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REGIME BUILDING IN THE NON-PROLIFERATION SYSTEM

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Introduction

In the past decade or so the arrangements that have been established to prevent the proliferation of nuclear weapons, while making peaceful nuclear technology accessible, have come under increasing strain from a changing technological environment. This has in turn challenged the adaptive capacity of the non-proliferation system. As one analyst observed, it was established on a starkly discriminatory foundation, which makes it highly susceptible to political and technological changes in the international system.[1] This leads to a research agenda guided by the following questions: What contextual factors (i.e. state actions) led to the establishment of the Non-Proliferation Regime? To what extent do recent changes in the international environment threaten to undermine the regime? And what accounts for its persistence, without defection, when so many of its adherents find its terms increasingly objectionable?

This paper begins with a historical review of the non-proliferation enterprise, which can be traced back to the Baruch Plan of 1946. Next, the theoretical literature on the concept of international regimes is analysed with a view to assessing whether the non-proliferation mechanisms now in place meet the criteria of a security regime. The third section examines the primary elements of the non-proliferation structure. Finally, the persistence of the Regime, despite the pressures on its principles and the changes in the structural conditions which gave rise to it, is analysed from the perspective of liberal theory. The emphasis will be on political factors, in contrast to other perspectives that put greater stress on technology.

Control and Politicization of Nuclear Technology

Four phases have been identified through which the attempt to prevent the proliferation of nuclear technology and its attendant military risks has passed.[2] The first began in 1945 and lasted until 1953, during which time the emphasis was put on secrecy and denial. In the second (1954 to 1974), the focus shifted to a more liberal policy and greater willingness by the nuclear states to share nuclear information. The third phase (1975 to 1980) saw a re-emphasis on stringent controls over nuclear technology. The final stage began in 1981, and while technology control is still emphasised, political considerations have served to weaken nuclear export controls and the non-proliferation project itself.

In the immediate post-war period, the United States, which had a virtual monopoly over nuclear technology, sought to prevent its dissemination through a policy of secrecy and denial. In other words, the U.S. tried to close the nuclear pandora's box by keeping information about atomic energy private. This effort resulted in the Atomic Energy Act of 1946, which prohibited sharing of atomic information until Congress was satisfied that adequate safeguards were in place to prevent its use for military purposes.

At the international level, the USA undertook diplomatic efforts to prevent other states from acquiring nuclear weapons. Along with Britain and Canada, a declaration was issued stating that since "the military exploitation of atomic energy depends, in large part, upon the same methods and processes as would be required for industrial uses," general disclosure of atomic energy information should await the development of acceptable safeguards against weapons proliferation.[3] The three wartime partners agreed subsequently to purchase all existing uranium. And it was their (and the USSR's) manoeuverings that led to the creation of the United Nations Atomic Energy Commission or UNAEC.[4]

The United States soon proposed that an International Atomic Development Authority be set up to own and control all nuclear technology, materials, and facilities. This proposal, the Baruch Plan, was launched in response to the perceived imperative of maintaining the peaceful benefits that nuclear technology offered while blocking its use for military ends. The central recommendations of the Baruch Plan were to end the production of atomic bombs, leave the destruction of existing stockpiles until the Authority was functioning and credible safeguards were in place, and suspend the customary Security Council veto in relation to violations of these principles.[5]

The Baruch Plan failed to get the support of the Soviet Union, which interpreted it as a means by which the Western powers hoped to maintain their monopoly over atomic weapons technology and Security Council decision-making in this issue-area. In its place, the Kremlin called for the dismantling of all atomic weapons before the establishment of an international control system, the direct opposite of the Baruch proposal. Since no agreement was possible, the Plan suffered its signal set-back.

The Baruch Plan failed also because of the negative response it received from allies of the U.S., notably the U.K. and Canada, which had co-operated extensively with Washington in the production of the first atomic bomb.[7] The unintended outcome of this extreme policy of denial was that other states developed their own atomic weapons. The USSR conducted its first nuclear test in 1949; the U.K. followed suit in 1952; France in 1960; and the PRC in 1964. By 1952, the U.S. realised that earlier predictions of a scarcity of nuclear materials were inaccurate and that its policy of denial was failing.

Aside from spectacular advances in the military application of nuclear technology (the U.S. & USSR had tested hydrogen bombs by 1954), significant

progress was being made using nuclear reactors to generate electricity. Technological developments had forced a change in U.S. nuclear policy. The hallmark of this shift was President Eisenhower's "Atoms for Peace" address to the U.N., in December 1953. Acknowledging the inevitability of atomic energy diffusion, Eisenhower suggested that governments involved in significant nuclear research donate some of their fissile material to the intended International Atomic Energy Agency (IAEA), which would be in charge of storage and safekeeping. The Agency would then distribute it for peaceful projects, such as electricity generation. In the President's terms, the donor states would "be dedicating some of their strength to serve the needs rather than the fears of mankind."[8]

The IAEA came into being in July 1957. Meanwhile, the U.S. amended substantially the 1946 Act. The new Atomic Energy Act of 1954 removed the bulk of the controls relating to classified nuclear energy material.[9] It became possible for private industry to own and operate nuclear facilities and fissionable material, and authority was vested in the Executive to conclude agreements with other states on nuclear co-operation. To be sure, the Act required recipients to pledge that they would use U.S.-supplied atomic equipment or materials only for peaceful purposes, but it was tantamount to a major rethinking of U.S. nuclear policy.

The Soviet Union expressed its usual reservations to the Eisenhower plan. However, as the 1954 Act became law in the U.S. and Washington took unilateral steps to extend nuclear aid to many developing countries, the Soviet Union moderated its stance. After arduous negotiations amongst the major powers, the Statute of the International Atomic Energy Agency was opened for signature in the autumn of 1956. The IAEA was a watered-down version of the

Baruch Plan's emphasis on international ownership, management, and control of all areas of nuclear energy: the agency had no power to enforce non-proliferation rules and could only warn of diversion, not forestall it. Moreover, the IAEA safeguards system would apply only to projects begun under its auspices or to those the host country offered voluntarily to inspection.

Notwithstanding, the Eisenhower "Atoms for Peace" stage marked the beginning of the evolution of a non-proliferation system. The freer nuclear environment generated significant dissemination of nuclear energy information, mainly in the United States and the Soviet Union. By 1958 any state could access basic information on the nuclear fuel cycle in the U.S., which emerged as the undisputed leader in the export of nuclear technology. Aided by its sizeable lead in enriched uranium-fueled research reactors and its status as the foremost supplier of enriched uranium, the U.S. gained considerable economic and political influence. This was used to pressure recipients' acceptance of bilateral and international safeguards.[10]

Three other key developments marked this phase of the evolvement of the non-proliferation system. First was the conclusion of a test ban treaty in 1963 prohibiting nuclear tests in the atmosphere, in outer space, and under water. Second was the Treaty on the Non-Proliferation of Nuclear Weapons (NPT), which entered into force on 5 March 1970.[11] The NPT, the singular development in the non-proliferation campaign, demonstrated that it was possible for the major powers to cooperate in an issue area of vested interest.[12] Third was the Treaty for the Prohibition of Nuclear Weapons in Latin America (the Tlatelolco Treaty), which sought to prevent the spread of nuclear weapons to Latin America. It was signed at Mexico City in February 1967 and entered into force on 22 April 1968.[13]

The third phase in the maturation of the non-proliferation system began with India's nuclear test on 18 May 1974. This elicited a major review of U.S. nuclear policy and moved the non-proliferation debate from the periphery to the centre of the foreign policy agenda of most supplier states. Stricter nuclear export guidelines were formulated by the U.S., Canada and other nuclear suppliers, ostensibly to discourage others from following the Indian example. [14]

Delhi's action triggered also the Nuclear Exporters' Committee, set up in 1970 to examine safeguards requirements under the NPT, the Nuclear Suppliers Group (NSG), which met in London to set basic standards for nuclear commerce, and the International Nuclear Fuel Cycle Evaluation (INFCE), which focused on the complete fuel cycle. These measures were meant to reduce the proliferation risks associated with nuclear energy. But they showed also that the NPT had failed to establish credible norms against proliferation. Ironically, the NSG and INFCE came under strong attack--the former from developing states which viewed the process as an attempt at cartelisation; and the latter from the industrialised allies of the U.S., which disagreed with Washington's interpretation of the inherent proliferation risks of different fuel cycles.

The most important development of this third phase was probably the policy instruments of the Carter administration. A year after coming into office Carter introduced the Nuclear Non-Proliferation Act (NNPA), which the Congress passed in late 1978.[15] The Act stated that U.S. nuclear exports would be stopped if recipients did not accept "full-scope" safeguards within a twenty-four month period. It prohibited consumer states from re-transferring or reprocessing nuclear material of U.S. origin without prior consent, and called for an end to nuclear co-operation with any state which conducted a peaceful nuclear explosion (PNE) or carry-out activities related to the manufacture or

acquisition of nuclear explosives. The NNPA instructed the President to renegotiate existing agreements to reflect these new guidelines.[16] However, in the interest of national security and with the consent of Congress, the executive could allow an ally to purchase U.S. nuclear material and technology.

With the notable exception of Australia and Canada, most developed and developing countries alike protested the new law.[17] It was argued that a return to the earlier strategy of technology denial would be detrimental politically and contribute little to non-proliferation. The French and Japanese reactions were especially negative: both decided to proceed with their commercial reprocessing and breeder reactor projects, U.S. protestations notwithstanding. Underlying this position was a strong suspicion that Washington did not favour fast breeder technology because of its comparative disadvantage in this area.

To summarise, the policies and programmes of the period 1975-1980 sought to resolve a basic dilemma: how to promote the economic benefits of nuclear energy but avoid horizontal proliferation. The strategy was to tighten the rules of nuclear co-operation and re-think the prevailing orthodoxy surrounding the potential economic benefits of nuclear energy. It was implemented through multilateral agreements, forums, and unilateral action, chiefly by the U.S. It involved a policy of supplier restraint in their transfer of sensitive technology, the insistence on thorough safeguards as a condition of co-operation with non-nuclear powers, and a postponement of plans by the developed countries to reprocess plutonium for commercial use. Finally, the thrust of U.S. policy during this period was on supplier leverage, i.e., restraint, denial, and universalism.[18]

Since 1981, a new phase in the nuclear non-proliferation enterprise has occurred. Not surprisingly, American action accounted for this shift. The Reagan administration, siding with those who said U.S. nuclear policy under

Carter was counter-productive, decided on a more flexible approach to nuclear transfers.[19] Reagan pledged greater reliability and predictability in supplying U.S. nuclear materials, equipment, and technology. It was realised that the U.S. could not continue its unilateral approach and still hope to influence supplier policy and the development of a strong non-proliferation regime. By taking a less restrictive approach, therefore, Washington signaled its intention to regain the influence which its technological capabilities and competence once produced. The Reagan policy said fundamentally that American nuclear policy had not given enough weight to the economic and security factors shaping nuclear weapons policy in other states.

Thus it was no longer policy to try and undermine the breeder reactor and reprocessing programmes of the Euratom and Japanese allies. Instead, the U.S. would facilitate this enterprise by granting long-term consent for the allies to reprocess U.S.-origin fuel for plutonium.[20] This change marked a major rejection of the Ford and Carter policy positions, which linked unequivocally nuclear proliferation with plutonium access. In the area of sensitive technology exports the Reagan policy differed also from Carter's: while the U.S. would continue to prohibit such transfers where circumstances warranted, the permanent embargo would be lifted. In addition, the President agreed to facilitate requests from U.S. firms to collaborate with European and Japanese companies on reprocessing ventures; and a joint centrifuge enrichment project with Australia was initiated in that country.[21]

On the other hand, the Reagan policy did not seek entirely to abandon the NNPA. With Congress's urging, the restrictive clauses on nuclear co-operation with, and the ban on sale of sensitive technologies to, "near-nuclear" states were maintained. So too were the export controls on dual-capable technologies.

Even without Congressional pressure, the new policy supported the principle of "full-scope" safeguards on major nuclear transfers. This accounted for Pakistan's failure to buy a new U.S. reactor, while its indigenous nuclear facilities remained unsafeguarded. Like the previous administration, however, the tendency was to exempt existing contracts from the new regulations. Thus, although the NNPA's grace period had ended, the Administration decided to fulfil its contractual obligations, by making it possible for affected states to purchase the technology from its industrialised partners. For example, fearing that a cut-off of fuel sales to India might cause it to renounce existing safeguards, Washington arranged for France to supply the fuel under a 1963 agreement. A similar treatment was given to Brazil and South Africa.[22] In short, the Reagan policy was a blend of common sense, pragmatism, and realism, in which emphasis on supplier leverage was replaced by security considerations.

Overall the current period can be said to represent the realist phase in the maturation of the non-proliferation system. There is acceptance that some consumer states have acquired reprocessing technology, have reached advanced stages in the nuclear fuel cycle, and have accumulated large quantities of separated plutonium for this purpose. The co-operative approach, of the U.S. and other industrialised states, has tried to balance these facts against the need to strengthen the non-proliferation system through the application of acceptable safeguards and controls over nuclear exports.

At the time of writing, efforts are continuing to upgrade the NSG's "trigger list" and to require export controls on certain dual-use components not on the list of sensitive items. The Nuclear Supplier Club met in Luxembourg in early 1984 and agreed to continue to give comprehensive safeguards high priority. At the same time, there is an effort by the nuclear suppliers to apply greater

flexibility in their nuclear dealings with developing states and to make their trading practices more predictable, so that the latter can plan their energy needs better.

Yet, many contend that further efforts are required, both at the diplomatic and practical levels, to prevent an erosion of the tentative achievements of the non-proliferation project. These range from greater co-ordination of export controls on sensitive technologies, especially to states that continue to decline comprehensive safeguards or are alleged to be conducting secret nuclear activities, to making the rewards against proliferation more attractive.

If these observations point to an agenda for the next stage in the evolution of the non-proliferation system, then the motif of co-operation will occupy a central place in this process. To a large degree, it is supplier policies that promote or hinder nuclear proliferation. There has been a clear tendency for nuclear supplier states to view their export policies as fulfilling not only economic and non-proliferation objectives but, increasingly, political, strategic and security ones. As the U.S. case demonstrates, and as a cursory glance at the export policies shows, several factors now influence nuclear exports to states such as Iraq, India, Brazil, Argentina, Mexico, and the PRC. The intricate inter-play between these factors affects the level and extent of co-operation that is possible among states that are naturally self-regarding units.[23] But so does the narrow, technical approach that some states have taken towards nuclear energy and proliferation. This leads to the conclusion that the success or failure of states to link satisfactorily the question of non-proliferation to other issue-areas portend both promises and risks. It is at this critical juncture that collaboration may matter.

The creation of international regimes is said to be an attempt at convergence of states' policies around a particular issue, i.e., the identification and promotion of linkages between seemingly disparate problems. The next section tries to examine the extent to which the non-proliferation system qualifies as an "international regime." This will make it possible to pinpoint some of the weaknesses of the present non-proliferation system, to see whether it is governed by authoritative rules and principles, rather than by market-oriented imperatives, and to suggest possible ways of strengthing them.

The Concept of International Regimes

The concept of international regimes has come to occupy a central place in the literature on international governance for the past decade or so, and an impressive body of empirical research and theorizing is available on the topic.[24] This reflects a certain dissatisfaction among scholars with the dominant approach to international relations, realism, with its pessimistic outlook on the possibilities of inter-state co-operation in an anarchic international environment.

Realism was questioned in the early 1970s, because a new set of policy issues surfaced that was not readily amenable to orthodox explanations. The oil crisis of 1973-74 was seen by many as evidence of increasing "interdependence" among states in the international system.[25] The view that states were becoming more sensitive or vulnerable led to a search for new theoretical and practical tools to explain this phenomenon and what some analysts saw as "market failure."[26] The theory of international regimes (circa 1975) was intended to fill a perceived gap between orthodox structural arguments, emphasising the zero-sum aspect of international politics, and the globalist perspective,

emphasising the mitigating role of institutions on the unwieldly structure of international relations. Much of the recent literature on this subject therefore stakes out a middle ground between the political power and the institutional-transactional approaches to international anarchy. The fundamental argument can be put as follows: regimes intervene between systemic forces like power on the one hand and co-operative outcomes on the other.[27]

The literature on regimes contains both contending and overlapping definitions: some commentators see patterned, regularised behaviour as forming the basis of international regimes. Stephen Krasner's popular definition stressed the normative dimension in international politics. For him regimes are "implicit or explicit principles, norms, rules and decision-making procedures around which actors' expectations converge in a given area of international relations."[28] Keohane concurs with this basic conception of international regimes but rejects Krasner's distinction between norms and principles on the one hand and rules and procedures on the other. Thus regimes are said to "consist of injunctions at various levels of generality, ranging from principles to norms to highly specific rules and decision making procedures."[29] Keohane goes on to describe regimes as "intervening variables" which facilitate co-operation between international actors.[30] Less sophisticated definitions of international regimes, posited by Young and others, state simply that regimes are multilateral arrangements among states seeking to regulate their national policies in an issue area, with the aim of achieving mutual benefits.[31]

For the purposes of this paper an international regime is seen as an authoritative arrangement established by international actors (states) to co-ordinate their expectations and modify aspects of international behaviour to suit their interests. This definition incorporates the three core elements of

regimes: normative, state practice, and organisational roles.[32] It underscores the liberal-institutionalist claim that regimes are not ends in themselves, but instruments of statescraft, created and used for specific purposes.[33]

The attempt to regularise patterns of behaviour via regime creation has been seen as a consequence of interdependence and its concomitant costs. States weigh these costs against the benefits of co-ordinated action and opt for the latter, if the opportunity cost appears lower. Put differently, where unstructured interdependence is likely to lead to unacceptable costs and added uncertainties, states may seek out collaborative avenues of pursuing their policy objectives. Such pursuits may help remove uncertainties and provide collective goods in a sensitive international environment.[34] Finally, regimes may alter significantly the cost-benefit calculus of states, the process by which these are selected, and the way they are selected and distributed.[35] International co-operation may therefore not only facilitate the self-interests of states but may be essential to their accomplishment. As Keohane affirms,

> In a world political economy characterized by growing interdependence, [regimes] may become increasingly useful for governments that wish to solve common problems and pursue complementary purposes without subordinating themselves to hierarchical systems of control.[36]

The foregoing indicates that international regimes rest on explicit or tacit principles and norms, which seek to lead participants into new patterns of international behaviour; specific rules about what is permissible behaviour and procedures that guide mutual policy choices.[37] On this basis it is possible to speak of a "non-proliferation regime." Its guiding principle states that the spread of nuclear weapons to more states would pose a serious danger to international security and should therefore be prevented, even while more is done to exploit the peaceful aspects of nuclear energy. This principle implies in practice that the formal nuclear powers should help the developing states with

their peaceful nuclear programmes, but seek to ensure that horizontal proliferation does not also take place.

The principle on which the non-proliferation regime rests finds expression through certain norms that are embodied in the system of institutions comprising the non-proliferation system. The institutional pillars of this regime are of course the NPT and its regional counterparts, the Tlatelolco and Rarotonga nuclear free-zone treaties of Latin America and the South Pacific, respectively, and the Partial Test Ban Treaty. These treaties are buttressed by controls and safeguards, especially those administered by the multilateral body, the IAEA. In addition, there are three treaties that ban the deployment of nuclear and other large-scale destructive weapons in Antarctica (1959), in Outer Space (1967), and on the Seabed (1972). Next are the international fora which established guidelines to govern nuclear exports (the Zangger Committee, the NSG, and the INFCE) and the policies and practices of the EEC-based organisation, Euratom (1958), with respect to arms control and security of nuclear fuels. Lastly are the unilateral policies adopted by key exporters such as the U.S. and Canada, and the individual security and no-first-use assurances that the NWS have made in order to balance the obligations and benefits pertaining to members of the regime.

The set of institutions and practices which arguably constitute the non-proliferation regime is the product of the rapid changes that have occurred in nuclear technology after 1953 and the attempt to control and manage this transition. The pessimism of the early 1970s, concerning the spread of nuclear weapons, propelled the drive to meet this impending challenge to international security. It is reasonable to argue that the failure of the dire predictions about nuclear devolution to materialise, stems partly from the general proscriptions

against proliferation that are embodied in the NPT and elsewhere. This, combined with self interest and learning, is the basis on which the non-proliferation regime can be said to exist.[38] They also account for its survival--themes which will be pursued further in the final section of this paper. Having established that there is a Non-Proliferation Regime, this paper can now turn its attention to further analysis of the various components of that Regime.[39]

The Non-Proliferation Regime

The International Atomic Energy Agency

The IAEA was established on 29 July 1957 and operates from its Vienna headquarters.[40] Its main purpose is to administer safeguards under the regime to ensure that nuclear technology is not diverted into weapons production. This occurs through periodic on-site inspections. The IAEA also facilitates peaceful nuclear transfers between developing nuclear suppliers and non-nuclear states and assists the latter to utilise nuclear technology as a source of energy. Although most transfers of nuclear material, equipment, and technology take place on a bilateral basis, it is the IAEA that is usually required to undertake the necessary safeguards. It is agreed generally that without the IAEA's international safeguards system, it would not be feasible to conduct nuclear commerce on the scale that it is done today.

The IAEA's safeguards and control machinery take effect when states, individually or in groups, enter into a safeguards contract with the Agency.[41] Two such safeguards agreements exist: one applies to states that permit international inspection only of nuclear facilities which they have submitted voluntarily or in accordance with commitments under nuclear supplier contracts;

the other applies to the (non-nuclear) parties to the Non-Proliferation Treaty, which means that all their peaceful nuclear facilities fall under IAEA comprehensive safeguards.[42] Both arrangements are designed ultimately to ensure that early warning is given that states are complying with their obligations. As the NPT states, the IAEA safeguards are there to provide "timely detection of diversion of significant quantities of nuclear material from peaceful activities."[43] Early detection cannot by itself prevent horizontal nuclear weapons proliferation, but it may be a sufficient deterrent against such occurrence. Besides, if the IAEA detects diversionary activity and fails to get the violator to alter its policy, it may refer the matter to the Security Council, suspend technical assistance, or encourage other states to do so. It may even suspend a state's membership in the Agency.

The IAEA has never issued a non-compliance report or suspended a member state. Yet many of its critics express strong doubts about the Agency's ability to detect illegal activity by the 113 participants. The IAEA's Director-General, Hans Blix, pointedly underscored the uncertainties faced by the Agency in trying to fulfil its technical obligations.[44] And the U.S. General Accounting Office said in its 1984 report that

> IAEA inspectors do not have unlimited access during their inspections, and IAEA safeguards are not designed or intended to search for undeclared or clandestine facilities. IAEA officials state that the Agency is not a police force, but rather a monitoring group responsible for sounding an alarm.[45]

Recent events have in fact called into question the efficacy of the IAEA's safeguards machinery. Chief among them were the destruction by Israel of Iraq's safeguarded OSIRAK nuclear reactor; and the Agency's admission a few years ago that it could not guarantee that Pakistan's KANUPP reactor was being operated only for peaceful purposes.[46] (This announcement followed Pakistan's resistance to upgraded safeguards brought about by its indigenous fuel

fabrication capability.)[47] Despite these and other problems, the IAEA remains the only organisation that provides comprehensive on-site inspections of nuclear sites in accordance with an international treaty and regime.

Aside from the vital safeguards function, the IAEA is a framework within which global nuclear transactions occur. If general principles are guides to more precise action, then it may be argued that the IAEA sets the tone and the reference for the choices and policies that govern the nuclear trade. Most bilateral agreements and individual state's policies for nuclear co-operation contain a role for the IAEA.[48] Its existence affects directly the outcome of bargaining between supplier and recipient countries and the overall character of the Non-Proliferation Regime. For example, the IAEA was responsible for the publication of the NSG's guidelines. It was also involved closely with the work of the Zangger Committee. These events suggest that the Agency commands significant respect. The IAEA's auspices are used increasingly for consultations on nuclear energy and technology matters affecting nuclear commerce and ultimately the Non-Proliferation Treaty.

It is the U.S. and USSR that have been chiefly responsible for the high profile of the IAEA. While recent events remind us that the IAEA can be used as a political instrument, the two superpowers have agreed tacitly to keep politics out of the Agency, so that it can perform its critical safeguards functions.[49] This has allowed it to become the main vehicle for the development of the norms and rules affecting international nuclear co-operation; and the place where many of the trade-offs underlying the general principles of the Regime are made. Therefore, its role in the further elaboration of the Non-Proliferation Regime is crucial.

The IAEA faces many challenges in dealing with states that have both safeguarded and unsafeguarded nuclear facilities and which are reluctant to co-operate with it. Besides, it sometimes becomes susceptible to the political intrigues of its members. It is one thing to detect illicit activity on the part of member states, but quite another to impose penalties when influential members put the national interest above non-proliferation goals. There is considerable disagreement over what the Agency's role should be in safeguarding the atom. The nuclear supplier states want it to emphasise safeguards, while the emerging states seek to restrict its activities by invoking sovereignty and national interest prerogatives. This lack of consensus on the instrumental orientation of the IAEA will continue to impose critical dilemmas. Further, it will be challenged continually by the political dynamics of nuclear trade and by threshold states with unsafeguarded facilities. These may well add to the litany of complaints that developing states have levelled against the unequal obligations of the NPT and the burdens IAEA safeguards place on them, at the same time that their access to nuclear technology and assistance has been curtailed or ignored.

The IAEA is a fragile entity. Its credibility will continue to depend on how much "teeth" the major nuclear suppliers are prepared to give it, in the face of recent impending signs of economic recession and decay in the monetary and trade regimes. Finally, the developing countries must continue to believe the organisation is worth preserving and might even be in their national best interests.

Treaty on the Non-Proliferation of Nuclear Weapons

The Non-Proliferation Treaty (NPT) was opened for signature on 1 July 1968, when it was signed by the depository governments (Britain, the Soviet Union, and the United States) and 59 other states. It entered into force on 5 March 1970. There are now 137 parties to the NPT, including 3 nuclear states.[50]

The objectives of the NPT are set out in the first five articles. It seeks to prevent the spread of nuclear weapons to additional states (Articles I and II); ensure via international safeguards that the non-nuclear states are not engaged in nuclear weapons programmes (Article III); and promote the fullest co-operation among member states for the purpose of exploiting the peaceful benefits of nuclear energy under international observation (Articles IV and V). The NPT is seen also as integral to the worldwide arms control and disarmament enterprise (Article VI).

The NPT is the product of an unequal bargain between the nuclear and non-nuclear states, whereby the former agreed to grant developing nations full access to their civilian nuclear resources and assistance to exploit the potential benefits of nuclear technology. In return, the latter agreed to have their nuclear activities circumscribed. In order to make the obligations of the agreement less lopsided, it was agreed also that in return for their renunciation of nuclear weapons, the nuclear powers would take genuine steps to reduce their own stockpiles of nuclear arsenals and to bring about complete disarmament (Article VI). Concerned that they would be put at a permanent disadvantage if they abjured the nuclear route, the NNWS sought guarantees that their security would not be jeopardised or be subjected to threats and intimidation. Efforts to formulate a security assurance clause that would meet

each state's peculiar circumstances were unsuccessful. However, the three nuclear signatories deposited separate declarations with the Security Council. Each pledged to assist any non-nuclear state that was faced with a nuclear attack or threat, the so-called positive security assurance.

In 1978, then U.S. Secretary of State Vance issued a further policy statement, this time pledging what is called a "negative security guarantee." According to Vance,

> The United States will not use nuclear weapons against any non-nuclear weapons state party to the NPT or any comparable internationally binding commitment not to acquire nuclear explosive devices except in the case of an attack on the United States ... or its allies, by such a state allied to a nuclear weapon state, or associated with a nuclear weapon state in carrying out or sustaining the attack.[31]

The positive and negative security assurances associated with the NPT are supplemented by U.N. Resolution 255 of 19 June 1968, and by the "Agreement Between the United States and the Union of Soviet Socialist Republics on the Prevention of Nuclear War" (1973).

These pledges and agreements have been small comfort to the NNWS. Some have pointedly observed how difficult it is for the Security Council to achieve consensus on any issue and how debilitating the veto provision could be in a crisis situation. This popular wisdom has been given added weight by lingering doubts among the European NATO allies concerning the credibility of the U.S. nuclear security umbrella. Indeed, it is difficult to imagine a situation where a NWS would risk its well being aiding another power threatened with nuclear aggression. It is also unclear how, for example, the non-nuclear states could avoid harm to their own societies in the event of a central nuclear conflict.

Aside from the ambiguities surrounding the security provisions relating to the NPT, critics have attacked other perceived shortcomings of the Treaty. The five-yearly Review Conferences, which began in 1970, have been the major fora

for such attacks. The 1975 Review Conference, for example, addressed the equivocal and vague security assurances given by the NWS and the lack of progress towards vertical arms control and a comprehensive test ban. There was also great concern that the nuclear powers were not making nuclear transfers in a predictable and reliable manner, as called for by Article IV.[52]

The 1980 Review Conference proved even more contentious, so much so that participants could not agree on a final declaration.[53] Again the arguments centred around vertical proliferation and the access to nuclear resources by the non-nuclear powers. The nuclear powers insisted that, despite the breakdown of the Geneva arms control talks, progress was being made in halting vertical proliferation. A comprehensive test ban seemed unlikely, given the Soviet Union's presence in Afghanistan and the boycott of the Moscow-held Olympic games by the West. Nuclear technology was also a prominent item on the 1980 Review agenda. In fact, a split developed among the nuclear supplier states: one group (the U.S., Canada, and Australia) wished to make full-scope safeguards a condition of nuclear exports; the other (the U.K., the Federal Republic of Germany, Italy, and Japan) supported comprehensive safeguards in principle but argued that they should remain voluntary.[54] The non-nuclear states argued in turn that the emphasis on safeguards was misplaced. They demanded preferential access, noting the curious fact that non-NPT states had benefited most from Article IV of the Treaty.

At the 1985 Third Review Conference, held 27 August to 20 September, discussion revolved around compliance with Articles IV and VI.[55] Yet there was no orchestrated attack against the NWS for their continued nuclear build-up and nuclear export policies, as many had predicted.[56] In fact, there was a consensus that the NPT helped constrain the ambitions of the near-nuclear states and

contributed to international security. To be sure, the customary concerns about long-term assurances of supplies of nuclear technology and preferential access to nuclear equipment and services were raised. And in an obvious reference to the NNPA, participants condemned the unilateral cessation of fuel cycle contracts. The non-nuclear parties made it clear that they were not satisfied with the present security assurances. They argued forcefully for the continuation of discussions in the Conference on Disarmament (CD) concerning an acceptable internationally binding approach to negative security guarantees.

There was deep regret that the efforts to end the "arms race" had not proceeded apace, but the Final Declaration made no reference to a comprehensive test ban treaty (CTBT) because of U.S. objections.[57] Vigorous discussion took place, nevertheless, on the potential significance of a CTBT, the logic being that it would restrict further advances in sophisticated strategic weaponry and hence in vertical proliferation.[58] Indeed, most delegates at the Third Review Conference felt that a CTBT was a requirement of the NPT and vital to the preservation of the Regime.[59]

In conclusion, the Third NPT Review was much more constructive than had been expected. Like many other international agreements between sovereign states, however, the Treaty is subject to the vicissitudes of international politics. Yet, barring a major crisis in the international political system, its collapse is not imminent--at least not before its expiry in 1995. The non-adherents, i.e., the so-called "problem countries," are not likely to accede to the NPT, but this may have more to do with unrelated political and security factors.[60] Many analysts conclude that the repudiation of the NPT by some states, such as Israel and India, is based on anterior considerations. It is argued that a policy of "purposeful ambiguity" keeps both putative adversaries and

allies guessing. This strategy puts constraints on, and extracts political concessions from, the former, while making it possible to exercise leverage over the latter. Thus it may well be counter-productive for marginal nuclear powers to demonstrate their nuclear capabilities.

The probability of precipitating international economic and diplomatic sanctions, or even war, will likely remain strong disincentives to horizontal nuclear proliferation. The NPT can be sustained if the drive to universalise the IAEA's safeguards system succeeds. Moreover, a comprehensive test ban would reduce the likelihood of mass defection from the NPT by 1995 and concomitant decay of the Non-Proliferation Regime. It would do so by signaling to the NNWS that their nuclear counterparts were determined to make nuclear weapons less of a factor in the determination of national power. A CTBT would help also to justify in the eyes of skeptical "nuclear have-nots" the (temporary) logic of inequality presented by the NPT.[61]

The following section examines some of the important dynamics that have evolved largely from the injunctions of the NPT and the forums to which they have given rise. It seeks to demonstrate the validity of less formal avenues through which nuclear policy can and has been co-ordinated, given the complexities underlying nuclear energy and technology. The discussion concludes that despite the difficulties experienced in co-ordinating nuclear policy, the effort may nevertheless enhance the Non-Proliferation Regime.

Nuclear Suppliers Policy Fora

The Non-Proliferation Treaty Exporters' Committee (Zangger Committee), the Nuclear Suppliers Group (London Club), and the International Fuel Cycle Evaluation are the three less formal avenues through which the continuing effort to enhance the Non-Proliferation Regime have found expression. It is here that steps have been attempted to tighten the existing controls governing international nuclear activity and commerce, with a view to spreading the benefits of peaceful nuclear technology without breaking the rules of non-proliferation.

Zangger Committee

This secret committee began its deliberations soon after the NPT took effect in 1970 and convened periodically until 1974.[62] The purpose of this forum, which was established by a group of 12 industrialised countries, was to work out guidelines and procedures for nuclear fuel and equipment exports to the developing states under Article III of the NPT. It produced eventually a "trigger list" of equipment and materials that would be exported to non-nuclear states, only if they accepted comprehensive IAEA safeguards. The list included, inter alia, heavy water, reprocessing plants, and enrichment equipment. Australia, Denmark, Canada, the FRG, the Netherlands, the U.K., the U.S., and the USSR submitted individual letters and memoranda to the Director General of the IAEA concerning their intentions to comply with the list.[63]

This attempt to expand and interpret the clause in the NPT relating to nuclear exports was the first significant move towards policy co-ordination in nuclear equipment, materials, and technology trade. At its base lay the imperative to minimise the danger that nuclear exports might be channelled into nuclear weapons, by supplier temptation to short-circuit standard safeguard

rules to gain commercial and political advantages.[64] The Zangger Committee did not appear to function during 1977 to 1981. After a brief resurgence in 1982-83, it seems to have once again slipped into dormancy.

London Suppliers Group

The NSG began its "secret" consultations in London in 1975.[65] This forum was created mainly by the United States, although some 14 other developed states participated.[66] It was prompted by the Indian nuclear test, evidence that OPEC's pricing policy was driving some developing states to begin or expedite nuclear projects, and the perceived negative impact that the nuclear export policies of France and the FRG were having on the fledgling Non-Proliferation Regime.

Two main questions interested the NSG.[67] First, should sensitive enrichment and reprocessing technologies be sold to the NNWS and how? The U.S. argued for banning such transfers and for establishing international enrichment and reprocessing centres. Resistance to the U.S. stance came from France which held contracts for reprocessing reactor sales to Pakistan and South Korea; and from West Germany which had agreed to the purchase by Brazil of an entire fuel cycle (including enrichment and reprocessing equipment). Second, should exporting nations insist on full-scope safeguards before allowing nuclear purchases, if some buyers were unwilling to apply them to their non-military nuclear installations? Again, the lines were drawn between the U.S. on the one hand and France and West Germany on the other. The two dissenting states argued that to insist on comprehensive safeguards, as a condition of nuclear transfers, would not help the cause of non-proliferation, since resentment would threaten future cooperation and compliance with guidelines. This view prevailed.

Before ending its sitting in January 1976, the Club drew up its own trigger list of sensitive nuclear items and adopted a uniform code of conduct that would govern participants' nuclear sales.[68] The code delineated criteria that recipients must meet in order to receive certain nuclear materials, equipment, and technology. They were as follows:

- a pledge not to use nuclear transfers in the manufacture of nuclear explosives of any kind;

- unconditional acceptance of international safeguards on all transferred materials and equipment, including any indigenous enrichment reprocessing or heavy water production facility, that replicates or otherwise use original transfers;

- provision of adequate physical security for nuclear transfers to prevent theft and sabotage;

- a commitment not to re-sell materials, equipment or technology transfers to third countries unless they too accept the proscripts on use, replication, security, and re-exports, and unless the original supplier concurs with any such sales.[69]

The NSG agreed to use discretion and restraint where transfers of sensitive items (uranium enrichment, spent fuel reprocessing, and heavy water production) were concerned, and to promote the idea of multilateral reprocessing and enrichment facilities. These guidelines were adopted formally by 15 supplier states.[70]

The NSG caused much consternation and controversy. Since it met in "secrecy" on France's insistence, it was immediately seen as a cartel-in-the-making. The non-aligned states surmised that it was yet another attempt by the industrial nations to perpetuate Third World dependence and predicted that the forum would undercut, not further, the goal of non-proliferation. Some analysts were quick to point out that the Guidelines were not binding and had little, if any, legal standing or direct link with the NPT.[71] Finally, Third World critics assailed the apparent double standards of

the industrial states, which insisted that NPT states accept stringent nuclear safeguards but did not apply them equally to non-NPT countries.[72] In short, the nuclear exporters were accused of playing political games in the issue of nuclear exports.

The criticism was, of course, well placed. Yet it is difficult to imagine a situation under which nuclear issues are not influenced by political decisions. A better argument might therefore question the utility of excessive safeguards. As the record shows, prohibiting transfers of sensitive nuclear technology may induce the very effect considered undesirable, i.e., force states to find indigenous means of fulfilling their nuclear ambitions, without institutional reciprocation. In other words, rule making and regime building may be hampered by lack of consensus between supporters of mandatory comprehensive safeguards and advocates of greater flexibility, taking into account broader political factors.

Nevertheless, the NSG should not be slighted for attempting to harmonise supplier nuclear export policies. Imposing restraints on the use of sensitive technologies is not in itself a bad idea; it becomes counter-productive only in terms of its range of applicability. Put differently, the appeal to supplier states to "exercise restraint" in selling certain items considered "high risk" and to seek assurances from buyers that, if received, they will put these items only to peaceful uses, is desirable in the context of building a rule-guided non-proliferation system. It helps also to alleviate some of the fundamental security risks associated with nuclear anarchy.

Lastly, the the guidelines for nuclear exports can be credited for at least bringing France, a maverick supplier and non-NPT participant, into the rule-governing process. (Recall that France refused to associate itself with the

Zangger Committee.) On this basis, it can be argued that the guidelines have contributed to the Non-Proliferation Regime. Many supplier states have announced stricter policies than the 1978 Guidelines stipulated by the NSG. France, the FRG, and the U.S. have declared separately their intention not to sign additional contracts for reprocessing technology. Also, Australia, Canada, Sweden, and the U.S. have made full-scope safeguards a pre-condition of nuclear transactions. These developments, if evenly applied, have the potential to promote access without proliferation.

If there is any valid criticism of the NSG's guidelines it may be that, as some commmentators claim, they focus too much on the technical factors in a state's decision to acquire nuclear weapons and not nearly enough on the political ones. (Note current Canadian policy and also U.S. policy, especially before 1981.)[73] If this is true, then a desirable non-proliferation approach is one that incorporates a broad spectrum of concerns including, but not limited to, export strategies.[74] Since nuclear proliferation cannot realistically be separated from political and security matters, export policies must aim not only for co-ordination but for greater balance between the rewards for compliance and the punishment for non-compliance. This means the decision-making process must transcend purely technical levels.

Aside from the obvious dilemmas that the NSG guidelines present, they provide much room for interpretation. There is, for example, nothing on the sale of dual-purpose technology which enabled Pakistan to acquire an uranium enrichment facility with equipment received from different western states. Perhaps this is tacit admission that persistent sanctions that disrupt bilateral trading relations may exhaust one's leverage, and undercut other foreign policy goals, equally important in halting nuclear proliferation.[75]

International Nuclear Fuel Cycle Evaluation

The INFCE forum of 1977 was proposed by the Carter administration, which saw it as opportunity for endorsing its tough, new Nuclear Non-Proliferation Act. In fact the chief architect of Carter's nuclear policy described the INFCE as a forum "in which nations could re-examine assumptions and search for ways to reconcile their different assessments of the energy and non-proliferation risks involved in various aspects of the nuclear fuel cycle."[76]

In 1976 to 1977, a great debate ensued over the nuclear fuel cycle. Washington's (negative) stance towards the recycling of plutonium in thermal reactors, and the utility of breeder reactors, was becoming a source of tension with Western Europe and Japan. The INFCE was seen as a diplomatic tool to re-establish consensus among the western industrial allies. A technical re-assessment could provide further information concerning the "proliferation problem" and the potential threats to institutional building.

The INFCE consisted of 8 working groups, which held 61 meetings over a two-year period between 1978 and 1980. The Vienna sessions were attended by 46 nations. The Final Plenary Conference report concluded that "...effective measures can and should be taken to minimize the danger of proliferation of nuclear weapons without jeopardizing energy for peaceful purposes."[77]

The INFCE sought a consensus on the positive use of the nuclear fuel cycle and the proliferation risks that that posed, but this turned out to be a difficult task. One participant noted that nobody "won" but all gained something.[78] The U.S., especially, achieved most of its objectives. It managed to persuade the other participants that recycling in thermal reactors held little promise, that the safe storage or disposal of spent fuel did not call for reprocessing, that breeder reactors would not bring substantial benefits to economies with small

nuclear or electrical grids, and that the projected demand for uranium was exaggerated. From Washington's perspective, then, the INFCE helped suffocate more widespread use of plutonium. The technical findings supported a gradual approach to wider use of nuclear fuels, especially those with military implications, and in this way linked Article IV of the NPT more closely with Article 7 of the NSG guidelines. The former urges peaceful applications of nuclear energy in the developing states, while the latter calls on the developed states to exercise caution in transferring sensitive nuclear items.[79]

Seen in this light, the INFCE not only benefited particular states but furthered the general aims of the Non-Proliferation Regime. The technical information that it produced has added to the learning process, and has influenced the orientation of states to the fuel cycle aspect of nuclear technology. Put another way, by illuminating factors that were previously undisclosed, the INFCE enhanced the knowledge base of participants by linking substantive areas of the international fuel cycle.[80]

But the INFCE also sharpened traditionally divergent positions held by the U.S., Canada, and other industrialised states on one side and most everyone else (including some U.S. allies) on the other, concerning an acceptable "balance between economic self-interest and collective security."[81] The U.S. failed to explain how the fuel cycle could be arranged to provide economic benefits but not weapons. By suggesting that no one type of fuel cycle was more proliferation prone than the other, the INFCE went against the grain of Carter's non-proliferation policy. Moreover, it underlined the argument that non-proliferation is a symptom of deeper states' interests and not merely a technical matter.

A less sanguine interpretation of the INFCE is that it supported the commonly held view that the Non-Proliferation Regime is inherently discriminatory. The U.S. nuclear export policy and stance throughout the forum left the impression that the industrialised states could be relied on to be judicious in their use of plutonium and reprocessing facilities, while the developing nations could not. It was never satisfactorily explained why Argentina or India could not exercise the same degree of caution and restraint, as Japan or West Germany, in matters of nuclear energy. Thus the INFCE opened itself unwittingly to charges that it was a tool of U.S. foreign policy, at others' expense.[82]

Despite these well-placed assertions, it can be argued that the INFCE helped move the issue of nuclear fuel availability, and the need for greater accountability over the disposition of plutonium and spent fuel, to the forefront of international concerns about nuclear energy. The INFCE underscored the importance of balance: that denying states breeder and reprocessing technology was not necessarily constructive, but that neither was uncontrolled dissemination. In this regard, the Reagan administration's move to re-evaluate domestic breeder reactor projects and improve nuclear relations with "sensitive" countries like Brazil and Pakistan showed that the INFCE helped promote rule-making in the non-proliferation area.

There is growing consensus, internationally, that a general arrangement to store spent fuel is vital. Yet there is also the necessity of guaranteeing long-term supplies of nuclear fuel for industrial use. Besides, the availability of plutonium for breeder purposes does not necessarily pose proliferation risks. What is required is a safeguards machinery that has wide coverage and effective powers of detection and enforcement.[83] The IAEA's safeguards and

unilateral controls are not sufficient deterrents to proliferation; but the organisation of the international fuel cycle is of critical importance in meeting proliferation goals. The INFCE may have pointed policy makers in this direction.

Conclusion

This paper has analysed the central pillars of the non-proliferation system. There is strong evidence to conclude that there exists a Non-Proliferation Regime. Those who contend otherwise base their judgements on the apparent weaknesses of various aspects of the Regime and on the way it has coped with change and challenges. This view is based, however, on the mistaken impression that a non-proliferation regime--or any security regime for that matter--must forestall all possibilities of horizontal nuclear weapons spread and transcend politics and states' interests.

This writer has submitted that the elements which underpin the Non-Proliferation Regime are fundamentally political. These are not responsive solely or primarily to organisational and technical remedies. Unfortunately, the thrust of the enterprise to prevent further spread of nuclear weapons, while exploiting the peaceful atom, ignored some of the salient political dimensions. Given this, it is surprising that the Non-Proliferation Regime has not collapsed. Coupled with the many criticisms--some well taken--that have been levelled against the regime (notably its discriminatory aspect), the question becomes even more puzzling. To understand what preserves the Non-Proliferation Regime despite its shortcomings, one must return to the theoretical literature on regimes, in particular to that strand described as modified structural realism.

In Section II, it was established that regimes are social institutions created or used by states to regularise their expectations one towards the other. This

means organising their relations in a certain issue area on a co-operative or rule-guided basis. The classical realist position is that the concept of regimes is of little, if any, explanatory utility. Regimes merely obfuscate the dominant and dynamic political relations underlying international politics. In this interpretation, power is the independent variable and state behaviour the dependent variable.[84]

Modified structural realism contends, however, that co-operation is possible even under conditions of international political anarchy. Thus states may find it in their interest to co-ordinate their responses, if doing so is likely to produce superior outcomes. This means that far from transcending the interests of states, regimes are manifestations of rational, egoistic self-interests. As Keohane, chief proponent of modified structuralism, put it:

> Cooperation takes place only in situations in which actors perceive that their policies are actually or potentially in conflict, not where there is harmony. Cooperation should not be viewed as the absence of conflict but rather as a reaction to conflict or potential conflict.[85]

Co-operation implies a belief that joint action can prevent "political market failure," or that unilateralism would yield inferior results. The claim of liberal institutionalism is not that regimes are important from the standpoint of their formal legal status, but from the stable, predictable pattern of relations developed, enabling states to work together despite mutual mistrusts and fears generated by the need to survive under conditions of anarchy. International regimes survive because invariably they carry legal costs; states that renege on their commitments are likely to find the costs of defection high, because they forfeit either the benefits that arise from co-operation in the ostensible issue-area, or those that ensue from co-operative arrangements that are "nested" in wider political and strategic issues.[86]

This perspective on regimes provides a plausible explanation for the persistence of the Non-Proliferation Regime. The foregoing demonstrates how otherwise disparate issues are linked in the Non-Proliferation Regime through a general set of principles, norms, rules, and decision-making procedures. This has reduced considerably the ad hoc approach that previously governed nuclear technology and proliferation issues. The non-proliferation system qualifies as a regime precisely because it contains injunctions that are more or less adhered to by participants. These injunctions seek to overcome the deleterious effects of uncontrolled diffusion of nuclear technology but promote its organised use. Furthermore, the Non-Proliferation Regime is nested in other arrangements. These include monetary, foreign investment, aid, security alliance arrangements (including extended nuclear deterrence), and conventional arms transfers.[87] Seen in these terms, one of the reasons the non-proliferation system has not broken down is because it carries far-reaching implications for states along a broad spectrum of relations. The developing states will continue to find key aspects of the Regime unsatisfactory but will remain in it, because it is the rational, sensible thing to do under the circumstances.

Regimes persist also because, as more information about the arrangement and its relationship to other issues become available, the knowledge base of the participants increases. Knowledge adds to the learning base of states and lowers the degree of uncertainty and risk involved in the decision-making process. In the Non-Proliferation Regime, the provision of information and improvements in the knowledge and learning base of member states are done through the annual meetings of the IAEA, the five-yearly review conferences of the NPT, and the informal meetings that the supplier fora undertake periodically. It is these

series of consultations through which performance in the Non-Proliferation Regime is monitored. As Keohane observed,

> ...regimes may also include international organizations whose secretariats act not only as mediators but as providers of unbiased information that is made available, more or less equally to all members.[88]

Most of the world's states take part in some aspect of the Non-Proliferation Regime. They do so for many reasons, but a common reason is because they concur that nuclear weapons pose a potentially serious threat to the security of the international community.[89] The bargain that links economic and technological progress with the military-security issue of arms control is far from balanced. The developing states have not defected, even though they find this bargain deficient, because the learning process that has gone on over the past 34 years has taught that it is not in their long-term economic or security interests to try and join the "nuclear club." In the first place, this would prove a major economic challenge necessitating the diversion of scarce resources from the civilian economy to the military. Second, any other state which demonstrates a nuclear capability is likely to face serious economic and other sanctions. Third, policy makers realise that political anarchy gives rise to the security dilemma: a state that pursues the nuclear route to security unwittingly becomes a part of the threat equation of other states.[90] The security dilemma in international relations has led to conflicts before and could do so again. A widespread diffusion of nuclear weapons would likely lead to tensions and uncertainties that might spiral into a major conflict.

Another reason that the Non-Proliferation Regime has not collapsed, despite its imperfections, is because proliferation has not occurred at the alarming rate many had erroneously predicted. In other words, nothing significant has happened to make adherents to the Regime believe that continued participation

threatens their security. It is probable, however, that if more states were to demonstrate a nuclear capability others would attempt to follow suit or take steps to prevent anticipated nuclear intimidation and political threats.

It may be argued that regimes are thereby fragile, tenuous arrangements. They are. However, given the nature of nuclear weapons and the relatively remarkably stable international security environment that has existed in the post-World War II era, one is not likely to see a collapse of the Non-Proliferation Regime. In short, barring another major crisis in the international system, the Regime should remain intact. Should another large-scale crisis occur, it will be, of course, not only the Non-Proliferation Regime that is thrown into disarray, but the entire contemporary structure of inter-state co-operation.

Notes

[1]Anthony G. McGrew, "Introduction: Nuclear Non-Proliferation at the Crossroads?" in John Simpson and Anthony G. McGrew, eds., The International Nuclear Non-Proliferation System (New York: St. Martin's, 1984), p. 4.

[2]The periods are identified in William C. Potter's Nuclear Power and Nonproliferation (Cambridge, Mass.: Oelgeschlager, Gunn and Hain, 1982), chap. 2.

[3]See "Joint Declaration by the Heads of Government of the United States, the United Kingdom and Canada, November 15, 1945," Documents on Disarmament, 1945-1959, Vol. 1 (Washington, D.C.: Department of State, 1969), pp. 1-3.

[4]M. J. Wilmshurst, "The Development of Current Non-Proliferation Policies" in Simpson and McGrew, Non-Proliferation System, p. 20.

[5]For a discussion of the process which led to the Baruch Plan, see John H. Barton and Lawrence D. Weiler, eds., International Arms Control (Stanford, Conn.: Stanford University Press, 1976).

[6]For a useful analysis of the Soviet position, see Ashok Kapur's "Nuclear Energy, Nuclear Proliferation and National Security: Views from the South" in Robert Boardman and James F. Keeley, eds., Nuclear Exports and World Politics: Policy and Regime (New York: St. Martin's, 1983), pp. 163-93.

[7]For historical accounts, see Wilfred Eggleston, Canada's Nuclear Story, with a foreword by C. J. MacKenzie (Toronto: Clarke, Irwin, 1965); and Margaret Gowing, Britain and Atomic Energy 1939-1945 (London: Macmillan, 1964).

[8]See The Congressional Record, vol. 100, 7 January 1954, pp. 61-63, for this quotation and the entire "Atoms for Peace" text.

[9]For revised text, see Laws of 83rd Congress-2nd Session, 30 August 1954, pp. 1098, 1118-21.

[10]Bertrand Goldschmidt, "A Historical Survey of Non-Proliferation Policies," International Security vol. 2, no. 1 (Summer 1977), p. 73; see also Peter de Leon's Development and Diffusion of the Nuclear Power Reactor (Cambridge, Mass.: Ballinger, 1979).

[11]For treaty text, see U.S. Arms Control and Disarmament Agency, Documents on Disarmament (Washington, D.C.: GPO, 1968), pp. 461-65.

[12]On the importance of this collaborative moment, see George Ouester, The Politics of Nuclear Proliferation (Baltimore: Johns Hopkins, 1973), p. 23.

[13]This paper does not deal with the Tlatelolco Treaty. For extensive treatments, see John R. Redick's The Politics of Denuclearization: A Study of the Treaty for the Prohibition of Nuclear Weapons in Latin America, Ph.D.

thesis, University of Virginia, 1970; and Trevor McMorris Tate, "The Treaty of Tlatelolco as a Paradigm for a Nordic Nuclear Weapon-Free Zone," unpublished M.A. thesis, University of Manitoba, 1987, esp. chap. 3. The Treaty text may be found in U.S. Department of State, United States Treaties and Other International Agreements (TIAS No. 7137, 1971), pp. 754-86.

[14]Delhi claimed that its test was a peaceful one and not in violation of the NPT. However, the U.S., the Soviet Union, and Canada all held that there was no difference between a peaceful nuclear explosive and a nuclear weapon. Both Canada and the U.S. sent diplomatic notes to the Indian Prime Minister, Mrs. Ghandi, to this effect before 1974.

[15]The text of the NNPA can be found in U.S. Arms Control and Disarmament Agency, Documents on Disarmament, 1978 (Washington. D.C.: Government Printing Office for ACDA, 1978), pp. 118-64.

[16]For insightful analyses of Carter's nuclear policy, see Joseph Nye, "Maintaining a Non-Proliferation Regime" in George Ouester, ed., Nuclear Proliferation: Breaking the Chain (Madison: University of Wisconsin Press, 1981), pp. 15-38; Frederick Williams, "The United States Congress and Nonproliferation," International Security, vol. 3, no. 2 (Fall 1978), pp. 45-50; Warren H. Donnelly, "The Non-Proliferation Act of 1978, Public Law 95-242: An Explanation," Congressional Research Service Report no. 78 - 1985 (28 October 1978); and Peter A. Clausen, "U.S. Nuclear Exports and the Non-Proliferation Regime" in Ted C. Snyder and Samuel F. Wells, Jr., Limiting Nuclear Proliferation, with a Foreword by James R. Schlesinger (Cambridge, Mass.: Ballinger, 1985), pp. 183-212.

[17]For European and Japanese perspective, see, respectively, Pierre Lellouche, "Breaking the Rules without Quite Stopping the Bomb: European Views," International Organization vol. 35, no. 1 (Winter 1981), pp. 39-58; Ryukichi Imai and Henry S. Rowen, Nuclear Energy and Nuclear Proliferation: Japanese and American Views (Boulder, Colo.: Westview, 1980). Third World attitudes are discussed in Ashok Kapur's International Nuclear Proliferation: Multilateral Diplomacy and Regional Aspects (New York: Praeger, 1979).

[18]Clausen, "U.S. Nuclear Exports," p. 197.

[19]The Reagan administration's policy is based on principles and guidelines set out in a Presidential Policy statement issued on 16 July 1981. See Documents 1981, pp. 278-80.

[20]See "Reagan Alters Policy on A-Fuel Recycling," The Washington Post, 9 June 1982, p. 3; and Clausen, "U.S. Nuclear Exports," pp. 196-200.

[21]See J. B. Devine, "The USA's Nuclear Non-Proliferation Policy" in Simpson and McGrew, Non-Proliferation System, p. 113.

[22]This way around the NNPA has led the U.S. Congress to close several loopholes to foreclose any direct or indirect nuclear transfers to sensitive countries. See Ibid., p. 211, fn. 27.

[23]For elaboration of this concept, see Kenneth Waltz, Theory of International Relations (Reading, Mass.: Addison-Wesley, 1979).

[24]A representative sample is Ernst B. Haas and John Gerard Ruggie, eds., "International Responses to Technology: Regimes, Institutions and Technocrats," special issue of International Organization, vol. 29, no. 3 (Summer 1975); Robert O. Keohane and Joseph S. Nye, Jr., Power and Interdependence: World Politics in Transition (Boston: Little, Brown, 1977); Stephen D. Krasner, ed., International Regimes (Ithaca: Cornell University Press, 1983); Robert O. Keohane, After Hegemony: Cooperation and Discord in the World Political Economy (Princeton, N.J.: Princeton Unviersity Press, 1984); and Vinod Aggarwal, Liberal Protectionism: The International Politics of Organised Textile Trade (Berkeley, Calif.: University of California Press, 1985). See also Ernst B. Haas, "Why Collaborate? Issue-Linkage and International Regimes," World Politics, vol. 32, no. 3 (April 1980), pp. 357-405; Oran R. Young, "International Regimes: Problems of Concept Formation," World Politics, vol. 32, no. 3 (April 1980), pp. 331-56; and Friedrich Kratochwil, "The Force of Prescriptions," International Organization, vol. 38, no. 4 (Autumn 1984), pp. 685-708.

[25]The primary work on interdependence theory is Keohane and Nye, Power and Interdependence.

[26]Donald Puchala and Raymond Hopkins, "International Regimes: Lessons from Inductive Analysis," in Krasner, International Regimes, pp. 61-91.

[27]For an insightful analysis along these lines, see Friedrich Kratochwil and John Gerard Ruggie, "International Organisation: A State of the Art on an Art of the State," International Organization, vol. 40, no. 4 (Autumn 1986), pp. 753-75.

[28]Stephen D. Krasner, "Structural Causes and Regime Consequences: Regimes as Intervening Variables," in Krasner, International Regimes, p. 2.

[29]Keohane, After Hegemony, pp. 63-64.

[30]For an interesting critique of Keohane's After Hegemony, see James N. Rosenau, "Before Cooperation: Hegemons, Regimes, and Habit-Driven Actors in World Politics," International Organization, vol. 40, no. 4 (Autumn 1986), pp. 849-94.

[31]Oran Young, Resource Regimes: National Resources and Social Institutions (Berkeley, Calif.: University of California Press, 1982), p. 20; Compliance and Public Authority (Washington, D.C.: Resource for the Future, 1979); "Problems of Concept Formation," "Anarchy and Social Choice: Reflections on the International Polity," World Politics, vol. 30, no. 2 (January 1978), pp. 241-63. See also Aggarwal's Liberal Protectionism, chap. 2.

[32]Kratochwil and Ruggie, "State of the Art," p. 759.

[33]Keohane, After Hegemony, p. 63. Seeing regimes this way is to take a modified structural approach, which recognises the critical importance of power in the formation of regimes.

[34]The benefits of regimes are seldom distributed equally: there are trade-offs in which some participants may receive a disproportionate share of the benefits. Obviously the less powerful members of a regime must feel that their share is adequate if they are not to defect.

[35]This observation is made by James F. Keeley, "Containing the Blast: Some Problems of the Non-Proliferation Regime," in Robert Boardman and Charles F. Keeley, eds., Nuclear Exports and World Politics (New York: St. Martin's, 1983), p. 195. See also Rosenau's "Before Cooperation," pp. 881-82.

[36]Keohane, After Hegemony, p. 63.

[37]It should be noted that these four aspects of regimes overlap conceptually and in practice.

[38]For an explication of the concept "learning," see Lloyd Etheredge, "Government Learning: An Overview," in Samuel L. Long, ed., Handbook of Political Behaviour, vol. 2 (New York: Plenum Press, 1981), pp. 73-161.

[39]Not discussed here are the denuclearization or nuclear free-zone treaties and Euratom. U.S. supply policies underline a good deal of this and the previous discussion, because of the primary role Washington has played and will continue to play in the character of this Regime.

[40]For a useful introduction to the IAEA, see the 30th anniversary issue of IAEA Bulletin, vol. 19, no. 3 (1987), entitled "The IAEA at 30."

[41]For a full account of these procedures, see IAEA, IAEA Safeguards: An Introduction (IAEA/SG/INF/3), 1981 and IAEA Safeguards: Arms, Limitations Achievements (IAEA/SG/INF/4), 1983.

[42]See IAEA, Information Circular 66 (INFCIRC/66/Rev.2) and Information Circular 153 (INFCIRC/153), respectively.

[43]INFCIRC/153, para. 28.

[44]Hans Blix, "Safeguards and Non-Proliferation: The IAEA and Efforts to Counteract the Spread of Nuclear Weapons," IAEA Bulletin, vol. 27, no. 2 (Summer 1985), pp. 3-7.

[45]See "New and Better Equipment Being Made Available for International Nuclear Safeguards," General Accounting Office, Report to the Chairman, Subcommittee on Energy, Research and Protection, Committee on Science and Technology, Congress House of Representatives, GAO/NSIAD - 84 - 46 (June 14, 1984), p. 4.

[46]See Rodney W. Jones, "Strategic Reponses to Nuclear Proliferation," The Washington Quarterly, vol. 6, no. 3 (Summer 1983), p. 92. As Jones observed, the Director-General was not casting aspersions on his Agency but on the uncertainties that arise when it cannot perform its safeguards job. Pakistan is a

member of the IAEA but not the NPT. It has both safeguarded and unsafeguarded nuclear facilities.

[47]For useful analyses of Pakistan's dealings with the IAEA, see Rodney W. Jones, "Nuclear Supply Policy and South Asia," in Rodney W. Jones, et al., The Nuclear Suppliers and Nonproliferation: International Policy Choices (Lexington, Mass.: D.C. Heath, 1985), pp. 163-73; and Khalifzad, Zalmay, Pakistan: The Nuclear Option (Los Angeles: Pan Heuristics, 1977), for U.S. Energy Research and Development Administration.

[48]Lawrence Scheinman, The Nonproliferation Role of the International Atomic Energy Agency: A Critical Assessment (Washington, D.C.: Resources for the Future, 1985), p. 22.

[49]The U.S. withdrew temporarily from the organisation in September 1982 over a controversial decision to suspend Israel for its air strike on the Iraqi research reactor. Washington resumed its participation in February 1983.

[50]As of June 1988. IAEA News Features, No. 3, 15 July 1988.

[51]"Statement by Secretary of State Vance: U.S. Assurance on Non-Use of Nuclear Weapons, 12 June 1978," Documents on Disarmament 1978: Washington, D.C., GPO for ACDA, 1980, p. 384.

[52]For a brief analysis of the 1975 Review, see William Epstein's "Failure at the NPT Review Conference," Bulletin of the Atomic Scientist (September 1975), pp. 46-48.

[53]See Jones, "Strategic Responses," p. 92; and D. Kramer, "The Nuclear Non-Proliferation Review Conference," Congressional Report, no. 80-65S, 28 March 1980 (Washington, D.C.: Government Printing Office, 1980). For a brief analysis of the political environment affecting the Review in 1985, see Linda Gallini, "The 1985 NPT Review Conference" in Rodney W. Jones et al., Nuclear Suppliers, pp. 203-10.

[54]For a useful discussion of non-proliferation and nuclear technology issues leading up to the 1980 Review, see Ashok Kapur's "The Nuclear Spread: A Third World View," Third World Quarterly, vol. 2, no. 1 (January 1980), pp. 59-75.

[55]For a good account of the Third Review, see Josef Goldblat, "The Third Review of the Non-Proliferation Treaty," SIPRI Yearbook 1986, pp. 469-80.

[56]It is likely that the superpower arms control summit slated for Reykjavik and the marked slow-down in nuclear power programmes, due to the massive Third World debt, helped mute criticisms on these scores. Besides, developing states were waiting for the 1987 U.N. Conference for the Promotion of International Cooperation in the Peaceful Uses of Nuclear Energy to voice their concerns over Articles IV and VI.

[57]Goldblatt, "Third Review," p. 474.

[58]It should be noted that a CTBT has been a perennial item of discussion at U.N. fora and that resolutions on the matter have been passed in the General Assembly beginning as early as 1954. See G. Allen Greb and W. Heckrotte, "The Long History: the Test Ban Debate," Bulletin of the Atomic Scientist (August/September 1983), pp. 36-43; and "Nuclear Weapons Testing," a paper prepared for the Preparatory Committee for the Third Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons (NPT/CONF.III/PC.II/INF.I).

[59]The European Parliament passed a strong resolution during the Review calling on the U.K., U.S. and USSR to resume negotiations for a CTBT. Note also that the U.S. Senate voted by a 77 to 22 margin in 1984 for a Kennedy/Matthias sponsored resolution, which called on President Reagan to initiate further CTB talks. Later, an amendment to the Defence Bill was tabled by Sen. Kennedy and others to cut-off funding for nuclear testing, subject to a similar action by the Soviet Union. This would have resulted in a de facto moratorium on nuclear testing, if passed. The USSR did in fact implement, until recently, a temporary test ban, but the U.S. did not follow suit. See Colin Hines and David Lowry, "Reluctant Compromise on the Nuclear Arms Chase," Third World Quarterly, vol. 8, no. 2 (April 1986), pp. 559-82.

[60]For an instructive analysis of proliferation determinants, see Potter's Nuclear Power, chap. 5; and Yehezkel Dror's "Nuclear Weapons in Third World Conflict," Adelphi Papers, no. 161 (London: International Institute for Strategic Studies, 1982), pp. 45-52.

[61]For a convincing supportive analysis, see Joseph S. Nye, Jr., "The Logic of Inequality," Foreign Policy, no. 59 (Summer 1985), pp. 123-31.

[62]Very little has been written about this Committee which took its name from Swiss chairman, Claude Zangger, and meets privately. For a good but controversial treatment, see Ashok Kapur's International Nuclear Proliferation (New York: Praeger, 1979), pp. 69-80. See also SIPRI Yearbook 1977 (Cambridge, Mass.: MIT for Stockholm International Peace Research Institute, 1977), pp. 20-21; and Charles Ebinger's "International Politics of Nuclear Energy," The Washington Papers, no. 57 (1978), pp. 52-53.

[63]See IAEA, INFCIRC/209, September 1974. Austria, Czechoslovakia, East Germany, Ireland, Japan, Luxembourg, Poland, and Sweden also dispatched identical letters and memoranda.

[64]Leonard Spector, Nuclear Proliferation Today (Cambridge, Mass.: Ballinger, 1984), p. 447, Appendix F.

[65]For a more extensive discussion of the Club, see Simpson and McGrew, eds. Non-Proliferation System, pp. 28-42. See also U.S. Congress. Office of Technology Assessment, Nuclear Proliferation and Safeguards (New York: Praeger, 1977), pp. 220-23; Spector, Proliferation Today, pp. 447-51; and Charles N. Van Doren, "Nuclear Supply and Non-Proliferation: The IAEA Committee on Assurances of Supply," a Report prepared for the Congressional Research Service (Rep. no. 83-202-8), October 1983, pp. 61-64.

[66]Canada, France, the FRG, Japan, the U.K., and the USSR were also original participants. They were joined in 1976 by Belgium, Czechoslovakia, the German Democratic Republic, Italy, the Netherlands, Poland, Sweden, and Switzerland.

[67]Spector, Proliferation Today, pp. 447-48.

[68]For the text of the Guidelines, see IAEA Communications Received from Certain Member States Regarding Guidelines for the Export of Nuclear Material, Equipment or Technology (INFCIRC/254), February 1978; or Survival, vol. 20, no. 2 (March/April 1978), pp. 85-87.

[69]From SIPRI Yearbook 1977, pp. 20-24. See also Nuclear Proliferation and Safeguards, pp. 220-21.

[70]Australia, Belgium, Canada, Czechoslovakia, Finland, the G.D.R., Italy, Japan, the Netherlands, Poland, the Soviet Union, Sweden, Switzerland, the U.K., and the U.S.A.

[71]See Stephen J. Baker's "Monopoly or Cartel?" Foreign Policy, no. 23 (Summer 1976), p. 217.

[72]For a reflection of this view, see M. A. Khan's Nuclear Energy and International Cooperation: A Third World Perception of the Erosion of Confidence (New York: The Rockefeller Foundation for the International Consultative Group on Nuclear Energy, 1979), pp. 13-18.

[73]U.S. attitude is discussed in Ryukichi Imai and Henry S. Rowen, Nuclear Energy and Nuclear Proliferation: Japanese and American Views (Boulder, Colo.: Westview Press, 1980).

[74]For further explication of this point, see Warren H. Donnelly and Joseph F. Pilat, "Nuclear Export Strategies to Restrain the Further Spread of Nuclear Weaponry in the 1980s," cited in Jones, "Strategic Responses," pp. 94-5.

[75]Ibid.

[76]Joseph S. Nye, "Maintaining a Nonproliferation Regime," in George H. Ouester's Breaking the Chain, p. 24.

[77]"Final Communique of the Organising Conference of the International Fuel Cycle Evaluation," reprinted in INFCE Summary Volume (Vienna: IAEA, 1980), pp. 259-60.

[78]Nye, "Maintaining a Nonproliferation Regime," p. 25.

[79]Note also that Article IV of the NPT must be interpreted in light of Articles I and II.

[80]For an explication of the knowledge/learning aspects of international regimes, see Haas' "Words Can Hurt You," and, with particular reference to security regimes, Joseph S. Nye's "Nuclear Learning."

[81]Joseph A. Camilleri, The State and Nuclear Power (Seattle: University of Washington Press, 1984), p. 264. See also Lellouche, "International Nuclear Politics," Foreign Affairs, vol. 58, no. 2 (Winter 1979/80), pp. 336-52; Ted Greenwoods and Robert Haffa, Jr., "Supply Side Non-Proliferation," Foreign Policy (Spring 1981); and Ian Smart, "INFCE Brings International Agreement on Nuclear Fuel Cycle No Nearer," Nature, vol. 283 (28 February 1980), pp. 808-09.

[82]For a sample of this argument, see Camilleri, The State and Nuclear Power, pp. 265-66.

[83]See James F. Keeley, "Canadian Nuclear Export Policy and the Problems of Proliferation," Canadian Public Policy, vol. VI, no. 4 (Autumn 1980), esp. 616-18.

[84]See Susan Strange's "Cave! hic dragones: A Critique of Regime Analysis" in Krasner, International Regimes, pp. 337-54; and Joseph M. Griew, "Anarchy and the Limits of Cooperation: A realist critique of the newest liberal institutionalism," International Organization, vol. 42, no. 3 (Summer 1988), pp. 485-507.

[85]Keohane, After Hegemony, pp. 53-54.

[86]On the general concept of "nesting," see Keohane, After Hegemony, pp. 90-91; and Vinod K. Aggarwal, Liberal Protection.

[87]Roger K. Smith, "Explaining the Non-Proliferation Regime: Anomalies for Contemporary International Relations Theory," International Organization, vol. 41, no. 2 (Spring 1987), p. 274.

[88]Keohane, After Hegemony, p. 94.

[89]For an opposing view, see Kenneth N. Waltz, "The Spread of Nuclear Weapons: More May Be Better," Adelphi Papers, no. 171 (Autumn 1981).

[90]The concept of the security dilemma was developed by John Herz. See his Political Realism and Political Idealism (Chicago: University of Chicago Press, 1951). For an instructive recent analysis, see Robert Jervis, "Cooperation Under the Security Dilemma," World Politics, vol. 30, no. 2 (January 1978), pp. 167-214.