is fueled by the notion of minority rights and has a profound hatred for most of the human race - little comfort in a world of nuclear proliferation.

C. CONCLUSIONS

The post-cold war environment is particularly conducive to the proliferation of nuclear weapons. This likely stems from two primary reasons, the increase in accessibility of nuclear weapons and the absence of Soviet influence over former satellite and client states. The demise of the Soviet Union catalyzed an abrupt shift in the balance-of-power. Similar to the 1945 era, this shift was unpredicted, revolutionary, and allowed the United States to emerge with

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[34]Brent L. Smith, Terrorism in America, (Albany: State University Press, 1994), pp.26;67. Also see Waymun C. Mullins, Terrorist Organizations in America, (Springfield: Thomas Books, 1988), p.98.

relative superiority over other states.

American preponderance of power and enlargement policies are likely viewed as threatening by many states and terrorists. This may stimulate states who feel threatened to passively or actively support terrorist proliferation efforts.[35] During the cold war, the United States and other Western nations were kept in relative check, thereby limiting large scale western exploitation of superior force. However, the post-Soviet era has induced asymmetric vulnerability, a situation in which the United States and its allies impose their will while other states are forced to endure it.[36]

The absence of external balancing prospects with the Soviet Union has resulted in many states pursuing a nuclear internal balancing option. Several small states, at a minimum, recognize the deterrent value of nuclear weapons and pursue them as a means to shore-up security and/or limit Western influence. The most recent support for this assertion is the American-North Korean accord. Regardless of the actual North Korean capability or intent, the perception of American weakness when faced with a potential nuclear threat is compelling. States such as North Korea, as well as Iraq, Syria, and Libya, raise the most concern in this regard due to their aggressiveness, previous ties to the Soviet Union, and the past sponsorship of terrorism.

Defensive motivations appear to be the primary motive for acquisition of nuclear weapons by states. Nuclear weapons

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[35]Of course such support may prove risky for such states in that they could later be targeted.

[36]The United Nations has somewhat limited the influence of the United States and the West. However, this limitation is really "self-imposed", in that the United States and/or its allies often pursue multilateral, as opposed to unilateral, options by choice rather than necessity.

provide small states with a relatively effective means of deterring aggression from regional or global threats. With the exception of the first five nuclear states, the primary acquisition catalyst appears to be regional threat. However, some regional threats are complemented by global threat as well. In the absence of a regional or intercontinental delivery capability, small states could employ instrumental targeting to achieve a nuclear deterrence. While initially this may appear implausible, it is important to recognize that a nuclear threat is *terrorist* whether it emanates from a ballistic missile or a parked Volkswagen. If a terrorist nuclear device remains undetected, it may have the same deterrent value as a sophisticated weapon system.

Notwithstanding the defensive motivations of states, there is compelling evidence of offensive intentions from many proliferators, to include the United States, Soviet Union, Pakistan, and Iraq. American contemplation of a preventive strike against the Soviet Union and the offensive overtones of the *New Look*, support the idea that nations may be prone to use nuclear weapons offensively in the absence of mutual vulnerability. This is further evidenced by the ABM argument, one that debates over the utility of a limited capability to defend against limited nuclear attack.[37] However, the notion that Pakistan was prepared to launch a preemptive strike against India suggests that asymmetric vulnerability is not a necessary condition for offensive nuclear use. Hence, the notion of using nuclear weapons offensively, whether by exploitation of potential force or actual detonation, may have only temporarily subsided in the wake of the cold war.

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[37]Scott Sagan, Moving Targets, pp.12-113. Also see Lynn Davis, "Limited Nuclear Options," Adelphi Papers, No. 121, (London: IISS, 1975-1976), for useful insight on limited nuclear attack and defense.

Although terrorists usually lack the institutions and territory of the state, they have similar concerns with respect to security, power, and prestige. Proliferation has essentially followed a path from superpower states, to great states, to small states. This path may indicate a trend toward nonstate actors, one supported by the fact that nonstate actors are attempting to sell and buy nuclear materials on the black market.

Currently, the international effort to combat terrorism appears to discourage states from becoming sponsors. This break between state sponsorship and terrorists is somewhat analogous to a small state separating from an alliance with a large state. Although there are structural differences between states and terrorists, both are hampered by limitations that detract from the ability to pursue specific objectives. Unlike small states, however, terrorists are not constrained by mutual vulnerability.

Terrorists, like small states, may be prone to seek nuclear weapons as a means of internal balancing. They may also have a greater propensity for the offensive use of those weapons by virtue of their invulnerability. There is evidence that suggests some groups have sought nuclear weapons and materials.[38] Based on this analysis, the following categories outline potential nuclear acquisition parameters for terrorist:

* **Offensive capability.** Provides a means to pursue organizational goals despite relative weak power, prestige and security. Would induce a shift in power and prestige at the expense of state adversaries. Unlike states, terrorists are not constrained by mutual vulnerability and may be more

[38]As discussed on pp.41-43, evidence of Red Brigade, PLO, RAF, and CIM interest in nuclear weapons/materials.

inclined to use nuclear means offensively.

* **Defensive capability.** Provides a means to deter retaliation against organization and/or its weapons. May be used in conjunction with offensive nuclear or conventional terrorist strategy.

* **Resource expenditure.** Substantial expenditure of resources (money, time, material, manpower, and prestige) without results, may encourage terrorists to seek more aggressive means of achieving their goals. Nuclear weapons are relatively inexpensive and expedient, particularly in the absence of mutual vulnerability.

* **Sponsorship loss/post-cold war era.** Encourages terrorists to seek new means of pursuing objectives. Like states, terrorists may balance internally in the absence of external support.

IV. THE DYNAMICS OF NUCLEAR TERRORISM

A. INTRODUCTION.

After Hiroshima and Nagasaki, it became apparent that nuclear weapons were not simply an improvement upon past weapons of war. Their destructive potential defied the idea of proportionality between means and ends, challenging the role of warfare as a mechanism for strategic interaction and defining the balance-of-power. Prior to the nuclear age, the state that achieved victory in war, could, if it chose, kill the losers. The advent of nuclear weapons allowed for mutual destruction, where the losers could ruthlessly punish the winners as well.[1]

President Truman felt compelled to use atomic weapons as a means of military expediency. Although he claimed to have no regrets about his decision to use the bomb, Truman understood how nuclear weapons altered the dynamics of warfare and strategic interaction. The President noted that:

> *It is a terrible thing to order the use of something that...is so terribly destructive, destructive beyond anything we have ever had. You have got to understand that this isn't a military weapon. It is used to wipe out women and children and unarmed people and not for military uses.*[2]

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[1]Robert Jervis, The Illogic of American Nuclear Strategy, (Ithaca and London: Cornell University Press, 1986), p.26.

[2]David Lilienthal, "The Journals of David E. Lilienthal," vol. 2, (New York: Harper & Row, 1964), p.391, as cited in Robert Jervis, The Illogic of American Nuclear Strategy, p.25.

The notion of mutual destruction brought with it the realization of mutual vulnerability. That is, unlike the prenuclear age, states could no longer protect their territorial boundaries in the traditional sense of defense. Traditional defense is aimed at limiting the impact of an attack and consists of two primary components - active and passive measures[3]. Antiballistic missile systems and interceptor aircraft are examples of active defenses. Their purpose is to reduce the number of inbound weapons launched by an adversary. Target hardening, shelters, and civil defense programs are examples of passive defense measures. They are designed to absorb an opponents attack.[4] These measures became insufficient for nuclear warfare, in that defensive failure risks catastrophic loss, potential destruction that is too costly for states to endure.[5]

In terms of nuclear strategy, deterrence became the surrogate for traditional defense. Mutual vulnerability mandated a *minimum* level of mutual cooperation between states. Deterrence theory holds that credible nuclear deterrence is dependant upon a survivable second-strike capability. That is, a state's nuclear force must be structured to survive a first-strike with sufficient second-strike potential. An opponent must perceive this retaliatory ability as sufficient enough to inflict unacceptable pain and punishment, which in turn will discourage the initial attack from occurring. In this sense, mutual vulnerability encourages states to cooperate to ensure their own security.[6] Mutual cooperation, however, represents a *security dilemma* for states. They can never be certain that other states will cooperate. Furthermore, states

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[3]Although one always strives to cutoff the attack of an opponent, in war partial failure and its accompanying costs are expected.

[4]Bernard Brodie, Strategy in the Missile Age, (New Jersey: Princeton University Press, 1959,), pp.180-181.

[5]ibid., pp.180-181.

[6]Robert Jervis, The Illogic of American Nuclear Strategy, pp.26-29.

often pursue security by means that challenge the security of others. Hence, it is important to emphasize that nuclear strategy is dependent upon the *willingness* of states to cooperate.[7] Figure 2 summarizes the operating dynamics of contemporary deterrence theory,

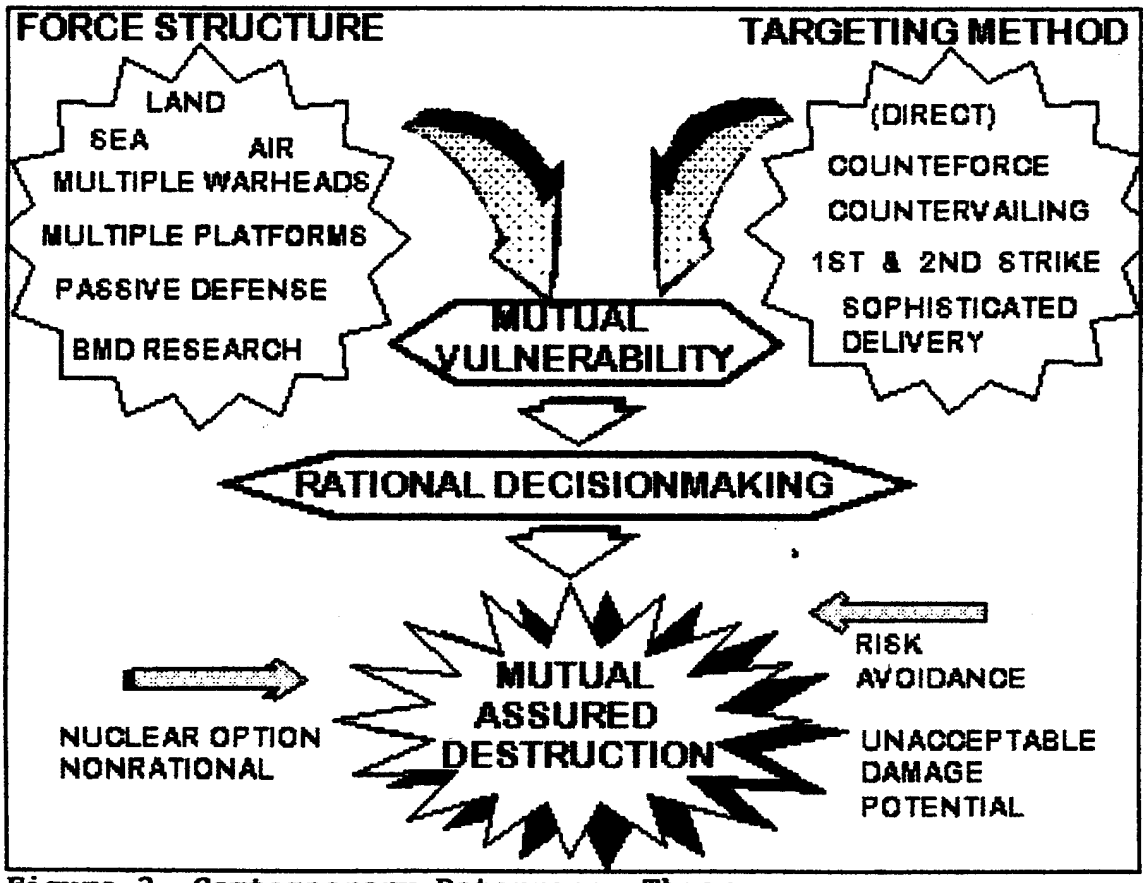

Figure 2. Comtemporary Deterrence Theory

[7]Robert Jervis, The Illogic of American Nuclear Strategy, p.21. Also see Jervis, "Cooperation Under the Security Dilemma," World Politics, 30:2, (1978), pp.206-214.

Mutual vulnerability, therefore, is seen as the pivotal variable that changed strategic interaction. Although there is an abundance of nuclear warfighting literature and doctrine, particularly from the United States and the Soviet Union, states generally view nuclear war as something to be avoided rather than fought. If mutual vulnerability is removed, that is if an actor has nuclear potential and is secure in the perception of invulnerability, it is reasonable to assume that such potential may be utilized to pursue the objectives of that actor. This assertion is consistent with the rational actor model, in that, if an opponent is invulnerable, the potential benefits of nuclear compellence may easily outweigh the potential costs of such action. After all, it is invulnerability that made nuclear compellence *rational* in 1945.

B. ESCAPING MUTUAL VULNERABILITY

A terrorist group contemplating the use of nuclear weapons, like the state actor, must convince its adversaries that its nuclear potential represents a credible threat. Unlike the state, however, terrorists generally lack territory and are relatively invulnerable to retaliatory attack. This invulnerability may allow terrorists to exploit nuclear potential with relative impunity. That is, the integration of invulnerability and covert instrumental targeting may provide sufficient conditions for terrorists to engage in nuclear compellence.

There are a multitude of variables that affect credibility and risk. These variable will be addressed further in the next chapter. However, there is an important relationship between credibility and vulnerability that bears mentioning. For illustrative purposes, suppose that two opponents are positioned in file so that opponent A is behind opponent B. Each opponent has a loaded pistol and is permitted to threaten the other if he desires. However, each opponent is restricted to firing his weapon to the front. The obvious implication of this restriction is that opponent B is vulnerable and opponent A is invulnerable. If opponent A aims his pistol at the head of opponent B and demands that opponent B shoot himself in the foot, opponent B will likely view the threat as credible and be compelled to comply. In contrast, if opponent B issues an

identical threat against opponent A, that threat would lack credibility because opponent A is invulnerable. However, if each opponent faces the other and is instructed to shoot the other in the foot or be killed, it is reasonable to assume they will each cooperate to survive. While this scenario could be altered to give numerous renditions of the *Prisoners Dilemma*[8], the point is that "under conditions of mutual vulnerability there is an inevitable trade-off between the credibility of threat and the extent of punishment being threatened."[9] An opponent that can not be targeted must be afforded a certain degree of credibility by default.

The inherent invulnerability of terrorists has several implications with respect to nuclear strategy. First, by removing the reciprocal threat between actors, it alters the dynamics that encourage mutual cooperation. Consequently, terrorists gain a relative advantage with respect to state actors. Terrorists may still cooperate, but their willingness to do so will not be a function of mutual threat unless they become targetable. Second, asymmetric vulnerability generates conditions that are conducive to the offensive exploitation of nuclear potential by the invulnerable actor. This is evidenced by the American use of atomic weapons in 1945 as well as its later doctrine of massive retaliation. Furthermore, it is consistent with the notion that actors may grow more aggressive as they become more secure. Unlike nuclear interactions between states, if coercive demands are disregarded, terrorists can carry out their nuclear threat and still remain invulnerable. Since the state cannot retaliate against an unknown opponent, this dilemma can continue for as long as the terrorist desires,

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[8]Robert Axelrod, The Evolution of Cooperation, (New York: Basic Books, Inc, 1981), pp.8-12. Also see Robert Jervis, "Cooperation Under The Security Dilemma," World Politics, pp.167-214.

[9]Robert Jervis, The Illogic of American Nuclear Strategy, p.74.

provided that invulnerability is maintained and the threat remains credible. Finally, unless a targetable sponsor is implicated, nuclear and conventional arsenals are of little value against a terrorist. Therefore, even the notion of a limited conventional response may not be an option against a nucler terrorist.

C. CONCEIVING NUCLEAR TERRORISM

In 1977, David Rosenbaum profiled a hypothetical scenario that provides an illustrative framework for understanding the dynamics of nuclear terrorism. The scenario demonstrates how invulnerability and instrumental violence can combine to form a potent coercive threat, a threat that can be utilized to compel states to meet terrorist demands. A summary of Rosenbaum's scenario follows:

> *In October 1981, 100 kilograms of plutonium are stolen while being transported from France to Italy. The French and Italian governments do not reveal the incident to the public. After searching for the plutonium for over a month, the two governments inform NATO, who in turn decides to keep the incident a secret.*
>
> *On December 24, the White House and most major news organizations receive a letter from an unknown terrorist group, the World Peace Brigade (WPB). The letter states that a nuclear device will be detonated within two days.*
>
> *On Christmas the WPB detonated a seven kiloton nuclear device in the Blue Ridge Mountains, 60 miles west of Washington, D.C. The president of the United States appears on television, and news of the blast quickly spreads around the world.*
>
> *On December 26, the group delivered a list of demands to the White House. The WPB ordered the President to immediately renounce all defense and security agreements, remove all troops from overseas bases within six months, and halt all sales and shipments of arms. Additionally, the WPB demanded that the United States reduce its troop strength to 75,000 within one year, contribute 50 billion dollars to the United Nations annually (for distribution to third world countries), and pardon all black and Spanish-surnamed prisoners that were*

incarcerated in federal institutions. The group warned the President that additional nuclear weapons were hidden in three American cities and that they would be detonated in the event that its demands were not met.[10]

Critics of deterrence theory often cite the possibility of *accidental* failure as reason enough not to embrace it.[11] Yet, the terrorist actions in this scenario, presumably based on peace and less American influence in international affairs, appears well within the parameters of *rational* decisionmaking. This is a paradox, in that deterrence theory predicts that rationality will prevent such an occurrence. Invulnerability, therefore, may provide sufficient conditions for terrorists to view nuclear compellence as rational.

The dilemma for the state facing the prospect of nuclear terrorism is that the terrorist may remain invulnerable for an unspecified length of time. In contrast, the state is confronted with perpetual vulnerability. If the state does not agree to terrorist demands, it risks nuclear catastrophe. However, agreeing to the demands does not necessarily avert catastrophe or guarantee that future demands will not be made. Further, complying with terrorists may set a precedent that encourages other organizations to utilize similar means.

D. MODELING THE STRATEGY OF NUCLEAR TERRORISTS

Although terrorists generally lack territory, their invulnerability is conditioned upon operational and physical security. To achieve viability, the nuclear strategy of terrorists must ensure this security. Like states, terrorists typically employ active and passive defense measures to

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[10]David Rosenbaum, "Nuclear Terror," International Security, 1:3, (Winter 1977), p.140.

[11]Robert Jervis, "Rational Deterrence: Theory and Evidence," World Politics, 41:2, (January 1989), pp.183-207.

strengthen their security. Aterritoriality and instrumental violence, factors that facilitate the offensive activities of terrorists, inherently provide an active defense as well. That is, these components essentially eliminate the ability of states to target terrorists. Yet counterterrorist efforts are sometimes successful. The exploitation of these successes is often mitigated, however, because terrorists typically organize into cells and employ covert communications - passive defense measures designed to absorb security compromises.

Terrorists may indeed seek nuclear weapons for their offensive coercive potential. However, actualizing that potential will require a *total strategy* that integrates offense, defense, and deterrence. Similar to traditional nuclear strategy, survivability will be crucial for nuclear terrorism. It is reasonable, therefore, to draw from contemporary principles, then modify them to form the framework for nuclear terrorist strategy.

1. Achieving Survivability

Nuclear forces of states are designed with survivability in mind. States employ radar and satellite networks to achieve an early warning capability. Further, states often maintain multiple warheads and diversified delivery platforms for force redundancy. Many of these platforms are hardened, mobile and/or clandestinely located (eg., silo hardening, mobile launchers, and submarines), passive defense measures designed to help absorb an attack.[12] In 1983, the United States introduced the Strategic Defense Initiative (SDI), an active defense concept designed to destroy incoming weapons.

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[12]Scott Sagan, "The Perils of Proliferation," International Security, 18:4, Spring 1994, p.85. Of course, small states lack the sophisticated technology of larger states. Nevertheless, early warning and force redundancy are objectives for small states as well.

The SDI was scaled back, though some believe only temporarily, in 1991. The current program is geared toward limited nuclear attack and a theater defense system. Although the Russians are behind the United States in SDI technology, they have remained committed to active defense and the antiballistic missile concept. They maintain the lead in some antisatellite technologies. The Chinese are also developing missile defense technologies, apparently driven by the revitalized American interest in active defense.[13]

Although they lack the resources to construct complex systems, these principles remain viable for nuclear terrorists as well. That is, terrorists can be expected to incorporate communication networks, redundancy, and active and passive defenses to reinforce their invulnerability, therefore, enhancing survivability.

The utility of clandestine communication techniques that terrorists typically utilize will be of limited value for nuclear strategy. Such methods are inexpedient, therefore, they do not facilitate the exchange of real-time information. However, the low-cost of relatively secure and sophisticated communications make early warning and coordination easily achievable. Of course early warning will not be a function of radar and satellites systems. Rather, it will more likely come from target observation and human intelligence (HUMINT) combined with radio and/or telephonic means[14].

Terrorist survivability, as opposed to the state, is more decisively differentiated between force and organizational

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[13]Patrick Garrity and Steven Maaranen, Nuclear Weapons In the Changing World, (New York: Plenum Press, 1992), pp.167-168.

[14]Early warning assistance could also come from state sponsors. However, compromise of state sponsors may jeopardize terrorist credibility, in that sponsors could be targeted.

survival. If a state's land-based forces and/or its cities are threatened, it risks survival because of territoriality. If the nuclear forces of terrorists are compromised organizational is not necessarily at risk because terrorists are surely not foolish enough to converge on their *cover targets.*[15] This study already proposed that terrorists are afforded credibility by default because of invulnerability. The notion that force compromise may not risk organizational survival provides additional evidence that the nuclear terrorist may enjoy credibility. Further, if terrorists employ multiple instrumental targeting, a concept explored in more detail later in this chapter, then force redundancy mitigates compromise and provides its own deterrence as well. States will be discouraged from attempting to locate and/or destroy a device, because such action may encourage terrorists to detonate others. That is, states will be encouraged to cooperate because terrorists are targeting their territory.

2. Modified Instrumental Targeting

Instrumental targeting is expected to serve as the means by which terrorist will employ nuclear weapons. However, it will require some modifications before instrumental targeting can be integrated with nuclear strategy. First, the instrumental target must provide conditions that facilitate the covert emplacement of the device for an unspecified length of time. This may prove somewhat problematic, though not decisively so, particularly if the device is excessively large. Additionally, since nuclear devices emit gamma radiation, sufficient measures must be taken to shield the weapon. Radioactive decoys may provide a passive means of

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[15]However, observation or some type of target monitoring will be required. This could be electronic, but will more likely consist of direct observation of a member. Regardless, terrorists can be expected to remain well outside the area of impact.

limiting or delaying device detection. Notwithstanding the need to conceal the weapon, there may be an important relationship between *device time on target* and its *physical security*. That is, the longer a device remains on target, the more likely that device may be compromised. However, this problem can be somewhat mitigated by a second modification, the use of simultaneous multiple instrumental targets.

Simultaneous multiple targeting provides force redundancy. Redundancy is important for both offensive and defensive reasons. Large-scale redundancy will not be necessary, provided that the locations of the nuclear devices remain covert, and therefore invulnerable. The basis of this assertion rests in the notion of *sufficient deterrence*. If the nuclear forces of a terrorist remain invulnerable, first- and second-strike calculations are relatively insignificant. The only force necessary is that which will inflict unacceptable pain and punishment.[16] As Kenneth Waltz notes, "not much is required to deter."[17] Yet if a terrorist is invulnerable, the force level that provides sufficient deterrence may provide sufficient compellence as well. This challenges Thomas Schelling's viewpoint on credibility and nuclear terrorists, as he applies it to deterrence and compellence. Schelling proposes that "terrorist nuclear threats have a comparative advantage toward deterrence."[18] However, he contends, that terrorists, like states, will have a credibility problem when attempting to employ nuclear

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[16]Scott Sagan, "The Perils of Proliferation," International Security, p.86.

[17]Kenneth Waltz, "The Spread of Nuclear Weapons: More May Be Better," (London, IISS, 1981), Adelphi Papers No. 171, p.17.

[18]Thomas Schelling, "Thinking About Nuclear Terrorism," International Security, 6:4, (Spring 1982), p.73.

compellence. His argument is premised on the idea that compellence is more difficult than deterrence.[19] However, Schelling does not appreciate the potential relationship, as illustrated in this study, between invulnerability and credibility.[20] If a terrorist can inflict unacceptable pain and punishment on a state while remaining invulnerable, the credibility gap between deterrence and compellence seems awfully narrow. If an opponent is invulnerable, unacceptable pain and punishment is *unacceptable* whether it stems from a deterrent or compellent threat.

Multiple weapons will likely generate more anxiety than a single device, and therefore, provide more compellent and deterrent potential. Also, if a demonstration device is used it may be wise to retain additional weapons for credibility.[21] Similarly, in the event that one or more devices are compromised, multiple devices provide a second-strike capability.

In the abstract, terrorists may visualize compiling a large number of weapons to ensure redundancy or achieve a sense of power and prestige. Of course, monetary and/or technical resources may limit the numbers of devices they can obtain. Nevertheless, terrorists must also temper redundancy requirements with their ability to manage the force effectively. Manpower, technical skill, communication, and organizational efficiency, are resources that will prove

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[19]ibid. Schelling states that deterrence is more simple than compellence. Deterrence is timeless and only requires an opponent to continue not doing something. In contrast, compellent threats have deadlines and require an opponent to do something.

[20]ibid.

[21]It may not be necessary to actually possess another device to create the perception of second strike capability.

crucial to this ability. Failing to recognize organizational limitations will be counterproductive and may ultimately lead to failure.[22]

There is also an important relationship between actual and perceived force structure. For example, in the Rosenbaum scenario, the WPB claimed to possess three nuclear weapons. Each of these weapons was *hypothetically* positioned at an undisclosed location within an American city. Yet, the claim that it possessed additional devices was neither confirmed nor denied. The group could have three weapons as it claims, some number more or less than three, or it may have exhausted its entire arsenal. Consequently, the size of the arsenal may be less important than the *perception* of its size. It is possible to establish a credible threat without additional weapons, or perhaps without any weapons. A case in point is that Japan had no means of determining that the United States temporarily exhausted its nuclear arsenal in 1945. The uncertainty regarding the status of American weapons arsenal proved sufficient to establish its credibility.

3. Instrumental Target Selection

Contemporary nuclear strategy has often given rise to a debate over targeting military installations as opposed to cities. The notion of select targeting seems a plausible debate for nuclear terrorist strategy as well. That is, rather than employing the random targeting techniques that are typical of instrumental violence, terrorists may be inclined to apply a select targeting methodology.[23]

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[22]Scott Sagan, "The Perils of Proliferation," International Security, p.95.

[23]Thomas Schelling, "Thinking About Nuclear Terrorism," International Security, p.73. Schelling also supports the idea of selective targeting against military installations.

Targeting military installations offer terrorists several potential advantages over indiscriminate targeting of large populations. First, public knowledge of a nuclear threat against a military installation would still create substantial anxiety. The general population would still realize that, if required, terrorists could extend their threat to include populated areas. Second, targeting military installations may appear more humane, therefore, generating support within the group's constituency. That is, targeting the military may create the perception of interaction between combatants, thereby making the threat appear more justified.[24]

To illustrate this point, suppose that a conservative right-wing organization, *The Covenant to Protect Neonatal Rights (CPNR),* is committed to repealing Roe v. Wade. After years of failure and the expenditure of millions of dollars, the group decides to use nuclear means to compel the American government into meeting its demands. The group informs government officials and the press that it has purchased four nuclear weapons, devices formally part of the Soviet tactical nuclear arsenal. The group issues a statement that reads:

> *In hopes of stopping the horrible murders of our children, CPNR has placed nuclear devices in the vicinity of four United States military installations. We demand the immediate repeal of Roe v. Wade and a constitutional amendment that bans abortion in the United States. We further demand legislation that mandates the death penalty for those who receive or perform abortions.*
>
> *We know that many American citizens support neonatal rights and wish us success. For that reason, we have brought this war to the soldiers of the government that permits these murders to continue. The decision to not demonstrate our nuclear power is premised on our profound respect for all life and the desire to ensure the safety of*

[24]ibid., pp.73-74.

American citizens. However, have faith in our capability and resolve. Failure to meet our demands within 30 days will result in detonation of the first device.

The CPNR also provides video evidence of the devices and demonstrates the requisite knowledge necessary to detonate the weapons. Russian and American experts advise the president that the group has the technical capability to carry out its threat.

The dilemma depicted in this scenario is complicated by the notion that it is reasonable to assume some level of passive and/or tacit support for the CPNR. This support is expected for two reasons. First, the group has only targeted the military and has not directly threatened the general population. Second, although many Americans may not applaud the idea of nuclear compellence, many may have similar beliefs regarding neonatal rights.[25] Ultimately, this dichotomy may play a significant role in the decisionmaking process of the terrorist organization and the American government. Importantly, selective targeting need not be confined to military installations. Terrorists could conceivably target any objective that may assist in legitimizing their exploitation of nuclear potential. As Schelling notes:

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[25]ibid.

> *...by eschewing massive retaliation against homeland populations, and avoiding threats of destroying enemy societies as such, it may legitimize its nuclear role and appear less humane or destructive than the greater nuclear powers. What ever it achieves for them, striking the posture may not cost them much.*[26]

4. Multiple Targets of Influence

Targets of influence are not necessarily limited to one actor. It is conceivable that a terrorist may utilize multiple instrumental targets to influence multiple state actors. The reasons for influencing multiple actors may often be conflicting, but is typical of terrorism and strategic interaction. Schelling also considers the notion of nuclear terrorism and multiple targets of influence likely.[27]

Recall from chapter II that the Palestinian terrorist group, *Hamas*, is attempting to influence the leaders within the PLO, the Palestinian people, and the Israeli government. Furthermore, *Hamas* is sending a signal to the international community that it does not support the Israeli-Palestinian peace accords. .

The Palestinian issue provides an opportunity to consider nuclear terrorism and targetable territory. It is not likely that the PLO could use nuclear weapons to gain statehood. That is, targeting Israel may prove unrealistic, particularly since the fallout of a nuclear blast may impact on the occupied territories and other parts of the middle east. Also, given the usual voracity of Israeli counterterrorist policy, Israel *may be inclined* to risk targeting parts or all of Palestine if faced with a nuclear

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[26]ibid.

[27]ibid.,pp.74-75.

threat.[28] Sufficient conditions may exist, however, for Palestinian factions, like Hamas, Abu Nidal Organization (ANO), or other group that support the statehood objective, to use nuclear means. Similar to the hypothetical right wing CPNR scenario, the Palestinian issue has persisted for an extensive period of time, consumed many resources, and yielded limited results. In a case like Palestine it may be possible to mitigate territoriality in a fashion that renders a nuclear option rational.

Nuclear targeting of other state actors may prove effective in this regard. Despite the fact that the Israelis represent the key barrier to Palestinian statehood, it may not be necessary to target Israel to achieve that objective. Suppose, for example, that a terrorist faction targeted an American and British city with two nuclear weapons. Intent on demonstrating credibility, they decide to detonate another device 50 miles off the coast of Florida or perhaps against a select target. The group claims that is not associated with the PLO and that it does not support the current peace accords. The following demand is issued:

> *We, the saviors of Palestine demand the return of 50 percent of our homeland, now occupied by the Israeli invaders. Gaza and the West Bank will be part of this homeland. We further demand that Palestine be declared an independent state. The United Nations must issue assurance, in writing, that no retaliatory action will be taken against the people of Palestine.*
>
> *We will appoint a emissary to represent our people in the United Nations and expedite the treaty. Israel, the United States, and Britain must sponsor the agreement and provide monetary aid to rebuild Palestine. This seems only fitting since these nations generated our demise.*

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[28] However, it is worth remembering the alleged Indio-Pakistani confrontation in 1990, in that mutual vulnerability may not necessarily inhibit nuclear exploitation.

Following the declaration of our deserved and long-awaited statehood, elections will be held to determine the new leadership of Palestine. Yasir Arafat, an Israeli collaborator, will not be permitted to run for any office.

In this scenario, the Israelis would be discouraged from acting unilaterally, since such action may cause American And British casualties. The Americans and British would also be discouraged from acting for similar reasons. Aggressive action by the Israelis would also disrupt the peace process with Jordan and the other Arab communities, despite the fact that much of that community has abandoned Palestine. Further, Arafat has *some* legitimacy with the West and a portion of the Palestinian people.

Attempting to influence multiple actors is, therefore, seen as a viable option for terrorists. Though the Palestinian question is illustrative in this regard, it may be applicable in other instances as well. For example, the earlier discussion of the right-wing group, CPNR, could be expanded to include France and the production of RU-486. That is, an invulnerable terrorist organization like CPNR, could target military installations in the United States and France, then demand that each nation halt production, testing, and distribution of RU-486.

5. Means of Delivery

It is reasonable to assume that terrorist organizations will lack the sophisticated means of delivery enjoyed by many states. Yet, the need for rapid and sophisticated delivery systems is a symptom of state vulnerability. Since terrorists are relatively invulnerable, there is no compelling need to incorporate such systems in terrorist nuclear strategy. Further, crude delivery and invulnerability offer some advantages to terrorists:

> *...an organization that needs only a small boat to dock in a metropolitan harbor, with a nuclear weapon on board and someplace to operate a two-way radio, can hardly be starved into second thoughts of denial of soybeans, military spare parts, or air traffic: and it evidently can not be invaded or captured or we wouldn't have the problem in the first place.*[29]

There are many means in which terrorists could deliver nuclear weapons. Certainly, there will be operational limitations, such as number of devices employed, geographical area covered, communications available, and time allotted. But, much of what will limit terrorists delivery of nuclear weapons is their own resourcefulness. For example, a vehicle could sit in one of millions of parking lots (as it did at the World Trade Center) or garages, and remain unnoticed for months. A storage shelter aboard ship or on land may also do nicely. The weapon could be buried, placed in the foundation of a building before the concrete dries, or placed under the streets in a sewer system. With some effort, it could even be smuggled on-board a military or civilian aircraft.

6. The Incentive to Detonate

Invulnerability may provide terrorists with a greater incentive to detonate a nuclear device than state actors. The decision to detonate may, of course, be influenced by other factors of strategic interaction. Yet invulnerability not only provides sufficient conditions for terrorists to exploit nuclear potential, it provides a necessary condition for the group to carry out its threat as well. Not only can the group carry-out its threat, it can continue to do so until its resources are exhausted.

Related to detonation incentives is the issue of establishing credibility through demonstration versus

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[29] ibid., p.75.

inflicting casualties. In 1945, this issue was hotly debated within American political and scientific circles.[30] A critical factor in the American decision to detonate was limited resources, specifically the number of warheads that were available. This factor may prove crucial for terrorists as well, consequently, prompting a similar solution. That is not to say that inflicting casualties is the sole means of achieving credibility. However, inducing thousands, or perhaps millions, of casualties provides a more powerful signal of commitment than a mere demonstration. As shown by the United States, one's willingness to do so may be strengthened by invulnerability.

E. CONCLUSIONS

Mutual vulnerability is key to contemporary nuclear strategy. It provides the mechanism that encourages mutual cooperation between states. Once vulnerability becomes asymmetrical, sufficient conditions are generated for actors to pursue their objectives by nuclear means. In terms of strategic interaction, this lack of symmetric vulnerability represents a breakdown in the traditional theory of deterrence.

The perception of security usually accompanies invulnerability. If this perception is complimented by a disproportionate means of influencing adversaries, actors should be expected to exploit this advantage. Most terrorists are inherently invulnerable by virtue of their aterritoriality. Instrumental violence strengthens this invulnerability, as does other active and passive defense measures taken by terrorists. Hence, terrorists may be

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[30]Lawrence Freedman, "The First Two Generations of Nuclear Strategists," in Makers of Modern Strategy, ed. Peter Paret, (Princeton: Princeton University Press, 1986), pp.735-74.

inclined to exploit nuclear potential. Invulnerability may also provide a necessary condition for terrorists to carry-out a nuclear threat as well.

Contemporary nuclear strategy is based on survivability. Although terrorists are relatively invulnerable, their nuclear strategy must also focus on survivability. Terrorists can use redundancy, multiple targeting techniques, and special delivery methods, in conjunction with instrumental violence and invulnerability to meet survivability requirements.

Terrorist only require a small nuclear force to deter or compel state adversaries. Nuclear terrorists may be seen as credible by virtue of their aterritoriality and because, unlike states, terrorists are unlikely to be physically linked to their nuclear force. Credibility may also be afforded a terrorist because the potential incentive to carry-out a nuclear threat. Further, by using multiple targets of influence, sufficient conditions may be generated that mitigate the potential existence of targetable territory of terrorists. Figure 3 provides illustrates the dynamics of nuclear terrorist strategy.

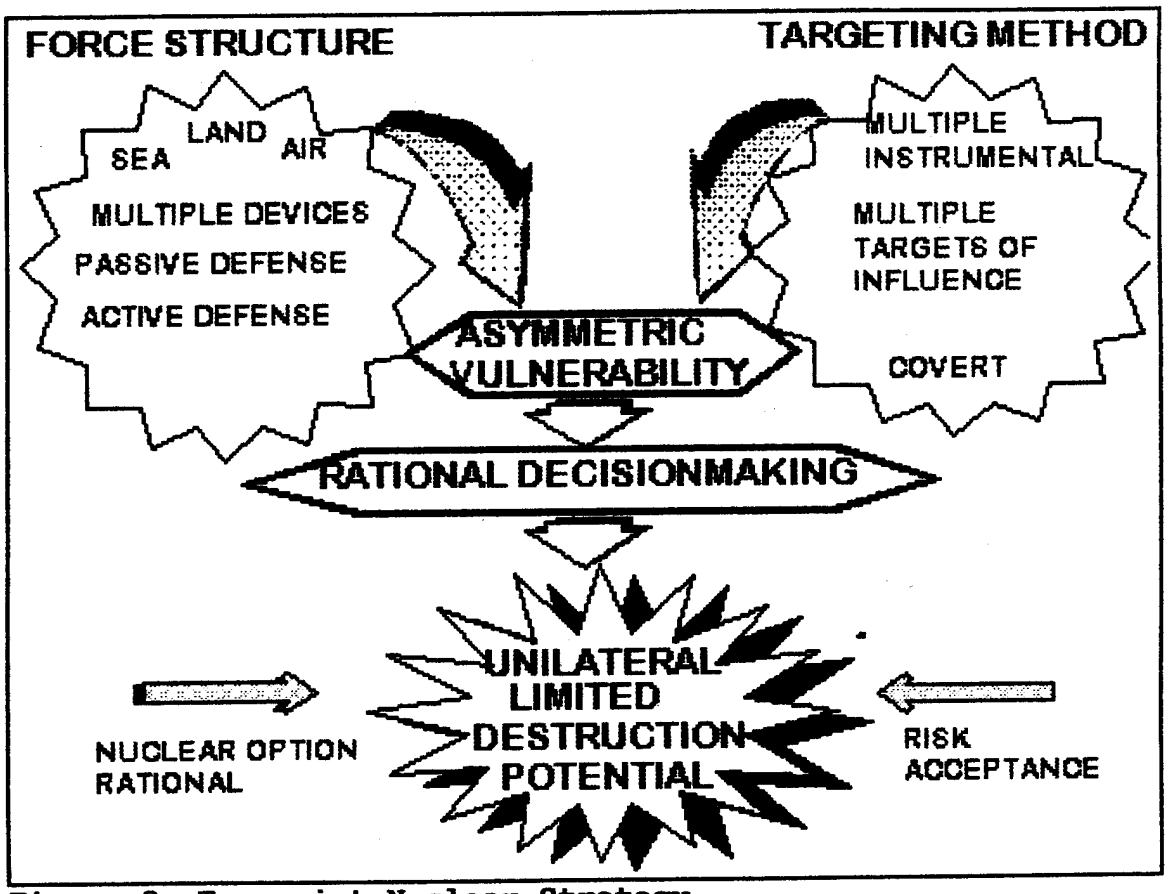

Figure 3. Terrorist Nuclear Strategy

V. CONCLUSION

A. INTRODUCTION

This study has found support for the notion that both the necessary and sufficient conditions for nuclear terrorism exist. Specifically, the three necessary conditions - supply, demand, and strategy, appear to be satisfied; and taken together provide the sufficient conditions for terrorists to pursue their limited objectives by nuclear means.

The accessibility of nuclear materials, weapons, technology, and expertise, is rapidly increasing the number of aspiring proliferators. The spread of nuclear weapons has essentially followed a path from the superpowers, to large states, to small states. This path may indicate a trend toward nonstate actor acquisition, an idea supported by nuclear black market activity and by fundamental evidence that some groups have expressed an interest in nuclear weapons and/or materials.

Terrorists suffer from weak relative power, a weakness that may be further aggravated by the post-cold war period. The abrupt shift in systemic power has eliminated external balancing options for previously aligned states and provided opportunities for the exploitation of Western power. This asymmetry discourages terrorist sponsorship, which may stimulate terrorists to seek internal balancing options. Tables 1 and 2 provide a summary of the primary factors that have influenced supply and demand for nuclear weapons and materials in the post-cold war period.

PROLIFERATION IN RELATIVE CHECK
BIPOLAR STABILITY (AMERICAN/SOVIET DOMINANCE OF SYSTEM
EXTERNAL BALANCING OPTIONS AVAILABLE * ALLIANCE/ALIGNMENT OF STATES AND TERRORISTS * STATE SPONSORSHIP OF TERRORISM WIDESPREAD

Table 1. Cold War Period

NUCLEAR WEAPONS/MATERIAL ACCESSIBILITY INCREASE
ABRUPT SYSTEMIC SHIFT (LOSS OF SOVIET INFLUENCE)
WESTERN PREPONDERANCE IN POWER/EXPLOITATION OF POWER
EXTERNAL BALANCING OPTIONS ABSENT *STATES/TERRORIST BALANCE INTERNALLY *STATE SPONSORSHIP OF TERRORISM LIMITED

Table 2. Post-Cold War Period

Analysis of nuclear terrorist strategy represents a key aspect of this study. Its dynamics alter the fundamental components of contemporary deterrence theory, as illustrated in Figure 4. Specifically, traditional deterrence theory predicts that mutual vulnerability renders the nuclear use option nonrational. The integration of terrorist invulnerability and instrumental targeting generates

conditions in which the nuclear option becomes rational. Importantly, this rational option extends beyond nuclear deterrence to provide the sufficient conditions for nuclear compellence as well.

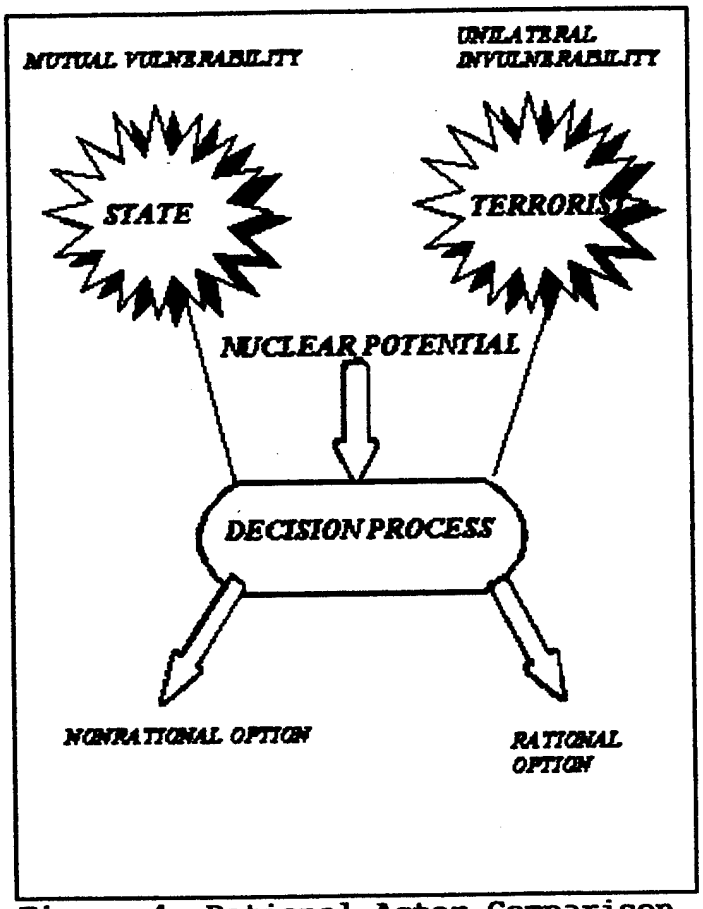

Figure 4. Rational Actor Comparison

B. NUCLEAR PROLIFERATION: MORE MAY NOT BE BETTER

The spread of nuclear weapons and materials seriously jeopardize international stability. The demise of the Soviet Union increased this threat for two reasons. First, there is suspect control of nuclear weapons and materials throughout the former empire, a concern that is substantiated by the increasing trade of weapons grade plutonium and uranium on the European black market. The anxiety about the potential loss of control is further evidenced by the transport of weapons grade uranium from Kazakhstan to the United States in November 1994. The control problem is aggravated by the poor economic conditions within the former Soviet Union, conditions which have increased the number of nuclear experts seeking employment on the global market. Second, although many policymakers expected a *peace dividend* after the cold war, the abrupt shift in the balance of power proved particularly destabilizing. This shift has stimulated exploitation of advantages in relative power held by the United States and its allies. The recently articulated American policy of democratic enlargement may be viewed as threatening by many states, and perhaps by some terrorist organizations as well. In the absence of Soviet alignment/alliance options, states may be encouraged to balance internally to meet their security needs. Many small states already recognize the deterrent potential of nuclear weapons and seek them as a means to shore-up security and/or limit western influence.

Although terrorists usually lack many of the institutions or the territory of states, they have similar concerns with respect to security, power, and prestige. Further, weak relative power detracts from the ability of both terrorists and small states to pursue specific objectives. Assuming that an effective strategy can be adopted, terrorists may be prone to seek nuclear weapons as a means of balancing

internally as well.

Traditional deterrence theory, rooted in the notion of rationality, predicts that mutual vulnerability will encourage cooperation among a variety of actors. Perceived reciprocity in means and resolve generate conditions that are *insufficient* for a nuclear exchange, in that the potential costs far outweigh the potential benefits. However, nuclear terrorist strategy introduces variables that break down mutual vulnerability between actors. By incorporating nuclear weapons, modified instrumental targeting, and invulnerability, *sufficient* conditions are generated for terrorists to exploit nuclear potential. Mutual cooperation no longer remains a necessary condition of survival.

Since terrorists are relatively invulnerable, only a small nuclear force structure is required to deter or compel their state adversaries. Yet, because their invulnerability is conditional, terrorist nuclear strategy, like that of states, must focus on survivability. Terrorists can enhance arsenal survivability by employing many of the principles found within contemporary nuclear strategy. These principles include device redundancy, multiple targeting techniques, and special delivery methods.

Terrorists are unlikely to be physically linked to their nuclear force, affording them a certain degree of credibility by default. Terrorists may be more predisposed to carry-out a nuclear threat because of their invulnerability to retaliatory strikes, affording them further credibility. They may also be inclined to utilize select targeting as a means of gathering constituency support.

Many experts suggest that nuclear proliferation will promote international and/or regional stability. Faced with mutual vulnerability, it is argued, rationality will encourage future proliferators, as it has present nuclear states, to

cooperate. From an organizational perspective, Scott Sagan has challenged those that support proliferation, concluding that such spread may not promote stability.[1] Further, opponents of deterrence theory discourage proliferation because having more nuclear *players* increases the likelihood of accidents. These arguments are convincing, and if nothing else, support a common-sense perspective that limiting proliferation is probably better that encouraging it. This study lends further support to the nonproliferation argument, in that when an actor os invulnerable, rational calculations will encourage, rather than discourage, the exploitation of nuclear potential. Specifically, invulnerability renders nuclear exploitation a *rational* option for terrorists, thereby increasing the potential for instability. This fundamental change in the dynamics, as shown in Figure 5, provides *compelling* additional evidence that the spread of nuclear weapons will prove destabilizing, clearly indicating that such spread is not better for the international system.

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[1]Scott Sagan, "The Perils of Proliferation," International Security, 18:4, (Spring 1994), pp.67-107.

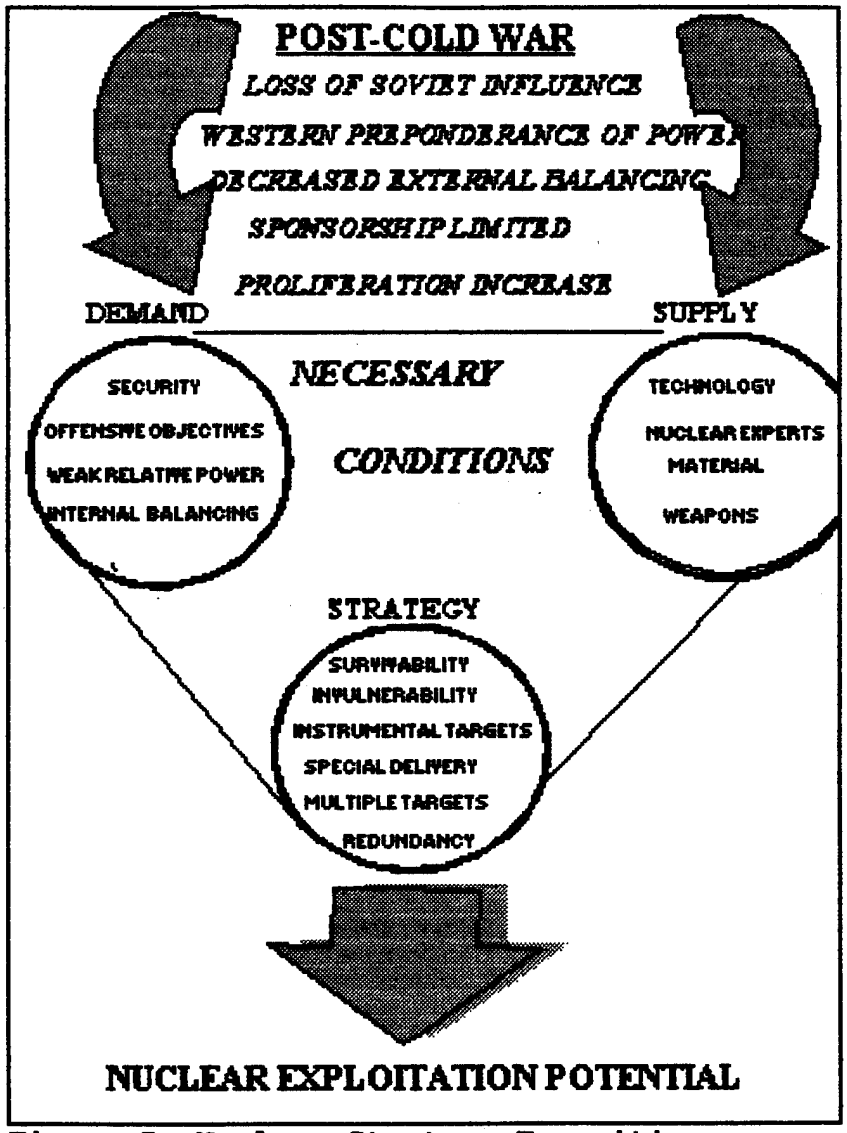

Figure 5. Nuclear Strategy Transition

C. LIMITED NUCLEAR WAR

The notion that terrorists may pursue their objectives by discriminate limited nuclear means is contradictory to contemporary thinking regarding limited nuclear war. Although the idea of limited nuclear warfare is well known, determining sufficient conditions for its execution has proven a matter of considerable debate. The key component of the debate centers on escalation control, a concern that is essentially a function of mutual vulnerability.

The conditions which led the United States to adopt the *Schlesinger Doctrine* in 1974, provide additional insight into nuclear terrorism and limited nuclear options. In 1970, President Nixon was concerned about the limitations of American nuclear policy. He and other policymakers were fearful that the Soviets could launch a limited attack on American military targets while threatening to launch additional attacks on its cities - in effect a situation of nuclear blackmail. The possibility of such a scenario, it was argued, mandated an American doctrine that provided limited attack options as well.[2]

In 1974, US Secretary of Defense James Schlesinger, unveiled National Security Decision Memorandum (NSDM)-242, outlining limited nuclear options as part of American strategic policy. The new policy, later dubbed the Schlesinger Doctrine, had two fundamental objectives. First, provide a more credible deterrent by introducing nuclear options that were more rational than mutual assured destruction (MAD). That is, the credibility of deterrence would improve if a mechanism for proportional responses to Soviet nuclear attack existed. This in turn would enhance the

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[2]Lynn Davis, "Limited Nuclear Options," Adelphi Papers, No. 121., (London: IISS, 1975-1976), pp.4-5.

credibility of NATO and its *first use* policy in the event that conventional defenses failed in Europe. Second, NSDM-242, was viewed as a means of escalation control, that is it allowed time for diplomacy to work as well as time for the enemy leaders to reevaluate the costs and benefits of any nuclear exchange.[3]

Opponents of the Schlesinger Doctrine insisted that limited nuclear options were destabilizing. Specifically, they maintained that making nuclear war appear more rational would encourage leaders to seek nuclear options rather than avoid them. Herbert Scoville argued:

> *...it is misguided thinking to believe that deterrence against nuclear war can be improved by increasing the likelihood that strategic nuclear weapons will be used.*[4]

The decision to adopt the Schlesinger Doctrine was one that recognized the fluidity of strategic conditions and the potential consequences of limited nuclear attack. That is, the United States perceived that sufficient conditions could develop that might render the nuclear use option rational. Nuclear terrorist strategy inherently provides the credibility and escalation control sought by Schlesinger. This is because, in principle, the same dynamics that stimulated American fears of a Soviet limited attack are applicable to the notion of nuclear terrorism as well. Both ideas revolve around nuclear blackmail, the difference being in the degree of relative vulnerability and the potential level of violence. Mutual vulnerability meant that the best the Americans or the Soviets could hope to achieve against each other was

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[3]ibid., pp.42-44. Also see Scott Sagan, Moving Targets, (Princeton: Princeton University Press, 1989), pp.42-44.

[4]Herber Scoville, "Flexible Madness," Foreign Policy, Vol. 14 (Spring 1974), pp. 175-176.

limitation of the possibility and consequences of nuclear attack. Although this limitation may or may not have contributed to American-Soviet stability, the resultant framework is not necessarily one in which the nuclear option is rational. In relative terms, limited nuclear attack may indeed be more rational than total nuclear war. However, given the continued existence of mutual vulnerability, it does not indicate that the limited nuclear option actually became rational. This of course is the center of the limited option debate.

In contrast, invulnerability affords the nuclear terrorist what can essentially be called a unilateral limited destruction (ULD) capability. The terrorist can pursue objectives with limited nuclear means without suffering a reciprocal threat from the state. However, "A characteristic of nuclear weapons, unlike live hostages, hijacked ships or aircraft... is there is not an inherent limitation on how long a nuclear threat can last, and no necessity for surrender of the weapon at the end of a successful negotiation."[5]

1. Preemptive and Preventive Strikes

The invulnerability of terrorists refers to more than simply a nuclear exchange. As demonstrated in the Vietnam, and Korean Wars, even in the absence of mutual vulnerability, leading states may decide to limit war below the nuclear threshold. By way of contrast, however, invulnerability may *encourage terrorists to* use nuclear potential to pursue limited objectives. Further, the invulnerability of terrorists not only renders state nuclear forces relatively ineffective, but state conventional forces as well. This represents a significant problem, in that the dire prospect of

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[5]Thomas Schelling. "Thinking About Nuclear Terrorism," International Security, pp.71-72.

terrorists acquiring nuclear weapons may justify preventive and/or preemptive strikes. Yet, the dynamics that make nuclear terrorism a unique problem all but eliminate the ability to take such action once acquisition has occurred.[6] Specifically, to ensure long-term results, preemptive or preventive strikes may require additional attacks. Further, an argument against preemptive and preventive attacks on nuclear states, is that such attacks may encourage covert nuclear development. That is, fearing future attacks, states may use covert measures to protect their nuclear programs. Subsequently, future threat assessment as well as additional attacks would become more difficult. However, once a terrorist acquires a nuclear capability, invulnerability is already a significant factor.

2. **Arms Races**

If a terrorist organization is successful at nuclear exploitation, it may simulate other groups to seek nuclear weapons as well. In particular, the international community should suspect rival factions of nuclear capable terrorists as possible proliferators. Further, terrorists that have interests similar to that of another nuclear capable group, should also be considered potential proliferators. In this respect, a successful nuclear terrorist incident will likely intensify the proliferation problem.

Terrorists are invulnerable to other terrorists as well as states. Any struggle for power, that is nuclear competition, will likely take place on state territory. This

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[6]Shai Feldman, Israeli Nuclear Deterrence, New York: Columbia University Press, 1982), pp. 71-75; 44-52. For example, the preventive attack on the Osiraq nuclear facility in 1981, stimulated Iraq to shift its nuclear program from a relatively overt posture to one that became covert - that is it became less vulnerable.

represents a significant dilemma for states, in that the demands of each group may be contradictory. The potential for device detonation, which may be the intention of a rival group, may be extremely high regardless of state actions. As already indicated, the prospects for military preemption and/or prevention appear somewhat bleak, once terrorists acquire nuclear weapons.

D. POLICY IMPLICATIONS

The policy implications of this study fall into two broad categories. The first section focuses on proliferation control prior to terrorist acquisition of nuclear weapons and materials. That is, once terrorists acquire nuclear potential, their invulnerability renders the prospect of preventive and/or preemptive success relatively remote. The second category centers on the available alternatives once a nuclear terrorist threat occurs. Specifically, states and/or the international community will be compelled to engage in negotiations with terrorists and must find a means to deter nuclear exploitation.

1. Prevention

The nuclear proliferation problem is somewhat analogous to drug interdiction and illegal immigration. Unless adequate resources are applied to the problem and a commitment is made to enforce violations, little progress will be realized. Of course, the International Atomic Energy Commission (IAEA), the Nonproliferation Treaty (NPT), and the American-led Counterproliferation Initiative, are theoretically designed to combat and control the proliferation problem. Yet these acts have done little to curb proliferation. Further, these measure are not specifically geared toward nonstate actors, perhaps a symptom of motivated bias regarding terrorism and nuclear strategy. Regardless, the primary reason that nonproliferation efforts have failed is relatively simple - there is no unity

of effort. All nuclear capable states, that is those that use, buy, and/or process nuclear resources of any kind, must be committed to attacking the proliferation problem.

Since the United States seems bent on the exploitation of its own power via its *enlargement* strategy, it needs to take the lead to combat proliferation. This will require a substantial increase in human intelligence (HUMINT) assets and special operations forces designed to deal with nuclear weapons and material. Further, research and development of long-range low-level radiation detection devices should be a priority. Absent cooperation of other nuclear powers, the United States must be prepared to act unilaterally to stop proliferation. This will surely irritate many states and may be destabilizing in the short-term. However, this potential destabilization will be trivial compared to that caused by terrorist nuclear blackmail. Leaders must be prepared to accept these potential short-term costs, even if they cause military conflict, to ensure long-term global stability.

Developing a typology of *potential nuclear terrorists* in an effort to prevent proliferation is probably not realistic. However, there may be indicators that can assist the international community in identifying potential proliferators. A summary of these indicators in shown in Table 3.

* Previous evidence of interest in nuclear materials, weapons, and technology.
* Advocates the use of nuclear weapons to pursue goals.
* Long-term expenditure of resources without results.
* Propensity for large-scale violence.
* Current/previous sponsorship of nuclear state.
* Rival factions of groups that already possess a nuclear capability.

Table 3. Proliferator Indicaters

2. Bargaining After Prevention Failure

Although all efforts must be made to prevent nuclear terrorism from occurring, states must prepare for the inevitable. Those who believe that a nuclear terrorist attack will never occur are trapped by wishful thinking and the paradigm of traditional deterrence theory. This is particularly dangerous with respect to nuclear terrorism, because the concept introduces complex strategic problems. Waiting until the crisis develops before resolving these issues, substantially decreases the likelihood of a favorable outcome.

Bargaining with nuclear terrorists essentially consists of two fundamental alternatives. First, states can meet terrorist demands and wait for the next nuclear threat or second, states can refuse to meet their demands and risk the potential devastation. These are very difficult choices which underscore the necessity for exhaustive and aggressive counterproliferation measures prior to terrorist acquisition

of nuclear weapons. Nevertheless, states must evaluate (wargame) potential scenarios and be prepared to deal with the threat once it occurs. A nonconcession or noncompromise policy may not be the prudent universal choice.

A nuclear terrorist threat against states will involve considerable uncertainty between all actors. The terrorist organization must communicate three critical factors to the state - that its nuclear capability exists, that it is committed to using that capability, and its specific objectives. Similarly, the state must communicate its intentions to the terrorist organization, often a difficult task for most politicians. The word *communicate* is critical, in that there are often misperceptions during crisis. A terrorist group may perceive that it has successfully signaled credibility, but in reality the state may remain unconvinced. In contrast, the state may perceive the threat as credible, but intentionally or unintentionally not *communicate* this perception to the terrorist. Further, states may be inclined to view the threat as credible and/or detonation imminent because terrorists are often viewed as nonrational.[7] Terrorists maintain an advantage in this regard, in that it does not always pay to be perceived as rational.[8] Of course, if the terrorist group has no nuclear capability, and/or is not committed to carrying out its threat, the lack of state response has no immediate impact.[9] In contrast, if such a

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[7]Brian Jenkins, The Consequences of Nuclear Terrorism, (RAND: Santa Monica, 1979), p.2.

[8]Thomas Schelling, Arms and Influence, (New Haven: Yale University Press, 1966), p.37.

[9]However, this introduces the "Cry Wolf" problem. It may prove problematic with respect to future nuclear threats by terrorists that are credible, in that the state may be more predisposed to discount a new threat as a hoax.

capability and/or commitment does exist, avoiding misperception will be crucial.

Maintaining a covert invulnerable nuclear posture indefinitely would present a significant resource, command, and control challenge for terrorists. Like states, terrorists must plan an entrance and exit strategy, that is the threat is not an end in and of itself. Further, vulnerability risks may increase with time if device locations remain static. Similar to the mobile launcher concept used by states, terrorists may attempt to enhance force survivability by randomly changing target locations over time.

Consistent with terrorism in general, that is the pursuit of limited objectives, nuclear threats may be part of a campaign geared toward a larger objective.[10] States should be aware of this potential and not seek a short-term solution in an effort to resolve an immediate crisis. That is, there is no compelling rationale for assuming that terrorists will relinquish control of a nuclear capability at the end of a crisis, particularly if they are successful. Further, there is no sure means of verifying that a terrorist group has given up its nuclear weapons, even if it has actually done so.

A potential option may exist for ending the invulnerability of terrorist by seeking means of instrumental countertargeting. If intelligence assets can link nuclear terrorists to something that can be targeted, even if the evidence of that link is slight, the threat could be mitigated or eliminated by deterrence. This will require detail organizational analysis of all terrorist groups, a difficult but essential task. Further, conducting a detailed organizational analysis is consistent with the theoretical

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[10]Thomas Schelling, "Thinking About Nuclear Terrorism," p.66.

framework of this study, in that a comprehensive attack against nuclear terrorism will require the integration of other levels of analysis as well. Findings from such analysis may provide *unique* organizational insight that may prove useful in bargaining situations, or in designing innovative means to undermine terrorist invulnerability.

E. FINAL COMMENTS

The invulnerability aspect of nuclear terrorism is comparable to that of a state armed with a near perfect ballistic missile defense (BMD) system. However, unlike the a state with BMD capability, there is little chance of overwhelming terrorists with conventional or nuclear capability, even from space. Given these dynamics, states have few means at their disposal to combat such a threat. Consequently, preventing acquisition is the best way to counter nuclear terrorism.

Current nonproliferation policies are unlikely to prevent terrorists from acquiring nuclear weapons. A decisive and relentless campaign must be launched to stop proliferation as well as control and/or destroy nuclear stockpiles. If agreement among nuclear players cannot be achieved, the United states must act unilaterally to ensure long-term global stability.

Policymakers must also be prepared for prevention failure. The number of potential scenarios involving nuclear terrorism are every bit as complex as those which have plagued nuclear strategists for nearly fifty years. Yet motivated bias about nuclear strategy and terrorism has prevented thoughtful analysis of this complicated and dangerous problem. As Irving Janis notes:

> *...shared rationalizations are often based on stereotypes and ideological assumptions about the enemy that are widely accepted within the government bureaucracy, contribute to the members' unresponsiveness to impressive information that otherwise would incline them to rethink the pros and cons of alternative courses of action.*[11]

Policymakers must rethink the unthinkable, and design new methods to undermine terrorist invulnerability, which may subsequently deter nuclear exploitation. Waiting for the *possibility* of nuclear terrorism to become a *reality* before considering the options, will surely yield a greater problem still.

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[11]Irving Janis, Groupthink, (Boston: Yale University Press, 1982), p.83.

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