Policy, Proliferation and the Nuclear Proliferation Treaty: U.S. Strategies and South Asian Prospects

Joanne Finegan

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ASIAN PROSPECTS
JOANNE FINEGAN*

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The spread, or proliferation, of nuclear weapons technology and capability, while not a new issue, has in recent years become more of a threat to world stability than ever before. Since the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) took effect nine years ago, the specter of proliferation has grown, not diminished, and has become a reality in India, and perhaps elsewhere. This global issue is compounded by the political, military, economic, and technological complexities of the status of nuclear development. Strict adherence to the NPT is a necessary prerequisite to discouraging weapons production, but even parties to the Treaty have disagreed as to its interpretations and obligations, creating gaps in policy capable of exploitation not only by non-nuclear-weapon states but also by those states with weapons capability. Also, the failure of certain strategic states to conform to the spirit and letter of the Treaty has obviated it as the single definitive means to non-proliferation.

For the 109 states which have signed the Treaty, though, the obligation not to contribute to the proliferation of nuclear weapons is a legal one.

This paper will examine the legal obligations of parties to the NPT — those of weapons states and non-nuclear states. The interpretations of these obligations by the states themselves will be analyzed. The case of India will be explored, particularly as it relates to criticisms of the NPT by states which have not become parties. The capability and motivation behind a threshold country's decision to "go nuclear" will be reviewed, with emphasis on the process of proliferation under which India proceeded. U.S. non-proliferation policy will be analyzed, from a historical standpoint and also in light of its most recent non-proliferation efforts. The prospects for Pakistan as a threshold state will be discussed with respect to its particular motivations and apparent directions. Finally, recommendations directed toward steps which can help ensure that the purposes of the Treaty are realized will be presented, focusing on the development of United States policy as a supplier state, and as the foremost proponent of nuclear development in the world.
I. International legal obligations of the Non-Proliferation Treaty

International efforts to restrict nuclear energy to peaceful purposes have taken several forms: bilateral and multilateral treaties, international organizations such as the International Atomic Energy Agency (IAEA), arms limitations negotiations, and export policy accords between major suppliers. The cornerstone of these efforts is the Treaty on the Non-Proliferation of Nuclear Weapons (Non-Proliferation Treaty),¹ which presently has 109 signatories. Through the work of the IAEA a safeguards system has been established whereby any country may voluntarily submit to inspections, audits, facility design approval and deposit of nuclear materials with the IAEA. The NPT complements the IAEA structure by imposing treaty obligations on non-nuclear-weapons states to accept safeguards, and by prohibiting the transfer of special fissionable material (i.e. plutonium) to any non-nuclear-weapons state without IAEA safeguards. Within this international framework for proliferation control, however, there are no sanctions against violators who divert nuclear material to a military purpose, other than announcement to the world community after detection of such violations.² Despite these and other shortcomings of the Treaty, it remains the most comprehensive of efforts to retard proliferation.

Legislative history. Much of the substance of the NPT can be traced to a resolution adopted unanimously by the United Nations General Assembly on December 4, 1961.³ This resolution called on all states, particularly those possessing nuclear weapons, to conclude an international agreement under which nuclear states would refrain from relinquishing control of nuclear weapons or transmitting essential information to non-nuclear states, and non-nuclear states would refrain from attempting the manufacture or control of such weapons. As of that date, there were four states possessing nuclear weapons: the United States (1945), the USSR (1949), the United Kingdom (1952) and France (1960).⁴ The emphasis of this resolution was on the non-transfer of control over nuclear weapons, retaining, at

² Gleissner, J.D. Recent US efforts to control nuclear proliferation. 10 Vanderbilt Journal of Transnational Law 271, 276 (1977).
least implicitly, the possibility of transfer of possession for strategic alliance purposes.

The United States and the USSR were the primary negotiators in the implementation of the 1961 resolution. Their initial efforts produced a “Joint Statement of Agreed Principles” for conducting multilateral negotiations on disarmament, and two agenda items for discussion in the Eighteen Nation Disarmament Committee (ENDC): reducing the risk of war through accident, miscalculation, or lack of communication, and non-proliferation of nuclear weapons.\(^5\)

The ENDC was a joint creation of the two superpowers, established subsequent to the General Assembly resolution as a forum for discussion of an international proliferation agreement. It was composed of five NATO members (Canada, France, Great Britain, Italy and the United States); five Warsaw Pact members (Bulgaria, Czechoslovakia, Poland, Rumania, and the Soviet Union); and eight non-aligned states (Brazil, Burma, Egypt, Ethiopia, India, Mexico, Nigeria, and Sweden).\(^6\) The adopted procedure was the presentation of separate draft treaties by the U.S. and the USSR, with discussion of disparities and compromises taking place within the ENDC, NATO, and the General Assembly. The resulting treaty was commended by resolution of the General Assembly on June 12, 1968.\(^7\) The treaty entered into force in March, 1970, in accordance with paragraph three of Article IX of the Treaty.

The success of the Treaty depends on several factors. The effect of some contingencies are not capable of ready determination; for example, changes in the development of the world political situation, and the success of the two nuclear superpowers in limiting their arms race. Other factors will have a much more decisive impact on the Treaty’s success: the willingness of the parties to strictly adhere to its tenets, and the balancing of obligations to make the Treaty more acceptable to certain states which have so far refused to accede to the Treaty.

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6. 16 U.N. GAOR 1129, A/Res/1722 (XVI), Jan. 3, 1962; Documents on Disarmament, 1962, at 741. Although France was nominally a part of the ENDC, it never took part in the proceedings.

7. A/Res/2372 (XXII), U.N. Doc. A/7016/Add. 1, at 5, June 10, 1968. Among those abstaining from the vote were Brazil, France, India, Spain, and Argentina.
A. Nuclear-weapons states and the Non-Proliferation Treaty

The specific obligations imposed on nuclear-weapons states are set out in Article I of the Treaty, which prohibits among other things transfer of nuclear weapons, "other nuclear explosive devices," and control over such weapons and devices to non-nuclear-weapons states. These terms, not expressly defined in the Treaty, are open to the possibility of varying interpretations by the weapons-states parties, particularly the USSR and the U.S.

Among the weapons states, there is virtually no disagreement as to the meaning of nuclear weapons and nuclear explosive devices. The definition advanced by the United States for "nuclear weapons" is included in the Atomic Energy Act:

Any device utilizing atomic energy, exclusive of the means for transporting or propelling the device (where such means is a separable and divisible part of the device) the principal purpose of which is for use as, or development of, a weapon, a weapon prototype, or a weapon test device.8

The Soviet Union has generally agreed with this definition, which excludes nuclear delivery systems, as well as propulsion elements such as nuclear powered submarines. There has also been agreement between the nuclear super-powers that "other nuclear explosive devices" include the so-called "peaceful nuclear explosives" (PNE) that differ from nuclear weapons only in intended use, not technology. The restriction placed on the acquisition of PNEs is a major area of contention between the nuclear-weapons states and states such as Brazil and India, which view such a restriction as hampering technological and economic development and relegating non-nuclear weapon nations to permanent inferior status in their utilization of nuclear energy for peaceful purposes. These arguments will be explored in more detail as factors deterring such states from becoming parties to the NPT.

The concept of "control" over nuclear weapons was one of the major barriers delaying completion of NPT negotiations between the United States and the Soviet Union. The United States, mindful of its defense obligations under NATO, insisted that deployment of nuclear weapons to non-nuclear weapons allies, such as West Germany, did not entail the transfer of control as long as the weapons were legally owned by the U.S. and remained in the physical custody of U.S.

armed forces. The Soviets were just as adamant that West Germany and other European allies not have "access" to nuclear weapons. The compromise reached on this issue basically reflected the existing U.S. policy embodied in the Atomic Energy Act of 1954. The NATO defense system remained intact, and the issue of control was limited to the concept of authority to decide the use of the nuclear weapons — actual, not potential, control.

Another obligation imposed by Article I is the prohibition against assisting, encouraging, or inducing any non-nuclear-weapon state to manufacture or acquire nuclear weapons. One question repeatedly raised during the ENDC discussions was the point at which such a prohibitory regulation could be focused. The United States was willing to simply prohibit manufacture; the Soviet Union draft treaties on this point included "preparations for manufacture" among the forms of prohibited assistance. The final agreement did not mention preparations for manufacture, relying on the safeguards of Article III to detect and control such preparations.

The technological advances made since the Treaty was negotiated, however, have more closely linked civil power programs with weapons development, making it easier for non-nuclear weapons states to move closer to weapons acquisition without deviating noticeably from the peaceful uses limitation of the Treaty. Specifically, the breeder-reactor, which creates more weapons-grade plutonium than it expends, and reprocessing plants, which allow uranium-importers to recycle their plutonium from spent fuel rods and achieve autonomy within a self-perpetuating fuel cycle, have blurred the line between peaceful nuclear development and development of a weapons option. Fuel-cycle technology is the "missing link" for many countries in the development of an indigenous nuclear program with the capability of weapons production.

There is yet another obligation which, while directed to all parties to the Treaty, is aimed particularly at the nuclear weapons states. Article VI calls on all parties to pursue negotiations in good faith toward cessation of the nuclear arms race, and toward general

and complete disarmament. With respect to the former goal, some progress has been made; with respect to the latter, virtually none. In moving toward resolution in these areas, it is not as important to scrutinize the history and negotiations on the SALT talks, for example, as it is to scrutinize the philosophy underlying the position of the two governments involved. The main premise on which the governments of both the U.S. and the USSR base their nuclear arms limitation philosophy is that a nuclear stockpile is primarily for military purposes and not for political clout. This leads each of the two countries to conclude that a state can never have enough nuclear weapons to maintain effective strike capabilities against the other power. It is not satisfaction with either offensive or defensive capabilities, nor a desire for "stabilized arms control" that has led these states to the negotiating table. Such incentives would have resulted in the conclusion of an agreement years ago. Rather, what has brought these two nations to accord has been the more pedestrian matter of economics. Consider the following synopsis of a document presented by the Russian Foreign Office:

The motives may have been selfish; the reasoning was wholly excellent. The ever-increasing expense of armaments (so Count Muravieff, the Russian Foreign Minister, argued) was touching public prosperity at its very source; the intellectual and physical powers of the people, labour, and capital, were being turned aside from their natural functions and consumed unproductively; hundreds of millions were being spent on engines of destruction which, today considered as the highest triumph of science, were destined for the rubbish-heap tomorrow, as a result of some new discovery. The armaments of each power were increasing in size, but they succeeded less and less in accomplishing their object, the preservation of peace; economic crises, due largely to the expense of excessive armaments, and the constant dangers resulting from the accumulation of war material, made the armed peace an overwhelming; indeed a futile, burden, since the continuation of the race was leading inevitably to catastrophe.

This analysis of continued stockpiling of arms is no less cogent now than when it was first asserted as a prelude to the Hague Peace Conference, in 1898. If anything, these arguments are even more compelling today than they were eighty-one years ago, given the advances in technology during the intervening years, and the rate at which obsolescence occurs in the tactical military weapons field. The two superpowers, however, have begun to yield to economic reality without altering their basic perception of nuclear weapons acquisition as primarily a military rather than a political tool.

Such an attitude is to be contrasted with that of the other nuclear weapons states as well as with that of several of the near-nuclear states. What has been termed "the French view" argues in effect that nuclear weapons are basically political, or terrorist, in nature, hence a modest nuclear force would be highly effective. To that, U.S. policy makers and defense analysts respond that a small force is of little consequence precisely because it is too small to be militarily effective. Such a response assumes conclusions based on a "rational war" scenario first promulgated by U.S. defense intellectuals to rationalize mushrooming military budgets in a time of peace. This scenario became popular during the late 1950's and assumed a U.S. first strike against the U.S.S.R. aimed at Soviet missile centers, with a "bonus effect" of substantial damage any such strike would cause to nearby population centers. The second strike would be aimed at our population centers, which would be evacuated in anticipation of such retaliation. This strike would not do significant damage, it was argued, because of the initial destruction of the opponent's weapons. U.S. cities would be repopulated once fallout had subsided. The first strike scenario justified the acquisition of large amounts of weapons to destroy similarly large amounts on the Soviet side while conveniently ignoring the impossibility of total evacuation of U.S. cities.

In the 1960's an opposite approach was developed by defense tacticians which assumed a Soviet first strike against our missile bases. To prepare for this possibility, the prospect of evacuation of cities was abandoned; downtown buildings were designated as "fallout shelters" and citizens were encouraged to build bomb shelters in suburban and rural areas for protection against the bonus effect a first strike by the Soviets would have. The basic contradictions between the first and second strike scenarios were never clarified; meanwhile the missile reserves grew. Moreover, the proponents of the

first and second strike theories ignored the fact that the only offensive use of nuclear weapons to date had been directed not toward the conventional weapons bases which a rational war first strike assumes, but toward the Japanese population centers of Hiroshima and Nagasaki. The terrorist nature of these attacks was not lost on countries such as France, China and India when it came to the development of their own nuclear strategy.

B. India and the Non-Proliferation Treaty

The case of India presents a prototype by which the motivations and capabilities of non-nuclear-weapons states may be measured, particularly those countries which are not signatories to the NPT and are on the threshold of weapons proliferation. India, which had been one of the strongest and most active proponents of non-proliferation in the 1950's and early sixties, began to reevaluate its policy in terms of nuclear deterrence after China exploded its first atomic bomb. India was part of the ENDC which conducted the discussions on negotiation of the Treaty, but did not become a party to the Treaty. At the time of the ENDC Conferences, India was a non-nuclear state beset by security problems, particularly with regard to China, which had attacked India with conventional weapons in 1962 and which had acquired nuclear capability by the time of the onset of the ENDC Conferences. During the conferences, India was in vocal opposition to inherent discrimination within the draft treaty proposals, in that limitations were placed only on the ambitions of non-nuclear countries and not on those of existing nuclear powers. This was partially a result of the process used by the ENDC in negotiating the treaty. The two nuclear superpowers, the United States and the Soviet Union, presented separate draft treaty proposals simultaneously and work within the ENDC consisted largely of give and take between these two countries regarding their expectations and obligations, without, in India's eyes, sufficient regard to what was expected of them in return by the non-nuclear nations. The result was a treaty acceptable to the U.S. and the Soviet Union, but unacceptable to a number of states, particularly those with both a substantial civil nuclear power program and ongoing security problems. India was a

member of the latter group of states at the time of its rejection of the NPT.

India was critical both of the general assumptions underlying the Treaty and several of its specific provisions. One general premise underlying the NPT was the notion that the United States and the USSR would separately agree to protect their own allies from nuclear blackmail or attack by the other. This umbrella concept was also an outgrowth of the military doctrine viewpoint examined above, and is fallacious for two reasons. First, it minimizes the terrorist character of nuclear weapons, the fact that they are most effective when used against civilian populations. It is naive to believe that the U.S. would jeopardize its own civilian population by putting it at the mercy of an ally whose foreign policies are beyond U.S. control, particularly in light of the isolationist feelings which have developed subsequent to the Vietnam war. Furthermore, an umbrella concept defies the established fact that countries may have permanent interests, but not permanent allies. India, and some of the threshold countries, have been reluctant to place their security at the mercy of one or another of the super-powers, for nationalist reasons and in recognition of the tenuous nature of allegiances. Prior to the adoption of the draft treaties in the ENDC, India had demanded an adequate security agreement, in effect a joint U.S.-Soviet guarantee, in return for signing the Non-Proliferation Treaty, but it was not forthcoming. The Soviets would not cooperate in furnishing a pointedly anti-Chinese promise to India, and the U.S. would not consider it without an option to be absolved of its obligation should the Soviets refuse to come to India's aid under attack.17 The U.S. was also reluctant to agree to come to India's aid, feeling that it would then be obligated to make similar commitments to other threshold states, possibly involving the U.S. in remote wars in which it had no vested interests.

The second fallacious premise on which the Treaty was based was the assumption that the U.S. and the USSR would join in a military alliance to destroy another country's attempt to develop nuclear weapons, if other attempts at deterrence were ineffective. If the two superpowers were serious about halting proliferation, the threat of joint retaliation against a proliferating country would be the ultimate deterrent. But the Soviets were already concerned about possible Chinese reaction to a prospective alliance, and the U.S. was unwilling

to undermine the confidence of its European allies for the sake of a truly effective deterrent to proliferation.

To India, several specifics of the Treaty were objectionable, as well as some of its underlying premises. India found the balance of obligations weighted heavily to the detriment of non-nuclear-weapon states. In that respect, attention was first drawn to Article I of the Treaty, where three loopholes in particular were criticized. The first was that although the nuclear-weapon states were prohibited by its terms from transferring control over such weapons to any state, the prohibition against assistance in nuclear weapons production was against non-nuclear-weapons states only; that is, assistance by one nuclear weapons state to another in the matter of production of nuclear weapons was not prohibited. 18 The second loophole concerned the use of the terms “transfer” and “control” in Article I. India has noted that these terms have specific legal connotations not encompassing the prospect of establishing nuclear weapon bases in the non-nuclear-weapon countries, control being retained by the concerned nuclear-weapon state. 19 India has criticized this “indirect proliferation” and the deficiency in the Treaty of its treatment of the personal character of proliferation, but not its territorial character. India’s broad view of proliferation includes all its forms: vertical, horizontal, direct, indirect; the distinctions made in the Treaty are indistinguishable in India’s view. This is evident in India’s third objection to Article I: the lack of prohibition against the stockpiling of nuclear arsenals by the nuclear-weapon states. India finds it counterproductive to differentiate between vertical proliferation, the increase in nuclear arms stockpiles by weapons states which the Treaty ignores, and horizontal proliferation, the increase in states developing nuclear weaponry which the Treaty expressly forbids. India has also asserted that vertical proliferation is in contravention to principles enunciated by the General Assembly, particularly in its Resolution 2153A (XXI), which begins:

Noting that it has not yet been possible to reach an agreement on an international treaty to prevent the proliferation of nuclear weapons,

Viewing with apprehension the possibility that such a situation may lead not only to an increase of nuclear arsenals

and to a spread of nuclear weapons over the world but also to an increase in the number of nuclear-weapon Powers, ... 20

In India's eyes, this resolution contemplated a prohibition of further production of nuclear weapons by nuclear-weapon states. The construction of the resolution does indicate that to the General Assembly, vertical proliferation is the foremost component in the conception of proliferation of nuclear weapons. The Indian position on proliferation by the nuclear weapons states is that the loopholes provided in Article I create an illusory obligation, unlike the exacting and comprehensive restrictions placed on the non-nuclear weapon states elsewhere in the Treaty.

The imbalance of obligations is reflected in other aspects of the Treaty. For instance, India objected to the imposition of IAEA safeguards over the peaceful nuclear industry of non-nuclear-weapon states, considering it an infringement of national sovereignty. The safeguards were made mandatory for non-nuclear-weapon states to detect and prevent diversion of peaceful nuclear plants and materials to clandestine military use. These safeguards were considered somewhat extraneous for nuclear weapon states on the assumption that states already possessing nuclear weapons would have no reason to develop a secret arsenal. In addition, the Soviets have so far refused to allow international inspection on their own territory, and the U.S., although advocating inspection safeguards, was willing to concede its application to the nuclear-weapons states. This was seen, in India, as "an invidious discrimination of a humiliating character based on an unfounded distrust of non-nuclear weapon states and the desire to safeguard the national interests of the nuclear weapon states. . . . This is yet another manifestation of inequality in the draft Treaty." 21 India's objections to this inequality have acquired more validity in recent years due to the increasing awareness of possible acquisition of nuclear explosives by individuals through theft. 22

The security assurances, or lack of them, were also a subject of India's concern. As a non-aligned state, India noted that non-nuclear-weapon states, who are asked to deprive themselves of the right to produce and acquire nuclear weapons, should acquire adequate

collective security measures against nuclear attacks. Since the Treaty is silent on this issue, any collective measures must be in accord with the U.N. Charter. There is nothing in the Charter which assures immediate help against aggression as a matter of course. The Security Council, of which each of the states with veto power is a nuclear-weapon state, would most likely be paralyzed in the event of a nuclear attack. This leaves non-nuclear-weapon states little choice but to align themselves with one or another military pact, such as NATO or the Warsaw Pact. India, unwilling to do this, preferred security guarantees to come from powers "in different camps," but such a joint U.S.-Soviet guarantee has not been feasible. Even if it were, such an arrangement would have to be reciprocal, in that one party would be obliged to aid India in a nuclear attack only if the other party averred in the situation. India has been justifiably unwilling to depend for its security on the continuation of U.S.-Soviet détente. And, as far as U.S. support goes, India has been wary of alignment with the U.S. since the 1971 India-Pakistan War, when the U.S. aided Pakistan.

The dichotomy between the nuclear-weapon states and the non-nuclear-weapons states created by the Treaty in terms of obligations, responsibilities, and benefits, institutionalized an inferior status for India which it was not willing to maintain. Their representative to the ENDC stated before that body that:

By all means let us talk of regulation of armaments — universally; by all means let us talk of non-armament — universally; by all means let us talk of arms restraint and arms control — universally. But any attempt to impose non-armament particularly on unarmed countries, and any tendency to talk only in terms of imposing nonarmament on some countries — weak countries, countries which have faced, are facing and will face threats to their security and loss or occupation of their territory, countries which face threats to their independence and territorial integrity, countries whose security is in danger — is, to use an American phrase, "counter-productive." 24

India was not a nuclear weapon state when these objections were voiced, although it subsequently became one. The reservations


expressed by that country take on increasing relevance when examining current non-nuclear-weapon states for their motivations and capabilities to "go nuclear." Understanding the present situation among the non-nuclear-weapon states is the next step in developing a sense of perspective on the process of proliferation.

C. Non-nuclear-weapon states and the NPT

Of the 109 parties to the NPT, only three have nuclear weapons capability. The remaining 106 signatories include 35 states with peaceful domestic nuclear power programs. In addition 9 states have peaceful power programs but are not parties to the Treaty. Horizontal proliferation within the near future will come from those countries with some form of peaceful nuclear program now in effect, because it is only in those countries that a nuclear weapons program can conceivably be developed within a short period of time. The Treaty obligations of non-nuclear-weapon states will first be discussed, and the spectrum of states in the non-nuclear category will be analyzed as to their propensity toward proliferation.

_Treaty obligations._ The obligation imposed on the non-nuclear weapon states in Article II parallel those for the weapons states in Article I. Non-weapon states pledge not to receive the transfer of nuclear weapons, or control over them from any transfer whatever. More importantly, they cannot manufacture or otherwise acquire nuclear weapons, or seek or receive assistance in such manufacture. This prohibition applies not only to nuclear weapons, but also to "other nuclear explosive devices." The prohibition against receiving encompasses the receiving of nuclear weapons from nuclear-weapon states not party to the Treaty. Like Article I, however, there is a loophole as to the territorial character of proliferation: a non-nuclear-weapon state can permit a base even for a nuclear-weapon state not party to the Treaty, allowing that state to harbor and operate nuclear weapons. This is of grave consequence to countries like India, which are not committed to any power bloc.

The other salient feature of the Treaty with regard to non-nuclear-weapon states is contained in Article III, in which these states undertake to accept IAEA safeguards for their peaceful nuclear power programs. As previously stated, these safeguards are not

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25. Congressional Research Service, Library of Congress. *Facts on Nuclear Proliferation, for the Committee on Government Operations, United States Senate*, 94th Congress, 1st Sess. 54-66 (1975). These figures include states which will have operational power plants by 1980.
imposed on the nuclear-weapon states. The 1975 NPT Review Conference has suggested that these safeguards be extended to all countries with peaceful programs, no matter what their status. In the final declaration of the review conference, it was declared that:

The conference attaches considerable importance to the continued application of safeguards under Article III, on a non-discriminatory basis, for the equal benefit of all states party to the Treaty. . . . The Conference expresses the hope that all states having peaceful nuclear activities will establish and maintain effective accounting and control systems and welcomes the readiness of the IAEA to assist states in so doing.26

The reservations expressed by some of the non-nuclear-weapon states in regard to their treaty obligations parallel those that played a part in India's rejection of the Treaty. More relevant to this discussion is a delineation from among those non-nuclear-weapon states as to which are more likely to go nuclear in the future. The next additions to the group of powers possessing nuclear weapons have been called the "Nth powers" by some;27 but because that term indirectly assumes that there will be an addition to this group, here the group of possible proliferators will be referred to as threshold countries.

Analysis of non-nuclear countries. Among the present non-nuclear states, the majority does not have domestic peaceful nuclear programs. The likelihood of proliferation among these countries in the near future is virtually nonexistent, as their indigenous technologies do not encompass nuclear power or a nuclear fuel cycle. There are a few countries in this group that do have uranium reserves within their territory28, thus these countries do have a future fuel source. But without accompanying technology, these uranium reserves should not be a source of concern over those states' future in the sphere of weapons proliferation.

Of greater concern to this analysis are those countries with domestic nuclear power programs and whether or not such countries

are parties to the NPT. (insert Figure 1)²⁹ For some of these countries, the military incentives to proliferate are slight because they are adequately covered by the nuclear umbrellas established through NATO and the Warsaw Pact, or other security guarantees. The Non-Proliferation Treaty does not interfere with existing arrangements within NATO for defense of United States allies during nuclear attack. Initial Soviet drafts of the Treaty appeared to prohibit existing arrangements for the deployment in allied territory by the U.S. of nuclear weapons under its custody and control, for the training of allied troops for defense against nuclear attack, and for allied consultations and planning for such defense. But the compromise worked out in this area contained no such prohibitions.

To further clarify the matter, an interpretation of the Treaty, worked out within the NATO states and given to the Soviets, stated unequivocably that:

> Articles I and II do not deal with arrangements for deployment of nuclear weapons within allied territory as these do not involve any transfer of nuclear weapons or control over them unless and until a decision were made to go to war, at which time the Treaty would no longer be controlling . . . . [Articles I and II] do not deal with allied consultations and planning on nuclear defense so long as no transfer of nuclear weapons or control over them results.³⁰

This interpretation does not preclude substitution of new nuclear weapons for those the United States now has deployed on allied territory, nor does it preclude the consultations and planning undertaken by the seven-nation NATO Nuclear Planning Group in developing political guidelines for the possible use of tactical nuclear weapons in Europe.³¹ It is the security afforded by the NATO nuclear umbrella that is the major disincentive for these countries to proliferate.


³¹. Wohlstetter, A. Spreading the bomb without quite breaking the rules. 25 *Foreign Policy* 88, 92 (1977).
### FIGURE 1

<table>
<thead>
<tr>
<th>Non-nuclear-weapons states with domestic power programs</th>
<th>Number of reactors*</th>
<th>Indigenous uranium resources</th>
<th>NPT party</th>
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*Includes research reactors and operational power reactors through 1980.
Since August, 1969, any NATO party has the right to end its own obligations upon one year's notice. Major non-nuclear European allies of the United States, particularly West Germany, rely upon NATO for their nuclear deterrent against possible Soviet attack by conventional or nuclear weapons. But should enough countries withdraw from NATO to bring it to an end as an effective alliance, or should the United States alone withdraw, West Germany, Italy, and some of the smaller countries might well look to their own nuclear defenses. West Germany's apprehension on this score was such that the United States felt compelled to reassure that country that should NATO dissolve, the national interests of non-nuclear NATO members might be affected to such an extent as to justify their withdrawal from the Non-Proliferation Treaty. 32

For the time being, however, the NATO alliance is secure, and the United States has taken steps to indicate that there has been no weakening of commitment to the alliance. If the status quo is maintained, the next proliferator will not come from the ranks of the NATO allies. But there is another group of states which do not have the firm commitment of a nuclear power, and where proliferation may be more of a problem. From the point of view of a non-nuclear state, the ideal security guarantee would probably be a promise by one or more nuclear powers to come to its assistance should it be attacked, or threatened, by still another nuclear power. To the extent that such a guarantee extended the "nuclear umbrella" over the non-nuclear state, it could both deter a nuclear strike and provide reassurance against nuclear blackmail, that is using the threat of nuclear force to create unequal bargaining positions. To the extent that the promised assistance included support against conventional attacks, it could ease fears of local incursions. And to the extent that the promises were made more tangible to the non-nuclear country in the form of military aid and troop deployments in strategic areas, they could become even more meaningful than more formal commitments. 33 But, for many reasons, adequate security guarantees are lacking, and proliferation may occur as the countries in question hunt for alternatives to the nuclear umbrella. One reason for this is that the nuclear-weapon states themselves have been reluctant to assert wholesale nuclear assurances, or to treat neutrals with more

deference than allies. The United States, for one, has been unwilling
to be drawn into stronger guarantees against a nuclear strike, or to
furnish troops to repel a conventional attack, lest such measures
automatically involve it in a conflict between a nuclear power and a
non-nuclear one. Such risk can be reduced by a joint U.S.-Soviet
class guarantee, but so far the only joint guarantee is that
expressed by the U.N. Security Council in conjunction with the NPT.14
This resolution does not adequately insure security for several
reasons. The first is that if offers guarantees only against nuclear
aggression or the threat of such aggression, leaving open the
possibility of a conventional attack. For some states, a conventional
attack is what they fear most, and against which they look to tactical
nuclear weapons for their deterrent capability. Another inadequacy is
that the resolution covers only parties to the treaty, leaving exposed
countries that are the most likely to proliferate, as was India when
the resolution was adopted. Also, the resolution implies collective
assistance by the three nuclear-weapon states that are parties to the
Treaty, and provides that such assistance will be given through the
Security Council, where each of the guarantors, as well as France and
China, has a veto. The constructionists of the resolution must well
have been aware that the resolution, intended to assure security for
non-nuclear-weapon states and secure their adherence to the Treaty,
added nothing to existing rights and obligations accorded by the U.N.
Charter. And besides the collective self-defense envisioned by the
resolution, the inherent right of individual self-defense is reaffirmed,
though, ironically, the resolution applies in the event of a nuclear
attack, when non-nuclear states will have already contracted away
the right to defend themselves on the same military level as their
nuclear attackers, through adherence to the Treaty. The prospect that
this resolution would effectively reduce the fears and concerns of
non-nuclear states and so win their accession to the Treaty would
seem to be small, and indeed this resolution did not induce countries
with severe security problems to adhere to the Treaty.

For these countries the incentives to proliferate are strong.
Several of these are considered “outlaw states,” in bad graces with the
rest of world opinion as expressed by the U.N. General Assembly.
The list here includes Israel, South Africa, and Taiwan, states which
may tend to see an indigenous nuclear weapons option as the
ultimate method of self-defense against hostile states that would like

to see an end to the threatened regime or state. This second category of non-nuclear states, as opposed to those for whom the nuclear umbrella alliances are operative, had a military incentive for a move toward nuclear weapons, but this is not necessarily the only inducement toward proliferation. For some, the incentives to proliferate closely follow India’s reservations about the NPT, and the political, military, and economic problems for which it turned to nuclear technology as a solution.

II. The Threshold States

There are two very different kinds of incentives for nuclear proliferation. The more traditional view considers nuclear weapons in their political-military strategem of potential, another step on the continuum of tactical military equipment that probably began with the spear or sharpened stone. The other kind of incentive is economic, and less discernible at first glance. Peaceful nuclear programs have developed rapidly in certain areas of the world because they have been proven cost-effective, or have been perceived as such. Yet the cost-effectiveness of nuclear energy is enhanced by completing the fuel cycle with indigenous chemical separation plants, breeder reactors, and the like, all of which will pull countries closer to actual weapons production. There is also the problem of peaceful nuclear explosions (PNE) and the ways they are perceived in different states.

A. Political and military motivation

It has already been noted that several states view the military incentives for acquiring nuclear weapons strong enough to override the various disincentives. But it has also been noted that the United States, at least, perceives nuclear weapons effectiveness in terms of conventional strike force, dismissing a small nuclear capability as of little consequence. Why, then, is there a persistent logic in perceiving nuclear weapons, in even a small capability, as a military tool? This can be demonstrated best in relation to a specific state, such as Pakistan, with due regard to its specific problems and solutions.

Pakistan is a small country with a centralized population and a history of animosity towards India, but with amicable relations toward its other neighbor, Iran. Pakistan has closely followed India’s example in the nuclear realm. For example, Pakistan purchased a nuclear reactor from Canada shortly after India did; Pakistan’s power plant became operational just two years after India’s. India’s example in refusing to become a party to the NPT has been followed by
Pakistan. As of now India has developed nuclear explosives and Pakistan has not. Although the balance of power in South Asia favored India even before its 1974 nuclear explosion, the nuclear capability has sharply increased India's advantage. At least for the foreseeable future, India's nuclear option has made it unlikely that Pakistan would attack India in order to liberate Kashmir, one of three regions claimed by Pakistan. It has also added another element to the conventional war scenario. The acquisition of nuclear weapons by Pakistan at this point would accomplish little in equalizing their military strengths. But without at least a viable nuclear option, the military gap between the two countries will widen, weakening the Pakistani position.

Pakistan began its nuclear program in 1965 with a research reactor, and that same year concluded an agreement with Canada for the purchase of a heavy water reactor which became operational in 1971. Since that time, Pakistan has announced its intention to install one reactor every two years, beginning in 1980 until the end of the century; they have also negotiated with France for the purchase of a chemical separation plant, a plan which has since fallen through. Pakistan's nuclear expansion plans exceed even the IAEA estimates for optimum energy production. And the IAEA estimates have been criticized as being too excessive, at least in Pakistan's case, where the rural economy is stable, and where per capita consumption of energy actually decreased at the same time that country's GNP rose. It is even questionable whether nuclear energy is at all cost-efficient in Pakistan's case, where domestic production of its oil needs is already at 40% and still increasing and where dam-created hydroelectric power efficiently provides both power and irrigation capability for less than half the cost of a nuclear reactor with the same power output.

The Pakistan government, while asserting that its nuclear expansion program is intended for the production of energy, may well be moving toward its own detonation of nuclear explosives. And

35. The others are Jahanad and Hyderabad.
38. Ibid, p. 582.
while its current policy, when measured against IAEA standards, seems merely a case of too much too fast, the main reason for interpreting Pakistan's move in the nuclear field as pointing toward a weapons capacity is its relations with India. The Indian explosion affects many countries, but none more so than Pakistan. India's expanding nuclear program even prior to the 1974 explosion had been a source of concern to Pakistan. In 1966 Foreign Minister Bhutto said that if India produced a nuclear bomb Pakistan would follow suit even if it had to "eat grass" to do so. Bhutto was the chief engineer of Pakistan's nuclear program, first urging President Ayub Khan to develop a nuclear device, then, upon his own assumption of power, working to expand the program through the stepped-up reactor program and the reprocessing plant purchase from France. Bhutto also rejected the notion of a no-war pact with India because of the latter's nuclear explosion, asserting that under the circumstances such a pact would mean capitulation for Pakistan.

The Pakistani government rejected Indian assurances that the explosion was for peaceful purposes. Pakistan not only feels threatened by Indian capabilities, but also does not trust Indian intentions, claiming that in the past many assurances by India have remained unhonored. India's assertion that the explosion was only a "peaceful test" has not assuaged Pakistani fears at all, for Pakistan, unlike India, does not distinguish between PNEs and weapons detonation. Pakistan is also concerned about India's medium range missiles, with a nuclear delivery system capability twice that of Pakistan's.

Proliferation in Pakistan will validate the chain-reaction theory in nuclear proliferation. Already, Pakistan's atomic energy talent is first rate, and with fuel-cycle capability provided by the French reprocessing plant, it may have by 1980-1981 a capacity to explode a nuclear device. To meet the Indian challenge, Pakistan has adopted a three-pronged policy. First, Pakistan developed and expanded its own nuclear option with a reactor purchase in 1975 and announced its plans to build a reactor every two years. In the same year, negotiations with France for more sophisticated fuel-cycle technology

began. Next, Pakistan began to publicly demand, in reaction to the Indian explosion, that India open its nuclear installations to international inspection and renounce any intention to produce nuclear weapons. It also suggested that South Asia be made a nuclear-weapon free zone, in the process gaining international support for its anti-proliferation position while simultaneously generating justification for going nuclear itself should India reject the demands. External guarantees were also sought against nuclear threat or aggression, minimizing the effect of Indian nuclear blackmail which Pakistan perceived as imminent. Pakistan joined with the Persian Gulf states in a mutual defense treaty which provides for Pakistan’s use of Mirage Jet fighters with nuclear delivery capability in an emergency situation. Finally, Pakistan also began seeking conventional arms as a trade-off to threats to go nuclear. It persuaded the U.S. to lift its arms embargo, stating that the embargo had not contributed to regional stability, and that the disparity in military capability between India and Pakistan was forcing that country into a military-nuclear program. Pakistan also contracted with France, China, Iran and Saudi Arabia for aircraft, air-to-surface missiles and fighter-bombers to modernize its armed forces.

Even with all this activity, Pakistan will not be India’s military equal for some time to come, if at all. If the Indian superiority in conventional weapons continues even after Pakistan acquires a nuclear option, in case of a war between the two countries, Pakistan may choose to detonate nuclear weapons rather than accept conventional defeat. But Pakistan’s first-strike capability will doubtless be unable to eliminate India’s entire nuclear response capability. In that event, India’s response would be devastating to Pakistan. Nevertheless, a first-strike capability for Pakistan would signal to India, as India’s explosion did to the rest of the world, that Pakistan is a force to be reckoned with and that it will not allow technological advances by India to intimidate it. And for the near future, it is unlikely that India will flaunt its nuclear capability to disrupt the balance of power in that region. It is in India’s self interest to protect Pakistan as a strategic buffer, as India has no desire to share common borders with Iran and the Soviet Union. So, even a small nuclear force in Pakistan’s case may achieve an effective deterrent against a hostile nuclear power, should India proceed toward operational nuclear bombs.

The political incentives to proliferate also play a part in Pakistan’s case. Acquisition of atomic weapons would make Pakistan the first Muslim state with such a capability. This would increase
Pakistan’s prestige and influence in the Muslim world while undermining Iran’s conventional military superiority. And as long as nuclear weapons are perceived in the world as conveying special status or prestige to the developer, countries like Pakistan will seek justification for their entry into the club.

B. Economic motivation

Motivation inducing proliferation may also be manifested through economic justifications. The major economic incentive to proliferate is found in the overlap between peaceful programs and military programs utilizing nuclear energy. As nuclear technology develops, the pursuit of economic advantages brings countries closer to completing the fuel cycle technology that also enables weapons production. An understanding of the processes that link peaceful uses with weapons potential is necessary to an analysis of the economic forces at work.

Any state with a nuclear power reactor has within its territory both the basic fissile material for weapons production, and the capacity to produce fissile materials. Two sorts of fissile materials are used in atomic weapons: plutonium (Pu-239) and uranium (U-235). Fission is caused in uranium when a neutron collides with U-235, one of three kinds of atoms in ordinary uranium, creating an isotope, U-236, that splits into two fragments, called fission products. The mass of the fission products is less than the mass of the U-236 nucleus; it is this excess mass that becomes released energy.

Another kind of atom in uranium, U-238, begins the chain reaction that results in plutonium. The U-238 nuclear is bombarded with slow neutrons, creating U-239, but fission is not caused in U-238 by slow neutrons. Instead, the U-239 nucleus begins decaying by emitting electrons which change the chemical balance of the isotope. This decayed product, neptunium, also undergoes decay, producing the plutonium isotope Pu-239. In a nuclear reactor, plutonium is produced in steadily increasing quantities as the uranium fuel is consumed by fission; nuclear reactors are, therefore, of fundamental importance to proliferation.

A reactor is essentially a furnace housing a self-sustaining chain reaction whose heat products are used to generate electricity. The fission process, through the emission of neutrons, initiates further fission in neighboring nuclei, sustaining the process continuously. To this process are added moderators, which slow the velocity of fast neutrons so that they can be captured by U-235, producing fission. Commercial power reactors are characterized by the type of modera-
tor used: graphite, light water (ordinary water), and heavy water (in which the hydrogen is replaced by deuterium). They are also characterized by the material used as the coolant, which acts as a heat conductor: gas, light water, or heavy water. (insert figure 2). 43

Figure 2

Fission of U-235 and U-238 Leading to Plutonium Production

- fast neutron
- slow neutron
- fission fragment

Light water reactors, which were developed mainly by the United States, contain ordinary water which is used as both moderator and coolant. These are the most common. Graphite-moderated, gas-cooled reactors have developed mainly in France and Great Britain, and were specifically developed to produce plutonium for these countries’ nuclear-weapons programs. Heavy water reactors, developed mainly by Canada, are less common due to the scarcity and relatively high cost of heavy water. The plutonium produced by these reactors is not very efficient for atomic weapons because the fissile isotope of plutonium, Pu-239, is contaminated by other isotopes of the element, especially Pu-240. Weapons-grade plutonium should contain 10 percent or less of these isotopes. But fuel rods left in the reactor for three or more years do produce suitable plutonium for bombs, although large amounts of plutonium would be needed, and overheating due to spontaneous fission could result. Currently, the amount of plutonium produced by non-nuclear-weapon states in peaceful nuclear reactors could theoretically produce 50 atomic bombs per week.44

Plutonium may also be produced in research reactors, which are designed primarily to supply neutrons for experimental purposes or for the production of radioactive isotopes for medical or industrial use. Israel and South Africa are two countries that have managed to produce significant quantities of plutonium without commercial nuclear power plants.45

Unless extracted from the fuel elements, plutonium remains in the reactor. Chemical reprocessing plants are the medium through which plutonium is removed from the fuel rods. Worldwide capacity for reprocessing is small but growing as countries with significant nuclear power programs increase reprocessing demand to fuel future breeder reactors. There are currently eight countries with reprocessing capability, four of which are non-nuclear-weapon states. Five other nations, including Brazil and Pakistan, have facilities planned or under construction.46

Use of the breeder reactor is one of the most highly controversial technological innovations on the nuclear front. The fast-breeder reactor is different from other types in that it produces more fuel than

it consumes. In a breeder reactor the isotope U-238 converts to plutonium with a greater neutron surplus than is possible in an ordinary reactor by utilizing a "blanket" of U-238 around the core of the reactor. This neutron surplus accumulates a stockpile of fissile material which doubles in amount every ten years. The elements from the breeder blanket usually contain 95 to 98 percent Pu-239, considered to be weapons-grade plutonium, and original breeding may yield future breeder reactors that are actually fueled by weapon-grade plutonium. Widespread use of the breeder reactor will place significant amounts of this weapons-grade plutonium within the territories of dozens of states. Moreover, weapons-grade plutonium used as the core element of a later-generation breeder reactor does not need reprocessing to remove plutonium from the fuel elements because these elements are virtually pure plutonium. So a country does not need access to a reprocessing plant to obtain plutonium suitable for atomic weapons if plutonium has been stockpiled through a breeder program.

Proponents of breeder reactors argue that breeders represent a renewable energy source that may eventually release a state from dependence on both oil-exporting nations and uranium-exporting nations. Opponents fear the same independence arguing that widespread and indiscriminate use of the breeder will induce countries to obtain one and duplicate the technology clandestinely, beyond IAEA safeguards, leaving the option of weapon development open for speculation. If breeders were proven to be cost efficient, it would be much harder to question the motives behind a country's development or acquisition of breeder reactors. Even before the breeder reactor development, duplication of technology was a problem manifested by India's bomb, which was developed in an unsafeguarded plant using capability built up through safeguarded material from Canada and subsequently duplicated.47 (insert figure 3)

There is yet another economic barrier to non-proliferation, but this barrier has less to do with the nuclear non-nuclear weapon state dichotomy than the growing ideological rift between some of the major nuclear technology exporters. These supplier states determine nuclear export policy on both the international and domestic levels, according to factors that are either predominantly economic, or polito-military in character. West Germany, for example, has given a

primarily economic interpretation to the nuclear issue in its foreign policy, emphasizing domestic and international determinants primarily concerned with worldwide nuclear markets, technological

advancements, and trade or investment interests. Convinced that proliferation is inevitable, official interpretation of non-proliferation responsibility is minimal. The emphasis placed on market dimensions has substantial policy implications in the growing competitiveness and level of nuclear trade, as current action in nuclear commerce involves the diffusion of weapons-sensitive technologies. Intense competition for reactor export orders creates incentives to achieve the competitive advantage by offering package deals of reactor and fuel technology. Though the reactor sale is today a commonplace event, the spread of enrichment and reprocessing technologies used to obtain fissile materials poses a serious problem. French and German policies to transfer these technologies to such places as Pakistan and Brazil create a competitive situation where proliferation concerns run a poor second to market concerns. The U.S. has responded to these policies by proposing alternatives to bilateral agreements, such as a multinational fuel cycle center, and by calling meetings of nuclear suppliers to consider self-imposed restraints on imports. But because these European countries are economically, rather than politically or security oriented, they are suspicious of U.S. attempts at export controls, believing that the United States is advocating restraint by other countries so that it can regain the virtual monopoly it once held on world nuclear technology. These countries assert that the U.S. is attempting to penalize European companies, and also point to the NPT and its loopholes as justification for breeder reactor and reprocessing plant sales.49 The failure of supplier states to reach ideological accord has been exploited both by the suppliers themselves and the countries whose rapid leap into the more advanced areas of nuclear technological development indicates potential weapons development. This challenges the premise that nuclear sales to countries possibly concealing their desire for nuclear weapons should be undertaken with special care. In the current status of nuclear export marketing, there is virtually no incentive to apply extra precautions or attach restrictions to nuclear sales, and even current IAEA safeguards and the NPT allow for considerable leeway.

It can be surmised that technological restrictions will not effectively retard proliferation, not only because restraints on sales are ineffective in the competitive nuclear marketplace, but because with the state of knowledge worldwide, time alone could close the

technological gap. As a political objective, nuclear proliferation is most effectively controlled in a political context, through development of a multilayered policy capable of producing an effect on the broad spectrum of non-nuclear states with their various motivations.

III. U.S. policy and Pakistan prospects

It is clear from the preceding that the NPT alone is inadequate as the sole non-proliferation deterrent. Economic, political, military, and technological considerations are not addressed by the treaty, which attempts to reduce non-proliferation to a purely legal issue. The principle motivations to retain or pursue a nuclear option are not countered or neutralized by the NPT. The objections to the treaty, raised primarily by non-signatories but also by signatories participating in the 1975 NPT Review Conference, have not resulted in any attempt to reduce the inequities of the treatment of non-nuclear-weapons states under the treaty. And the policies of those nuclear weapons states who are signatories to the NPT have helped to foster rather than inhibit the development of nuclear weapons capabilities by threshold states. The United States in particular must accept responsibility for the current situation which its ambivalent responses to the spectre of proliferation have helped create.

A. U.S. Non-Proliferation Policy

The United States has not had a static non-proliferation strategy. Initially, during World War II and immediately thereafter, the non-proliferation policy was based on containment and secrecy. Along with Great Britain and Canada, the U.S. concluded a trilateral agreement in 1943 designed to restrict third-party access to both technology and uranium. This policy was also reflected in U.S. domestic legislation such as the McMahon Act, but lasted only as long as an effective monopoly of the two essential components of nuclear industry, uranium and technology, was maintained.

The Lilienthal-Baruch Plan, presented to the United Nations Atomic Energy Commission in 1946, was also a manifestation of a containment philosophy. This plan proposed an international authority to regulate and manage on a worldwide basis the field of atomic energy through "various forms of ownership, dominion, licenses, operation, inspection, research and management by competent per-
sonnel.” The Lilienthal-Baruch proposal was rejected by the Soviet Union because of the excessive constraints placed on the national sovereignty of countries wishing to develop nuclear technology.

The containment strategy of non-proliferation lasted only until 1953, when it became apparent that Soviet nuclear technology was becoming both competitive and diversified. This development meant that the Soviets, unencumbered by restrictive containment agreements, would be in a position to disseminate the peaceful applications of its nuclear research. It was this commercially competitive aspect, combined with a newly emerging attitude which appeared to accept the inevitability of proliferation, that led to the adoption of a different non-proliferation stance by the United States.

The new policy was revealed by President Eisenhower in 1953. Besides calling for an International Atomic Energy Agency (IAEA), the proposal broke new ground from an American philosophical standpoint by envisioning widespread peaceful application of nuclear technology:

The more important responsibility of the Atomic Energy Agency would be to devise methods whereby this fissionable material would be allocated to serve the peaceful pursuits of mankind. Experts would be mobilized to apply atomic energy to the needs of agriculture, medicine, and other peaceful activities. A special purpose would be to provide abundant electrical energy to the power-starved areas of the world. Thus the contributing powers would be dedicating some of their strength to serve the needs rather than the fears of mankind.

The United States would be more than willing — it would be proud to take up with others principally involved in the development of plans whereby such peaceful use of atomic energy would be expedited.


Thus, the United States prepared not only to accept what was considered by this time an almost inevitable progression toward nuclear industry, but to lead the way in advocating peaceful application of nuclear technology. The U.S. conveniently modified its non-proliferation strategy at a time when it could still expect to exploit its lead in nuclear technology in the marketplace. Until this point, U.S. priorities had placed international control over peaceful nuclear development. "Thereafter, development came first and international control and inspection second, if at all." 53

The Atoms for Peace address before the United Nations General Assembly began with a recitation of the fearful potential of atomic weapons while acknowledging that the United States arsenal of such weapons "of course" increases daily. It then went on to propose joint atomic contributions to the IAEA without even indicating the consequences in terms of weapons proliferation that widespread dissemination of nuclear technology would have, other than stating rather euphemistically that such steps would "hasten the day when fear of the atom will begin to disappear". The Atoms for Peace proposal also failed to confront the ideological disparity in professing nuclear disarmament while simultaneously stockpiling those same arms, a disparity which continues to plague U.S. efforts to halt horizontal proliferation. Nevertheless, the Atoms for Peace plan was welcomed by many in the international community, especially by developing countries intrigued by both the prestige associated with this new technology and its long-term potential for economic benefit. India in particular was in a position to benefit from the United States' newly co-operative stance, having established the necessary domestic infrastructure in the form of an Atomic Energy Commission as early as 1948. 54 Over 1100 Indian scientists and engineers were trained in U.S. facilities during the Atoms for Peace period as India acquired the technical expertise to assemble the Apsara research reactor in 1956 and complete a small reprocessing plant in 1964. 55

After initially lagging behind Great Britain, Canada, and France in the nuclear export race of the 1950's, the United States was able to capitalize on its monopoly of the enriched uranium field. "With the approval and help of the Government, [the American nuclear

55. Id.
industry] was able to export some forty research reactors, less expensive than natural uranium fueled ones, to countries all over the world, some of which were not yet really ready to profit from such a sophisticated facility. American industry was also able to test on European grounds its not so 'proven' enriched uranium light water power reactors owing to a well-timed and financially favorable United States — European agreement.56 Besides technology and facilities, the United States alone was able to export enriched uranium, giving it an immeasurable commercial and political advantage. Essentially, U.S. policy by this point centered on the containment of "sensitive" reprocessing and enrichment technology by obviating the need of other countries to acquire such indigenous capability. Another basic tenet of U.S. policy was the requirement of safeguards, first through bilateral agreements and later under IAEA auspices.

By the mid 1960's the United States was the undisputed leader in nuclear exports. The threat of Soviet competition never really materialized; the Soviets confined exports to countries in its orbit or who were politically friendly. The British never exported any power plants after their initial 1958 sales to Italy and Japan, while France sold only one natural uranium graphite moderated plant to Spain in 1965.57 Canadian natural uranium fueled reactors did not gain the widespread acceptance that American enriched uranium reactors acquired, primarily because of the relative scarcity of the heavy water used as a coolant in Canadian reactors. Thus by the time negotiations began on the Nuclear Non-Proliferation Treaty, the United States could afford the appearance of magnanimity in nuclear non-proliferation negotiations though only to the extent such posturing did not disturb the status quo of the marketplace.

The NPT did not receive the widespread acceptance that the nuclear powers had hoped. The discriminatory regime it promoted and the lack of security assurances in particular made it unacceptable to about twenty nations already possessing or planning a nuclear facility, including two nuclear weapons powers, France and China. But the United States continued to rely on the NPT as its primary non-proliferation effort, at least until the mid 1970's. By that time, the Indian nuclear test explosion and renewed commercial competition in the export field from France and Germany convinced many

57. Goldschmidt, supra, at 73–74.
that the United States was losing its ability to effect its non-proliferation goals.

U.S. response to these developments was to consult with the other main nuclear suppliers to establish a reinforced export policy based on the common consent of these suppliers. Representatives of Great Britain, Canada, France, Germany, Japan, the Soviet Union and the United States met in London in 1975 to create new guidelines for export restrictions. At this point it became apparent that an ideological rift was developing among the exporting countries. Some, like the United States, wanted to erect technological barriers to proliferation by barring sales of reprocessing and enrichment plants, and sales of material that could be used for weapons. Other countries wanted to restrict such sales only to those countries which would not submit to IAEA inspection and verification. In any case, the overall effect of the London suppliers' meetings was the creation of a new discriminatory structure based on a supplier state/receiver state dichotomy in addition to the weapon state/non-weapon state division previously created by the NPT.

Today the United States continues to rely on supplier restraint as a major factor in curbing the prospect of proliferation. It pressured France to cancel its agreement with Pakistan to supply a reprocessing plant (which France did in 1978). South Korea also cancelled its reprocessing plant which was to be built with French assistance. The United States also tried, unsuccessfully, to persuade Germany to modify its long-term agreement with Brazil which includes transfer to that country of complete fuel-cycle capability. Meanwhile, the United States proceeded with two major tactics designed to strengthen its non-proliferation efforts. These tactics are the Nuclear Non-Proliferation Act of 1978 and the commissioning of the International Nuclear Fuel Cycle Evaluation (INFCE), completed in February, 1980.

The Nuclear Non-Proliferation Act of 1978* (hereinafter 1978 Act) was aimed primarily at reducing technological incentives and capabilities to proliferate through several approaches: (1) by being a reliable supplier of nuclear fuel to those countries adhering to non-proliferation policies; (2) by promoting an international organization which would ensure fuel supply and establish repositories for spent fuel; (3) by extending fuel assurances only to those countries willing to accept IAEA safeguards on all their peaceful nuclear activities, and requiring such countries to forego establishment of any

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new enrichment or reprocessing facilities; (4) by promoting economically feasible alternatives to complete fuel cycle capability; (5) by improving the IAEA safeguards system; (6) by assisting in the development of non-nuclear energy resources; and (7) by negotiating with other nations to adopt common international sanctions against those countries violating the principles of the Non-Proliferation Treaty. Although this list of tactics appears to adequately neutralize the international tendency toward proliferation, the 1978 Act falls short of its goals for several reasons.

Supply reliability is an incentive for a country to acquire the reprocessing or enrichment capability which would give it a self-sustaining fuel cycle. Unfortunately, by the time the 1978 Act was adopted, the United States was already losing its reputation as a reliable supplier of nuclear fuel. As early as 1974, the United States Atomic Energy Commission had suspended the signing of all new contracts for the supply of enriched uranium. In addition, the restructuring of U.S. government responsibilities for nuclear activities in 1974 substituted an independent agency (the Nuclear Regulatory Commission) for an executive agency (the AEC). The executive branch could not guarantee that the policy of absolute supply reliability would be given priority by the NRC. In addition, because the United States has not built new uranium enrichment facilities, it is no longer in a position to monopolize supply of enriched fuels. The Soviet Union began in 1971 to offer enrichment services to the Western world. Simultaneously, industrialized European nations began developing enrichment capability based on non-American technology, such as centrifuge plants and gaseous diffusion plants which in the coming decade will further erode U.S. monopolization of complete fuel cycle technology.

The proposed International Nuclear Fuel Authority will face opposition of the same type encountered in proposals that the IAEA play the part of a nuclear materials bank. The major powers want to reserve for themselves the right to decide the recipients of nuclear transfers, as well as prescribe the commercial and political conditions under which such transfers will take place.

The more stringent qualifications on fuel assurances have led since passage of the 1978 Act to the renegotiation of virtually all U.S.

59. Ribicoff, A. A market-sharing approach to the world nuclear sales problem. 54 Foreign Affairs 76, 764 (July 1976).
60. Goldschmidt, B. A historical survey of non-proliferation policies. 211 International Security 69, 78 (Summer 1977).
supply contracts to include prohibitions against reprocessing of such fuel. Further requirements of IAEA safeguards on all peaceful nuclear activities and denial of indigenous reprocessing facilities will be bitterly contested by importers of U.S. enriched uranium. Such restrictions may be interpreted as designed to preserve the unequal status of non-nuclear-weapons states. The effect of this tactic may be to indirectly encourage proliferation in that some countries may be motivated to pursue reprocessing capability rather than rely on the United States assurances that there will be no suppression of assistance or further restrictive policies.

The promotion of alternatives to complete fuel cycle technology was to have been accomplished through the International Nuclear Fuel Cycle Evaluation (INFCE). This study, commissioned by President Carter in 1977, brought together Western, Soviet bloc, and Third World scientists and technicians to review alternatives to widespread use of reprocessing plants and fast breeder reactors. "By organizing the 60-nation study, the U.S. sought world-wide endorsement of its decision to delay reprocessing and breeder reactors. . . . U.S. technicians also hoped the study would come up with engineering solutions to the plutonium problem, such as more efficient uranium or thorium nuclear-reactor cycles, which would eliminate the need for reprocessing and breeders." 62

Although initiated as a technical, apolitical exercise, the various groups of INFCE participants clearly hoped to justify their respective positions on breeders and reprocessing technology. The United States and Canada hoped to find support for their anti-plutonium stance. The West Europeans and Japanese hoped to ratify through consensus their view that there is no alternative to reprocessing technology, and that "nuclear consumers are unwilling to have their industrial and economic interests and security depend on bilateral political relations for an unspecified period." 63 The Third World countries also expected that breeders and reprocessing would be sanctioned from an economic standpoint, giving respectability to efforts by those countries to obtain nuclear self-sufficiency through a complete fuel cycle capability.

The resulting study, formally adopted in February 1980, dealt a blow to the anti-plutonium stance of the United States. By remaining a purely technical undertaking, the study minimized the nontechnological effects of widespread dissemination of reprocessing technology. In an exercise such as the INFCE, there was no way to balance economic benefits against proliferation dangers. Already, the conclusions of the INFCE have taken on broader political implications. For example, the U.S. domestic nuclear industry has used the INFCE to refute the Carter position that breeder technology contributes to weapons proliferation. And should the United States continue to oppose breeders and reprocessing despite the INFCE report, this would provide more substance to the West European charge that U.S. objections to widespread acquisition of such technology are based more on a desire to protect U.S. nuclear industry, which lags behind the Europeans in the reprocessing field, than on a legitimate fear of the military implications of such acquisitions.

Improving the IAEA safeguards system may well aid in preventing proliferation. However, IAEA safeguards currently are respected and followed, and to date no weapons proliferation has resulted because of a violation of or inadequacy in the safeguards process.

The development of non-nuclear energy resources is likewise a commendable gesture, but one which will not noticeably decrease the prospect of proliferation. If non-nuclear alternatives were vigorously pursued, this might be of psychological benefit in decreasing the amount of prestige associated with an extensive domestic nuclear industry. But even within the Carter administration the view has been expressed that alternatives will not supplant nuclear power in the foreseeable future:

It is too early to be categoric about which energy sources will prove to be dominant by the middle of the next century. Governments should indeed go ahead with major development of solar and other renewable energy sources. But at a minimum, governments would be unwise to deprive themselves of the nuclear option during the early part of the century when the transition from oil and gas is likely to occur. A rapid transition to renewables is likely to be costly and to involve unforeseen problems. A judicious energy policy, like any major social policy, should have flexibility and redundancy to protect against failures. On this basis, nuclear energy has a major role to play in

relation to the long run problem in the U.S. even if solar optimism proves to be justified. This is even more true for other countries with less access to fossil fuel resources to help buffer the transition to renewable energy technologies.\textsuperscript{65}

The development of international sanctions is perhaps the strongest deterrent to proliferation contained in the 1978 Act. The lack of effective and well-defined sanctions has left a gaping hole in international nonproliferation strategy. A stumbling block to the creation of international sanctions may be noted in the language of the 1978 Act, which refers to sanctions and procedures to be followed in the event of violations of "material obligations with respect to the peaceful use of nuclear materials and equipment or nuclear technology, or in the event that any nation violated the provisions of the [Non-Proliferation] Treaty."\textsuperscript{66} Questions will undoubtedly be raised concerning the definition of "material obligations", as well as concerning the application of sanctions to those countries which have not accepted any obligations at all in the area of peaceful uses. In addition, questions will be raised as to the applicability of sanctions against those countries (the United States and Soviet Union) which do not appear to be fulfilling their obligations under Article VI of the NPT, and those countries (particularly the United States) which appear to be reneging on their obligations under Article IV to facilitate the fullest possible exchange of peaceful nuclear technology. Any effort to impose sanctions on non-nuclear-weapon states while insulating weapons states from them would undoubtedly be roundly criticized. Besides, is it logical to rely on the prospective development of international sanctions when the world remained ominously silent following reports of a South African nuclear explosion in the fall of 1979? And is it credible to expect the United States to lead the way in enforcing the provisions of the NPT when it has continuously engaged in nuclear trade with nations who have refused to ratify the NPT (and thus are under no obligation not to produce nuclear weapons or to submit to safeguards of their nuclear activities)? "Of the 29 U.S. agreements for nuclear co-operations with other countries, no less than 13 are with non-NPT nations."\textsuperscript{67}

\textsuperscript{65} Address by Joseph S. Nye at the Uranium Institute (July 12, 1978) reprinted in Reader on Nuclear Non-Proliferation, prepared for the Subcommittee on Energy, Nuclear Proliferation and Federal Services of the Senate Committee Governmental Affairs, 95th Congress, 2nd Sess. (1978).


\textsuperscript{67} Ribicoff, A. A market-sharing approach to the world nuclear sales problem. 54 Foreign Affairs 764, 766 (July 1976).
Thus, both the 1978 Act and the INFCE do not appreciably reduce the technological incentives to proliferate, and do not create effective barriers to proliferation.

There are philosophical weaknesses in the United States' view of proliferation and the implementation of its policy that will continue to inhibit the effectiveness of its initiatives. United States initiatives have consisted primarily of attempts to maintain technological barriers to proliferation. The West Europeans in particular do not share the U.S. view that this is the most effective deterrent to proliferation. The United States has pursued these technological restrictions at the expense of a broader view of the incentives and corresponding disincentives to proliferate. Economic and political considerations have not been given adequate weight as contributing factors. Military motivations have been recognized, but the United States has not implemented security assurances which would greatly neutralize such motivations. Similarly, not enough credence has been attached to alternate views of the effectiveness of small nuclear arsenals, and their political significance. This last view, the "French view", is closer to the reasoning behind the PRC and Indian nuclear strategy, but has been minimized by U.S. policymakers.

The United States has shown a willingness to compromise its non-proliferation goals in the face of commercial competition and more recently in the face of the perceived Soviet threat. As previously noted, the United States has not confined its nuclear trade to countries which have ratified the NPT. The original decision to promote the peaceful use of nuclear technology worldwide was made with cognizance of the domestic commercial advantages, and without an adequate appraisal of the proliferation implications. More recently, the willingness to aid and arm Pakistan in response to the Soviet invasion of Afghanistan demonstrates that pursuit of nonproliferation is not a priority in the current administration, despite professions to the contrary. The United States has also indicated that it will not press India for assurances that it will not detonate another nuclear device as a precondition to delivery of enriched uranium for the Tarapur nuclear power plant; rather, it seeks assurances only on the use of American fuel and American-built facilities. To avoid a "political breakdown" with India, the Carter administration recently asked Congress to approve a 40 ton sale of enriched uranium to that country despite Prime Minister Indira Gandhi's adamant refusal to

accept safeguards. Such policies evidence a commitment more to appearance than to non-proliferation.

The United States no longer holds undisputed leadership in the peaceful nuclear industry, and must realize that it cannot impose its will or policies on countries in exchange for supply security. But the U.S. and other nuclear weapons states have not shown a willingness to give up anything in exchange for the sacrifices that a non-nuclear weapons state must make. No effort has been made to reduce the inequities in the NPT to make it more acceptable to the non-signatories. On the contrary, the U.S. has supported a discriminatory supplier's policy following the London suppliers conference in 1975.

The United States failed to persuade participants of the INFCE of its views regarding the proliferation dangers of complete fuel cycle capability. In addition, the United States has not taken the lead in developing and introducing alternatives to plutonium technology. "Although there are about 20 alternatives [to a plutonium nuclear fuel cycle] that can be discussed, there is little enthusiasm for re-examining items that have frequently been examined internationally and in national bureaucratic debates."

Non-proliferation goals need a long-term strategy to be effective. This the United States has not had. For example, the Nixon administration, with Kissinger's encouragement, "had generally down-played the importance of the proliferation issue in American foreign relations, compared with the stress on the subject by the Kennedy and Johnson administrations." The pressure to re-consider the danger and prospects of nuclear proliferation came from two directions: public opinion and the May 1974 Indian text. Neither source was apparently enough to convey the urgency of the situation. Carter, while appearing steadfast, has actually been equivocal in his implementation of proliferation strategy.

Finally, and perhaps most importantly, the United States has not diligently pursued a reversal of vertical proliferation. SALT II has been shelved in the wake of the Soviet invasion of Afghanistan. But even SALT II is inadequate as a major step toward disarmament: at best, it delays serious consideration of vertical de-proliferation; at worst, it represents an abrogation of the responsibilities of nuclear weapons states under Article VI of the NPT. As critical as SALT II

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71. Kapur, supra, at 183.
may be toward controlling the nuclear arms race, it does not further
to any extent the cessation of that race, or the prospects for a
non-nuclear world.

B. Prospects for Pakistan

Having established the inadequacy of both the NPT and U.S.
policy in controlling proliferation, what are the prospects for a
threshold country such as Pakistan? Several factors have been
identified as reasons why Pakistan is constrained from currently
developing its nuclear option.\textsuperscript{72} For example, Pakistan does not
recognize a distinction between weapons tests and peaceful nuclear
explosions. It has also indicated that it will not conduct any
explosives tests, whether for peaceful or military purposes. Pakistan
has developed a self-image of scrupulousness in its honoring of
international commitments, and is particularly critical of India's
apparent lack of scruples. It has a weak nuclear industrial infrastruc­
ture, and also a dependence on intrusive external sources of nuclear
materials.

But such constraints are not absolute. Although it has declared
that it will not test nuclear explosives, Pakistan has not committed
itself to this posture through ratification of the NPT. The declaration
not to test must also be weighed against the determination often
expressed to achieve military equality with India. However honorable
its posture of scrupulousness may be, Pakistan is unlikely to place
scruples above national defense. Its weak nuclear industrial infrastruc­
ture is balanced by first rate equipment and technology. Its
dependence on external sources of nuclear materials may be decreas­
ing. The cancellation of the French reprocessing facility may result in
the growth of nuclear nationalism in Pakistan, a growth that would
further remove Pakistani nuclear facilities from IAEA inspection and
safeguards. (insert figure 4)\textsuperscript{73}

External threats to Pakistan's security may be increasing rather
than decreasing, particularly in light of the Soviet threat posed by the
invasion of Afghanistan. It would be fallacious to assume that
Pakistan feels protected from India by the weight of world opinion,
especially since India does not feel secure from possible Pakistani
aggression. There is evidence of this in the Indian objections to U.S.
aid to Pakistan.\textsuperscript{74} In addition, although Pan-Islamism does not appear

\textsuperscript{72} See e.g. Kapur, \textit{supra}, at 209–211.
\textsuperscript{73} Source: compiled by author.
Figure 4

Comparison of Nuclear Status of India and Pakistan

<table>
<thead>
<tr>
<th>India</th>
<th>Pakistan</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Peaceful Nuclear Industry</td>
<td>1. Peaceful Nuclear Industry</td>
</tr>
<tr>
<td>- research reactors</td>
<td>Yes</td>
</tr>
<tr>
<td>- power reactors</td>
<td>Yes (light water dominant)</td>
</tr>
<tr>
<td>- breeder developments</td>
<td>Yes</td>
</tr>
<tr>
<td>- gas centrifuge developments</td>
<td>No</td>
</tr>
<tr>
<td>- fuel fabrication</td>
<td>Yes (Hyderabad — under IAEA safeguards)</td>
</tr>
<tr>
<td>- reprocessing</td>
<td>Yes (Tarapur and Thrombay)</td>
</tr>
<tr>
<td>- nuclear electrical capacity by 1980</td>
<td>31.4 OOOMWe</td>
</tr>
<tr>
<td>2. Uranium Sources</td>
<td>2. Uranium Sources</td>
</tr>
<tr>
<td>- government-owned mining &amp; prospecting activities</td>
<td>Yes</td>
</tr>
<tr>
<td>- est. annual plutonium production, 1980</td>
<td>400 kg</td>
</tr>
<tr>
<td>- est. accumulated stock of plutonium, 1980</td>
<td>2500 kg</td>
</tr>
<tr>
<td>3. Technology sources</td>
<td>3. Technology sources</td>
</tr>
<tr>
<td>- reactors</td>
<td>supplied by U.S. and Canadian companies</td>
</tr>
<tr>
<td>nuclear capable delivery systems</td>
<td>nuclear capable delivery systems</td>
</tr>
<tr>
<td>5. Safeguards</td>
<td>5. Safeguards</td>
</tr>
<tr>
<td>non-NPT safeguards agreement with IAEA</td>
<td>non-NPT safeguards agreement with IAEA</td>
</tr>
</tbody>
</table>

to be an immediate possibility, Pak-Islamism may be, with external strength south to compensate for any internal devisiveness.

Besides these political factors, there are economic indications of Pakistan's propensity to proliferate. One is that Pakistan's nuclear plans clearly exceed what is regarded as the optimum level of nuclear energy for that country, as estimated by the IAEA. A second is that following the INFCE report, there are documented economic justifica-
tions for a complete fuel cycle capability. Even if Pakistan were to continue to renounce its pursuit of nuclear weapons, it is unlikely that it would forego the chance to legitimately keep the option for weapons development open through economic justification for a reprocessing plant.

It is widely accepted, in the United States and elsewhere, that Pakistan is an imminent proliferator. It is also widely acknowledged that a country need not detonate a nuclear device to be considered a threat to non-proliferation. What is not acknowledged is the extent to which the nuclear powers, and in particular the United States, must reform their attitudes and policies to deal effectively with the prospect of proliferation.

C. Some implications for U.S. policy

The first step in a reformed non-proliferation policy is to neutralize the military incentives to proliferate. Economic and political control will be most effective in the long run, but those countries on the threshold of nuclear weapons contemplate current military and security problems as immediate justification for a move toward a nuclear option. The United States must strike a delicate balance with respect to its policy toward imminent proliferators. On the one hand, the U.S. should avoid extending its nuclear umbrella to the point of risking involvement in remote conflicts and placing the U.S. civilian population in the position of nuclear hostages. On the other hand, non-nuclear states both demand and deserve adequate security guarantees in exchange for compliance with NPT policy. At the NPT Review Conference, the participants recognized the security of non-nuclear weapons states as a priority:

Recognizing that all States have need to ensure their independence, territorial integrity and sovereignty, the Conference emphasizes the particular importance of assuring and strengthening the security of non-nuclear-weapon States Parties which have renounced the acquisition of nuclear weapons. It acknowledges that States Parties find themselves in different security situations and therefore that various appropriate means are necessary to meet the security concerns of States Parties. . . .

At the Conference it was also urged that determined efforts must be made especially by the nuclear weapons States Party to the Treaty, to ensure the security of all non-nuclear-weapon States Parties. To this end the Conference urges all States, both nuclear-weapon States and non-nuclear-weapon States to refrain,
in accordance with the Charter of the United Nations, from the threat or the use of force in relations between States, involving either nuclear or non-nuclear-weapons.

Additionally, it stresses the responsibility of all Parties to the Treaty and especially the nuclear-weapon States, to take effective steps to strengthen the security of non-nuclear-weapon States and to promote in all appropriate fora the consideration of all practical means to this end, taking into account the views expressed at this Conference.\(^75\)

From the point of view of a non-nuclear state, the ideal "security guarantee" would probably be a promise by one or more nuclear powers to come to its assistance should it be attacked by, or threatened by, still another nuclear power.\(^76\) The assurances of Security Council Resolution 255 (Appendix B) are not very meaningful to non-nuclear states because some states (like West Germany) felt specifically threatened by one of the guarantors. In addition, action taken through the Security Council, as is contemplated by the Resolution, is ineffective by nature because of the veto power held by every permanent member, each of which possesses nuclear weapons. And joint action may be stymied as the guaranteeing powers differ on proposed action, especially if the threat to use nuclear weapons is directed against one of their allies. U.S. decision-makers need to be cognizant of all these conflicting pressures before inducing NPT compliance though security guarantees it may later be unwilling to uphold.

The second step toward proliferation policy is to downgrade the political significance of nuclear weapons acquisition. If the U.S. hesitates in pursuit of an aggressive de-proliferation policy, the world will not be convinced of the futility of nuclear weapons production. The U.S. should welcome the inception of nuclear-weapon-free zones because regional instability is the immediate catalyst of proliferation. The U.S. should also conclude a SALT Treaty with the Soviets that really is an arms limitation agreement, not a disguised vertical proliferation. And the U.S. should resist attempts to make the permanent Security Council members a nuclear "club" by elevating India's status or that of any future nuclear proliferator.


Unfortunately, there are conflicting goals at stake here. De-emphasizing nuclear strength may lead to proliferation among countries such as West Germany that feel that allied nuclear capability is their only buffer between them and a conventional or nuclear attack. Inadequate political clout may even induce certain states to become or remain non-signatories to the NPT. And, in light of current capacity by states other than the United States to supply nuclear technology and equipment, the United States may have already passed the peak of its influence on the political motivations of possible proliferators.

The final policy implications concern the rerouting of economic advantages to proliferation. Subtle methods toward this goal include development of nuclear reactors and other processing technology that neutralize any economic advantages of complete self-sustaining forms of nuclear energy production. Renewable forms such as solar energy and hydroelectric power must be pursued and developed, and made economically attractive to non-nuclear states. International control and management of the fuel cycle should also be encouraged. Reactors and plants can be designed to make plutonium extraction more difficult, costly and time-consuming.

A more direct approach is to link economic assistance to NPT adherence. The U.S. is so far clearly unwilling to pursue this route, because of mutual economic interdependence and possible retaliation by the affected countries. However, this step may be reserved for major transgressors, and even non-parties, to the NPT. The U.S. must take notice of the fact demonstrated by India's nuclear explosion: that as a byproduct of a peaceful nuclear program, weapons development need not be expensive. Economic sanctions should be available after the fact of proliferation by a state, but must be definite enough before the fact to act as a deterrent.

There are no cut and dried solutions to the prospect of proliferation. There are so many contingencies that cannot readily be brought under control and whose outcomes are too speculative to anticipate. A flexible policy with inflexible goals will be needed in the future to cope successfully with the complex and uncertain developments concerning nuclear weapons proliferation. As President Carter has noted, "the world is waiting, but not necessarily for long." 77

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Wohlstetter, A. Spreading the bomb without quite breaking the rules. 25 *Foreign Policy* 88–99 (1977).


**Speeches**


TREATY ON THE NON-PROLIFERATION OF NUCLEAR WEAPONS

The States concluding this Treaty, hereinafter referred to as the "Parties to the Treaty",

Considering the devastation that would be visited upon all mankind by a nuclear war and the consequent need to make every effort to avert the danger of such a war and to take measures to safeguard the security of peoples,

Believing that the proliferation of nuclear weapons would seriously enhance the danger of nuclear war,

In conformity with resolutions of the United Nations General Assembly calling for the conclusion of an agreement on the prevention of wider dissemination of nuclear weapons,

Undertaking to cooperate in facilitating the application of International Atomic Energy Agency safeguards on peaceful nuclear activities,

Expressing their support for research, development and other efforts to further the application, within the framework of the International Atomic Energy Agency safeguards system, of the principle of safeguarding effectively the flow of source and special fissionable materials by use of instruments and other techniques at certain strategic points,

Affirming the principle that the benefits of peaceful applications of nuclear technology, including any technological by-products which may be derived by nuclear-weapon States from the development of nuclear explosive devices, should be available for peaceful purposes to all Parties to the Treaty, whether nuclear-weapon or non-nuclear-weapon States.

Convinced that, in furtherance of this principle, all Parties to the Treaty are entitled to participate in the fullest possible exchange of scientific information for, and to contribute alone or in cooperation with other States to, the further development of the applications of atomic energy for peaceful purposes,

Declaring their intention to achieve at the earliest possible date the cessation of the nuclear arms race and to undertake effective measures in the direction of nuclear disarmament,

Urging the cooperation of all States in the attainment of this objective,

Recalling the determination expressed by the Parties to the 1963 Treaty banning nuclear weapon tests in the atmosphere in outer space and under water in its Preamble to seek to achieve the discontinuance of all test explosions of nuclear weapons for all time and to continue negotiations to this end,

Desiring to further the easing of international tension and the strengthening of trust between States in order to facilitate the cessation of the manufacture of nuclear weapons, the liquidation of all their existing stockpiles, and the elimination from national arsenals of nuclear weapons and the means of their delivery pursuant to a treaty on general and complete disarmament under strict and effective international control,

Recalling that, in accordance with the Charter of the United Nations, States must refrain in their international relations from the threat or use of force against the territorial integrity or political independence of any State, or in any other manner inconsistent with the Purposes of the United Nations, and that the establishment and maintenance of international peace and security are to be promoted with the least diversion for armaments of the world's human and economic resources,
Have agreed as follows:

ARTICLE I

Each nuclear-weapon State Party to the Treaty undertakes not to transfer to any recipient whatsoever nuclear weapons or other nuclear explosive devices or control over such weapons or explosive devices directly, or indirectly; and not in any way to assist, encourage, or induce any non-nuclear-weapon State to manufacture or otherwise acquire nuclear weapons or other nuclear explosive devices, or control over such weapons or explosive devices.

ARTICLE II

Each non-nuclear-weapon State Party to the Treaty undertakes not to receive the transfer from any transferor whatsoever of nuclear weapons or other nuclear explosive devices directly, or indirectly; not to manufacture or otherwise acquire nuclear weapons or other nuclear explosive devices; and not to seek or receive any assistance in the manufacture of nuclear weapons or other nuclear explosive devices.

ARTICLE III

1. Each non-nuclear-weapon State Party to the Treaty undertakes to accept safeguards, as set forth in an agreement to be negotiated and concluded with the International Atomic Energy Agency in accordance with the Statute of the International Atomic Energy Agency and the Agency's safeguards system, for the exclusive purpose of verification of the fulfillment of its obligations assumed under this Treaty with a view to preventing diversion of nuclear weapons or other nuclear explosive devices. Procedures for the safeguards required by this article shall be followed with respect to source or special
enter into force not later than eighteen months after the date of initiation of negotiations.

ARTICLE IV

1. Nothing in this Treaty shall be interpreted as affecting the inalienable right of all the Parties to the Treaty to develop research, production and use of nuclear energy for peaceful purposes without discrimination and in conformity with articles I and II of this Treaty.

2. All Parties to the Treaty undertake to facilitate, and have the right to participate in, the fullest possible exchange of equipment, materials and scientific and technological information for the peaceful uses of nuclear energy. Parties to the Treaty in a position to do so shall also cooperate in contributing alone or together with other States or international organizations to the further development of the applications of nuclear energy for peaceful purposes, especially in the territories of non-nuclear-weapon States Party to the Treaty, with due consideration for the needs of the developing areas of the world.

ARTICLE V

Each Party to the Treaty undertakes to take appropriate measures to ensure that, in accordance with this Treaty, under appropriate international observation and through appropriate international procedures, potential benefits from any peaceful applications of nuclear explosions will be made available to non-nuclear-weapon States Party to the Treaty on a non-discriminatory basis and that the charge to such Parties for the explosive devices used will be as low as possible and exclude any charge for research and development. Non-nuclear-weapon States Party to the Treaty shall be able to obtain such benefits, pursuant to a special international agreement or agreements, through
fissionable material whether it is being produced, processed or used in any principal nuclear facility or is outside any such facility. The safeguards required by this article shall be applied on all source or special fissionable material in all peaceful nuclear activities within the territory of such State, under its jurisdiction, or carried out under its control anywhere.

2. Each State Party to the Treaty undertakes not to provide: (a) source or special fissionable material, or (b) equipment or material especially designed or prepared for the processing, use or production of special fissionable material, to any non-nuclear-weapon State for peaceful purposes, unless the source or special fissionable material shall be subject to the safeguards required by this article.

3. The safeguards required by this article shall be implemented in a manner designed to comply with article IV of this Treaty, and to avoid hampering the economic or technological development of the Parties or international cooperation in the field of peaceful nuclear activities, including the international exchange of nuclear material and equipment for the processing, use or production of nuclear material for peaceful purposes in accordance with the provisions of this article and the principle of safeguarding set forth in the Preamble of the Treaty.

4. Non-nuclear-weapon States Party to the Treaty shall conclude agreements with the International Atomic Energy Agency to meet the requirements of this article either individually or together with other States in accordance with the Statute of the International Atomic Energy Agency. Negotiation of such agreements shall commence within 180 days from the original entry into force of this Treaty. For States depositing their instruments of ratification or accession after the 180-day period, negotiation of such agreements shall
an appropriate international body with adequate representation of non-nuclear-weapon States. Negotiations on this subject shall commence as soon as possible after the Treaty enters into force. Non-nuclear-weapon States Party to the Treaty so desiring may also obtain such benefits pursuant to bilateral agreements.

**ARTICLE VI**

Each of the Parties to the Treaty undertakes to pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a treaty on general and complete disarmament under strict and effective international control.

**ARTICLE VII**

Nothing in this Treaty affects the right of any group of States to conclude regional treaties in order to assure the total absence of nuclear weapons in their respective territories.

**ARTICLE VIII**

1. Any Party to the Treaty may propose amendments to this Treaty. The text of any proposed amendment shall be submitted to the Depositary Governments which shall circulate it to all Parties to the Treaty. Thereupon, if requested to do so by one-third or more of the Parties to the Treaty, the Depositary Governments shall convene a conference, to which they shall invite all the Parties to the Treaty, to consider such an amendment.

2. Any amendment to this Treaty must be approved by a majority of the votes of all the Parties to the Treaty, including the votes of all nuclear-weapon States Party to the Treaty and all other Parties which, on the date the amendment is circulated, are members of the Board of Governors of the International Atomic Energy Agency. The amendment shall enter into force
for each Party that deposits its instrument of ratification of the amend-
ment upon the deposit of such instruments of ratification by a majority of
all the Parties, including the instruments of ratification of all nuclear-weapon
States Party to the Treaty and all other Parties which, on the date the amend-
ment is circulated, are members of the Board of Governors of the International
Atomic Energy Agency. Thereafter, it shall enter into force for any other
Party upon the deposit of its instrument of ratification of the amendment.

3. Five years after the entry into force of this Treaty, a conference
of Parties to the Treaty shall be held in Geneva, Switzerland, in order to
review the operation of this Treaty with a view of assuring that the purposes
of the Preamble and the provisions of the Treaty are being realized. At
intervals of five years thereafter, a majority of the Parties to the Treaty
may obtain, by submitting a proposal to this effect to the Depositary Govern-
ments, the convening of further conferences with the same objective of re-
viewing the operation of the Treaty

ARTICLE IX

1. This Treaty shall be open to all States for signature. Any State
which does not sign the Treaty before its entry into force in accordance with
paragraph 3 of this article may accede to it at any time.

2. This Treaty shall be subject to ratification by signatory States.
Instruments of ratification and instruments of accession shall be deposited
with the Governments of the United States of America, the United Kingdom of
Great Britain and Northern Ireland and the Union of Soviet Socialist Republics,
which are hereby designated the Depositary Governments.

3. This Treaty shall enter into force after its ratification by the
States, the Governments of which are designated Depositaries of the Treaty,
and forty other States signatory to this Treaty and the deposit of their instruments of ratification. For the purposes of this Treaty, a nuclear-weapon State is one which has manufactured and exploded a nuclear weapon or other nuclear explosive device prior to January 1, 1967.

4. For States whose instruments of ratification or accession are deposited subsequent to the entry into force of this Treaty, it shall enter into force on the date of the deposit of their instruments of ratification or accession.

5. The Depositary Governments shall promptly inform all signatory and acceding States of the date of each signature, the date of deposit of each instrument of ratification or of accession, the date of the entry into force of this Treaty, and the date of receipt of any requests for convening a conference or other notices.

6. This Treaty shall be registered by the Depositary Governments pursuant to article 102 of the Charter of the United Nations.

ARTICLE X

1. Each Party shall in exercising its national sovereignty have the right to withdraw from the Treaty if it decides that extraordinary events, related to the subject matter of this Treaty, have jeopardized the supreme interests of its country. It shall give notice of such withdrawal to all other Parties to the Treaty and to the United Nations Security Council three months in advance. Such notice shall include a statement of the extraordinary events it regards as having jeopardized its supreme interests.

2. Twenty-five years after the entry into force of the Treaty, a conference shall be convened to decide whether the Treaty shall continue in force indefinitely, or shall be extended for an additional fixed period or periods.
This decision shall be taken by a majority of the Parties to the Treaty.

ARTICLE XI

This Treaty, the English, Russian, French, Spanish and Chinese texts of which are equally authentic, shall be deposited in the archives of the Depositary Governments. Duty certified copies of this Treaty shall be transmitted by the Depositary Governments to the Governments of the signatory and acceding States.

IN WITNESS WHEREOF the undersigned, duty authorized, have signed this Treaty.

DONE in triplicate, at the cities of Washington, London and Moscow, this first day of July one thousand nine hundred sixty-eight.
APPENDIX II
UNITED NATIONS SECURITY COUNCIL RESOLUTION
ON SECURITY ASSURANCES

The Security Council,

Noting with appreciation the desire of a large number of States to subscribe to the Treaty on the Non-Proliferation of Nuclear Weapons, and thereby to undertake not to receive the transfer from any transferor whatsoever of nuclear weapons or other nuclear explosive devices or of control over such weapons or explosive devices directly, or indirectly; not to manufacture or otherwise acquire nuclear weapons or other nuclear explosive devices; and not to seek or receive any assistance in the manufacture of nuclear weapons or other nuclear explosive devices,

Taking into consideration the concern of certain of these States that, in conjunction with their adherence to the Treaty on the Non-Proliferation of Nuclear Weapons, appropriate measures be undertaken to safeguard their security,

Bearing in mind that any aggression accompanied by the use of nuclear weapons would endanger the peace and security of all States,

1. Recognizes that aggression with nuclear weapons or the threat of such aggression against a non-nuclear-weapon State would create a situation in which the Security Council, and above all its nuclear-weapon State permanent members, would have to act immediately in accordance with their obligations under the United Nations Charter;

2. Welcomes the intention expressed by certain States that they will provide or support immediate assistance, in accordance with the Charter, to any non-nuclear-weapon State Party to the Treaty on the Non-Proliferation of Nuclear Weapons that is a victim of an act or an object of a threat of aggression.

in which nuclear weapons are used;

3. Reaffirms in particular the inherent right, recognized under Article 51 of the Charter, of individual and collective self-defense if an armed attack occurs against a Member of the United Nations, until the Security Council has taken measures necessary to maintain international peace and security.
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