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# *Nuclear non-proliferation*

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## *in the post-Cold War era*

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*Major changes in the international situation since the signing of the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) in 1968, and even since the last quinquennial review conference on the treaty in 1990, make the next such conference in 1995 an occasion of particular interest. In addition, this conference must decide on the further duration of the treaty. John Simpson examines the development of the non-proliferation context and concludes that its slow evolution over the years after 1968 has given way to a succession of revolutionary rather than evolutionary changes during the past three years. New proliferation risks, and new challenges to the international consensus underpinning the non-proliferation regime, are identified and discussed. It is argued that, given this context, the 1995 conference could be a watershed for the regime.*

The radical change in global nuclear relationships produced by the collapse of the ideological divide in West–East relations and the dissolution of the former Soviet Union has put nuclear proliferation concerns and non-proliferation strategies at the core of international security policies. The threat generated by the nuclear arsenal created by the USSR is now perceived to arise more from its dissemination and proliferation than from any direct use upon Western Europe and the United States. This has given the START I treaty a significant non-proliferation function, in addition to its role in winding down a nuclear arms race that has lost its political dynamic.<sup>1</sup>

These developments have been accompanied by the emergence of several new conceptual debates about nuclear non-proliferation strategies. These have focused upon whether tacit or overt recognition of nuclear weapon status should be accorded to those states with ambiguous nuclear capabilities, sometimes described as the ‘latent proliferators’;<sup>2</sup> whether more rigorous compliance and military counter-proliferation policies should be pursued;<sup>3</sup>

<sup>1</sup> I am indebted to my colleague from Sussex University, William Walker, who first brought this point to my attention.

<sup>2</sup> For a detailed discussion of these issues see Benjamin Frankel, ed., *Opaque nuclear proliferation: methodological and policy implications* (London: Cass, 1991).

and whether the technical and political bases of the global non-proliferation regime are flawed and ought to be radically revised.

Central to the future evolution of this dynamic empirical and conceptual nuclear non-proliferation context is the potential of the international regime created since the mid-1960s to prevent nuclear proliferation. Its effect has been to limit overt nuclear weapon status to China, France, Russia, the United Kingdom and the United States; to create a small number of 'ambiguous' nuclear weapon states which are known to possess nuclear materials not subject to international monitoring; and to encourage the strong growth among over 150 states of a political norm of non-nuclear weapon status. This non-nuclear weapon norm is given legal expression through the Treaty on the Non-Proliferation of Nuclear Weapons (NPT), which was concluded in 1968 and came into force in 1970. This treaty makes mandatory the acceptance of a monitoring and verification system over the nuclear activities of non-nuclear weapon states operated by the International Atomic Energy Agency (IAEA); sets out some constraints on their nuclear trading activities; and commits all parties to negotiate effective disarmament measures, particularly nuclear ones. It thus serves as the main foundation for the global nuclear non-proliferation regime.

A conference is to be held in New York in April/May 1995 to decide on the further duration of the NPT. This prospect is generating a simple but profound challenge for those dealing with nuclear non-proliferation policies: in the new international environment of dynamic change, should this conference be used as the lever to produce radical change in the nuclear non-proliferation regime, or is the first priority to preserve the NPT and the existing regime intact, while seeking to reinforce its functioning? Radicals are thus pitted against reformers in this new international context.

The remainder of this article will seek to illuminate this challenge, and the wide spectrum of issues that are encompassed by it. It will start by briefly examining the technical background to the issues encompassed by the nuclear non-proliferation debate, and then describe the evolutionary process that has produced the existing nuclear non-proliferation regime. The unique features of the international decision-making process through which the 1995 decision will be made will then be analysed, as well as the main issues likely to influence the review of the Treaty which will take place in conjunction with the NPT extension decision. Finally, the options for radically changing the existing regime, as well as initiatives to reinforce it in advance of the extension decision in 1995, will be evaluated.

<sup>3</sup> This option is considered by Brad Roberts in his 'From non-proliferation to antiproliferation', *International Security*, 18:1, Summer 1993, pp. 170-71. Earlier he differentiates between antiproliferation and counter-proliferation, which he observes has 'sometimes been misconstrued by observers as implying a narrow emphasis on the preemptive use of force to eliminate new proliferation threats' (p. 140).

## **The neutral atom?**

International attempts to prevent nuclear proliferation are usually dated from the Baruch Plan of 1946, which was based on the assumption that the uses of the atom were inherently neither military nor peaceful: rather, all nuclear energy activities had some military potential, and the only way to prevent misuse was international ownership and management of all nuclear facilities and materials.<sup>4</sup> The USSR responded with a plan for international monitoring, but national ownership, of these items. Discussions rapidly reached stalemate, but the proposals illuminated two central issues concerning nuclear non-proliferation policies that have persisted through to the present. First, can a clear technical distinction be made between military and civil nuclear activities? Second, if it cannot, is it acceptable to rely heavily on political commitments, rather than technical distinctions and intrusive verification, to underpin any international regime created to manage them?

Nuclear weapons are specialized versions of nuclear explosive devices. Both have the characteristic that they work by creating conditions under which atoms of specific isotopes of the elements uranium and plutonium can undergo fission in an uncontrolled manner.<sup>5</sup> Such fissions release neutrons and large quantities of energy, neutrons being heavy particles found within the nucleus of an atom. Isotopes of elements are chemically identical, but differ in their weights because they contain different numbers of neutrons. Uranium 235 (U235) and Plutonium 239 (Pu239) are the two specific isotopes used in nuclear explosive devices. Production of both starts with the mining of natural uranium. Uranium comprises about 0.7 per cent U235 and about 99.3 per cent uranium 238 (U238), and enrichment to a level of more than 80 per cent U235 (high enriched uranium or HEU) is normally required before use for explosive purposes. This enrichment is usually achieved by exploiting the marginal differences in the weights of the two isotopes of uranium. Four technologies have been used to accomplish this: electro-magnetic separation; gaseous diffusion; centrifuge enrichment; and laser enrichment.<sup>6</sup>

Plutonium is created when U238 is bombarded with neutrons. This bombardment normally takes place in a nuclear reactor, where the U235 in natural or enriched uranium fissions under controlled conditions, producing both neutrons and heat. The neutrons transform the U238 into the isotope Pu239, which can then be chemically separated from its parent element, uranium. However, under continued neutron bombardment Pu239 transforms

<sup>4</sup> For a short account of the Baruch Plan and US attitudes to nuclear proliferation at this time see Robert L. Beckerman, *Nuclear non-proliferation: Congress and the control of peaceful nuclear activities* (Boulder, CO, Oxford: Westview, 1985), pp. 13–38.

<sup>5</sup> For a more detailed discussion of these technical issues, see my section on 'Nuclear energy and nuclear weapons' in Darryl Howlett and John Simpson, eds, *Nuclear non-proliferation: a reference handbook* (London: Longman, 1992), pp. 29–36.

<sup>6</sup> For a detailed review of these technologies and their relevance to nuclear proliferation see Allan S. Krass, Peter Boskma, Boelie Elzen and Wim A. Smit, *Uranium enrichment and nuclear weapon proliferation* (London, New York: Taylor and Francis for SIPRI, 1983), esp. pp. 1–11, 120–91.

itself into Pu240 which does not easily fission. Concentrations of 90 per cent plus of Pu239 appear to be required for nuclear weapons which will be stockpiled for decades, though the use of lesser enrichments will still result in a nuclear explosion.

The five recognized nuclear weapon states all built dedicated military plants to produce enrichment levels in excess of 80 per cent U235, and dedicated reactors and chemical separation plants to produce concentrations of Pu239 in excess of 90 per cent. However, it was realized at an early stage that some of the technologies involved could also have peaceful applications. The heat generated by nuclear reactors could be used to make steam and then electricity for industrial, domestic and propulsion purposes. This could be accomplished more effectively and cheaply, however, if the uranium in the reactor was slightly enriched (low enriched uranium or LEU), using the same techniques as those needed for military applications. Thus both military explosive and power applications of nuclear energy are dependent upon similar technologies. The differences between the applications lie mainly in the detailed design of the facilities and/or how they are operated.

At least three types of peaceful use were foreseen for nuclear energy in the 1950s: electricity production; propulsion; and civil engineering and mining. Nuclear power was seen as the leading technology in the expansion of electricity production. For a time it was believed that this would not pose a weapons proliferation risk as plutonium created in the efficient operation of power reactors was thought to be incapable of being used for explosive purposes. When this assumption was proved incorrect, measures were developed for the international monitoring of the operations of these reactors and of nuclear materials. By the mid-1960s, this task was increasingly being given to the IAEA. However, at no time did the IAEA aspire directly to prevent misuse of such facilities: rather, its aim was to give the international community early warning of possible misuse.

Despite several attempts during the 1960s to develop nuclear power as a propulsion source for peaceful uses, its exploitation in this role has been largely restricted to naval use by the five recognized nuclear weapon states.<sup>7</sup> Similarly, after extensive test programmes in the 1960s, the use of nuclear explosives for peaceful purposes has now been abandoned.<sup>8</sup>

In the 1990s, the dismantling of a significant percentage of the nuclear arsenal of Russia and the United States has opened the way to a global ban on the operation of any facility dedicated to the production of U235 and Pu239 for military explosive purposes. Relatively few non-nuclear weapon states currently operate significant nuclear energy programmes, but the theoretical proliferation threat posed by their ability to produce militarily useful fissile

<sup>7</sup> The last civilian ship powered by a nuclear reactor completed its final experimental voyage in February 1992, after an 18-year operational life. See 'Nuclear ship MUTSU demonstrates excellent load following and manoeuvrability: JAERI report', *Atoms in Japan* (Japan Atomic Industrial Forum, Tokyo), 37: 3, Mar. 1993, pp. 14-17.

<sup>8</sup> For a full account of the history of this technology see Trevor Findlay, *Nuclear dynamite: the peaceful nuclear explosions fiasco* (Canberra: Brassey's, 1990).

materials remains. To reduce this, proposals have been made to impose a global halt on all production of plutonium and high enriched uranium.<sup>9</sup> This proposal has conflicted with plans developed from 1960 onwards to move to a new generation of power reactors which both use and produce plutonium as a fuel—the ‘fast-breeders’—and with arguments that used fuel can most effectively be disposed of through recycling its contents in existing reactors rather than by indefinite storage.<sup>10</sup> Japan, France and the United Kingdom are in the forefront of this debate, the latter two because they possess plants with large contracts to reprocess fuel from Japanese and German electricity utilities, the former because it is the sole non-nuclear weapon state currently operating both enrichment and reprocessing plants. Nuclear weapon dismantlement and the low cost of natural uranium has significantly undermined the economic case for executing, under current conditions, these long-term plans initiated in the late 1970s. This has further fuelled the conflict between those seeking to implement them and those arguing for their abandonment as part of a strategy of creating a stronger technical foundation for the nuclear non-proliferation regime.

The degree of reliance to be placed on technical, as against political, solutions to nuclear proliferation is thus an issue that has persisted throughout the period since 1946. In its current form, this ‘technical fix’ argument advocates closing down either all nuclear energy activities, particularly power reactors, or just those facilities which are regarded as proliferation sensitive, namely those used for the recovery of plutonium from used fuel or for the high enrichment of uranium. While such a ‘technical fix’ is appealing, as intentions are more open to rapid change than are capabilities, its advocacy serves implicitly to undermine faith in current political non-proliferation commitments and the existing global non-proliferation regime. More importantly, it suggests that the most significant potential proliferators are Japan, Germany and other advanced industrial states, rather than the more obvious current proliferation candidate states in the Middle East and south and east Asia. It also threatens to divert non-proliferation efforts from these more obvious candidates into a West–West conflict over the need to change the national nuclear energy programmes of several of the advanced industrial states, and particularly their plans to reprocess used fuel and separate out plutonium for recycling through reactors: a rerun of the ‘war on plutonium’ generated by the unilateral actions of the US Congress and officials of the Carter administration in the period 1975–80.<sup>11</sup>

<sup>9</sup> A leading proponent of this position has been Paul Leventhal of the US Nuclear Control Institute. See, e.g., his comments in ‘Nuclear export controls: can we plug the leaks?’, in Jean-François Rioux, ed., *Limiting the proliferation of weapons: the role of supply side strategies* (Ottawa: Carlton University Press, 1993), pp. 50–51.

<sup>10</sup> For a detailed account of this technology and the arguments related to it see Colin Sweet, ed., *The fast breeder reactor* (London: Macmillan, 1980).

<sup>11</sup> For an account of events during this period, see Michael J. Brenner, *Nuclear power and non-proliferation: the remaking of U.S. policy* (Cambridge: Cambridge University Press, 1981). For how it was viewed outside the US see Michael J. Wilmshurst, ‘The development of current non-proliferation policies’ in J. Simpson and A. G. McGrew, eds, *The international nuclear non-proliferation system: challenges and choices* (London: Macmillan, 1984), pp 19–54.

## **The evolution and structure of the nuclear non-proliferation regime**

In 1946, the US Atomic Energy Act (the ‘MacMahon Act’) sought to restrict nuclear information to US nationals on the assumption that there existed technical ‘secrets’ in the production of nuclear weapons. Since that point, one of the key elements in the nuclear non-proliferation regime has been a system for denying the capabilities to make nuclear weapons to potential proliferators, especially those on the other side of an ideological divide. However, events in the 1950s demonstrated that nuclear explosives could also be ‘invented’ by other countries working in isolation from the United States, and this suggested that proliferation to additional states was inevitable. It was not until the 1960s that the idea began to develop that proliferation might be prevented by political arrangements, rather than just slowed down by technical denial strategies.

A turning-point in the development of these political arrangements was the Sino-Soviet rift in the early 1960s, and the realization in Moscow that a Chinese bomb was little different from a German bomb in its potential to threaten the USSR. In parallel, discussions were taking place within NATO on ways of creating an alliance nuclear deterrent force operated by nationals of several states, including Germany, and equipped with nuclear missiles capable of reaching the USSR. These events led the USSR to accept a regime which would allow the use of nuclear energy for peaceful purposes, while at the same time creating a system of assurances against its diversion to military ends. The regime that was subsequently created, the nuclear non-proliferation regime based on the NPT, comprises three elements: standard-setting instruments; assurance mechanisms; and compliance mechanisms.<sup>12</sup>

### *Standard-setting instruments*

States are guided and constrained in their international behaviour by norms that they have accepted voluntarily or that have been imposed upon them. Nuclear non-proliferation can now be regarded as such a norm, voluntarily accepted by over 150 non-nuclear weapon states that have ratified or acceded to the NPT. This treaty is the sole global standard-setting instrument to contain a commitment by non-nuclear weapon states not to acquire nuclear explosive devices.

The substance of the nuclear non-proliferation norm embedded in the NPT is that those states having custody over nuclear devices and related technology may not transfer them to non-nuclear weapon states, and non-nuclear weapon states may not seek to develop or otherwise acquire custody of such devices or technology. In addition, the treaty banning nuclear

<sup>12</sup> This analytical framework is a very simple model of an arms control regime. For more sophisticated and detailed treatments see Thomas Bernauer, *The chemistry of regime formation* (Aldershot: Dartmouth for UNIDIR, 1993), esp. pp. 45–95; and Benjamin N. Schiff, *International nuclear technology transfer: dilemmas of dissemination and control* (Totowa, NJ: Rowman and Allenheld, 1984), esp. pp. 9–92.

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weapon tests in the atmosphere, in outer space and under water (the partial test ban treaty or PTBT) has created a norm of not conducting test explosions in the atmosphere (both India's explosion, and those contemplated by South Africa in the late 1970s and 1980s, involved underground detonations).<sup>13</sup> There are also expectations that by 1996 a comprehensive test ban treaty (CTBT) will set a norm of no explosive testing of any nuclear device.<sup>14</sup> All states adhering to this non-proliferation norm receive in return guarantees of their right to develop nuclear energy for peaceful purposes.

Several major problems have resulted from attempting to construct the international nuclear non-proliferation regime on these normative foundations. The continued existence of nuclear weapon states was recognized to be a logical contradiction when the NPT was negotiated. To address this problem, the Treaty committed its nuclear weapon state parties, in Article VI, 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'. Progress in implementing this Article has been a persistent source of dispute at NPT review conferences.<sup>15</sup> In addition, the continued possession of nuclear weapons by these states has sustained demands for assurances that they would not be used against non-nuclear weapon states, and that the regime would not become a means of sustaining the dominance of the five nuclear weapon states over the rest of the international community.

Detection of many of the activities associated with nuclear weapon production would require very intrusive (and costly) monitoring and inspection of an NPT party's industrial activities. This has always been regarded as an impractical option, and verification activities have been focused upon fissile materials. This has meant that a gap has existed between the range of activities perceived as banned under the norm, and the ability of the related verification system to identify breaches of the norm.

### *Assurance mechanisms*

The behaviour of states is inevitably influenced by that of neighbours and potential enemies. Mechanisms which reassure states that those who have committed themselves to conform to a norm are actually doing so act as

<sup>13</sup> For a detailed discussion of the South African programme see Mark Hibbs, *Nucleonics Week*, 6 May 1993, and *Nuclear Fuel*, 11 May 1993; David Fischer, 'Reversing nuclear proliferation: South Africa', *Security Dialogue*, 24: 3, Sept. 1993; Darryl Howlett and John Simpson, 'Nuclearisation and denuclearisation in South Africa', *Survival*, 35: 3, Autumn 1993.

<sup>14</sup> A mandate is expected to be agreed for negotiations on a CTBT in the Conference on Disarmament in January 1994. For details see *Trust and Verify: The Bulletin of the Verification Technology Information Centre*, no. 40, Sept. 1993.

<sup>15</sup> For a brief description of the NPT review conferences in 1975, 1980, 1985 and 1990 see J. Ginnifer, 'The NPT and its review conferences', in Howlett and Simpson, eds, *Nuclear non-proliferation*, pp. 23–8, 331–60. On individual review conferences see relevant chapters in the *SIPRI Yearbook for 1976 and 1981* (London: Taylor and Francis for SIPRI), pp. 363–92, 297–362 respectively; 1986 and 1991 (Oxford: Oxford University Press), pp. 469–94, 555–84 respectively.

useful reinforcers of a regime. Such a mechanism is provided to the nuclear non-proliferation regime through the IAEA safeguards system. Other significant assurance mechanisms in the non-proliferation context are those which offer security guarantees aimed at reducing the motivation for a state to acquire nuclear weapons. In the nuclear non-proliferation context three types of security assurances are relevant: international commitments; bilateral and multilateral alliance guarantees; and regional arrangements.

The NPT mandates its non-nuclear weapon states to place all the nuclear materials within its jurisdiction under IAEA safeguards by declaring their quantities, composition and location. This is done through the state signing an INFCIRC/153 safeguards agreement with the IAEA, and making arrangements for IAEA personnel to monitor the disposition and use of the materials<sup>16</sup>. In addition, the IAEA may request 'special inspections' to clarify discrepancies in information supplied to it, and to investigate allegations that undeclared nuclear materials or facilities exist within the state.

The objective of this IAEA system is to provide assurance that nuclear materials declared to the agency are being used for their stated purposes and have not been diverted to nuclear explosive use. The system is designed both to offer 'timely warning of diversion' and to deter such diversion by the risk of premature discovery, but not physically to prevent it. In addition, the IAEA is largely dependent upon information from other states to uncover undeclared materials or facilities. The assurance system is concentrated on fissile materials for two simple reasons: many nuclear facilities have both a civil and a military potential; and without fissile materials of a specific nature, nuclear explosive devices cannot function.

The security motivation for acquiring nuclear weapons may be hypothesized as the ability to use national capabilities to offset threats of use of nuclear or other weapons against the territory of a state. International commitments by the existing nuclear weapon states which serve to offset such threats may reduce the motivations for proliferation, and thus act as useful reinforcers of the nuclear non-proliferation regime. They are also a form of self-limitation upon the nuclear weapon states which significantly reduces the political and military utility of their nuclear capabilities. When the NPT was being negotiated an attempt was made to incorporate security assurances into the treaty, but this proved impossible.

Multilateral nuclear security assurances may be of three types: negative security assurances; positive security assurances; and no-first-use agreements. Negative security assurances are commitments by the existing nuclear weapon states not to use, or threaten to use, their nuclear weapons against non-nuclear weapon states. Until 1991, NATO military doctrine made any unqualified commitment of this type by its nuclear weapon members unthinkable.

<sup>16</sup> For a succinct account of the IAEA safeguards system see David Fischer, 'The International Atomic Energy Agency and nuclear safeguards' in Howlett and Simpson, eds, *Nuclear non-proliferation*, pp. 37–44. For a more detailed account see Lawrence Scheinman, *The International Atomic Energy Agency and world nuclear order* (Washington DC: Resources for the Future, 1987), esp. pp. 121–236.

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As a consequence the best that could be achieved was a series of unilateral commitments by the five nuclear weapon states, of which only China's was unconditional.<sup>17</sup> Positive security assurances are commitments by the nuclear weapon states to come to the aid of a non-nuclear weapon state threatened by nuclear weapons, or against which nuclear weapons have been used. Such a commitment was made by the United Kingdom, the United States and the USSR in 1968 in UN Security Council Resolution 255, though it has been argued that this does no more than restate existing commitments under the UN Charter.<sup>18</sup> A no-first-use commitment is one where a nuclear weapon state pledges itself never to be the first to use nuclear weapons. It thus encompasses both a negative security assurance to non-nuclear weapon states and a no-attack commitment to other nuclear weapon states. Such commitments were made in 1982 by China and the USSR.<sup>19</sup>

In the past, nuclear security assurances have largely been provided through bilateral and multilateral alliance commitments. These have been reinforced by the stationing of nuclear weapons on the territory of non-nuclear weapon states; by arrangements for such weapons to be transferred to non-nuclear weapon states in the event of hostilities; and by the deployment of nuclear armed naval forces in the theatre. The majority of commitments of this type made by the United States remain in force, especially those made through NATO, although the last three years have seen the redeployment to US territory of many of its nuclear weapons.

Nuclear-weapon-free zones, or in some cases nuclear (energy)-free-zones, are geographical areas where the deployment of nuclear weapons is banned by agreement among the constituent states. Such agreements usually consist of commitments by the regional states to each other not to acquire nuclear weapons or allow their deployment on national territory, plus a set of protocols through which the existing nuclear weapon states commit themselves not to introduce nuclear weapons into the area. While this does not completely preclude the possibility of nuclear threats from outside the region, it does provide an effective regional reinforcement of the nuclear non-proliferation regime. Areas which will probably be fully covered by such arrangements by the end of 1994 include Antarctica, the South Pacific, Latin America, Africa and possibly South-East Asia.

## *Compliance mechanisms*

Two types of compliance mechanism are operative in connection with the nuclear non-proliferation regime: the IAEA/UN arrangements and the export control guidelines of the Nuclear Suppliers Group (NSG). The IAEA/UN system consists of a set of procedures to be implemented in the event of IAEA

<sup>17</sup> These commitments are reproduced in Howlett and Simpson, eds, *Nuclear non-proliferation*, pp. 281–2.

<sup>18</sup> *Ibid.* p. 271.

<sup>19</sup> Emily Bailey, 'The NPT and security guarantees', in *Ibid.*, pp. 51–6.

safeguards inspections uncovering either diversions of fissile materials from declared uses or the existence of undeclared materials or facilities. In the first instance, such anomalies would be considered by the IAEA Board of Governors, who might impose their own sanctions to ensure compliance with NPT and IAEA norms by withdrawing some of the privileges of membership of the IAEA, such as access to technical assistance. Alternatively, or in parallel, the matter could be referred to the UN Security Council. Following the Security Council meeting of heads of government in January 1992, such a referral could involve action under Chapter VII of the UN Charter covering threats to the peace.<sup>20</sup> Such action could include sanctions, or in extreme cases, the use of military force. The cases of Iraq and North Korea since 1991 have both illustrated how this compliance system would operate in the new international environment.

The NSG guidelines have evolved in stages since 1974. They were drawn up by supplier states to prevent access by potential proliferators to facilities, components of facilities and dual-use technology which could be used for military purposes. The guidelines require a supplier state to apply licensing procedures to these items.<sup>21</sup> They have also served informally to ban the export of reprocessing and enrichment technology. A similar strategy has also been developed to deny access to potential nuclear delivery systems through the missile technology control regime (MTCR).

### **Nuclear non-proliferation: the current and future context**

For the last 30 years, nuclear non-proliferation strategies have involved two parallel sets of activities: pressuring specific 'suspect states' to refrain from openly proclaiming their nuclear weapon status; and developing and sustaining the global non-proliferation regime. Both sets of activities have changed significantly in their focus since 1990: the former as the numbers and identity of the 'suspect states' have altered rapidly, and the latter as states both take measures to limit the possibilities that future clandestine weapons programmes, such as that of Iraq, will not go undetected, and start to address the problems associated with extending the duration of the NPT in 1995.

#### *The changing focus of non-proliferation concern*

Prior to 1990, the criteria for identifying states of non-proliferation concern were the existence of nuclear facilities and stocks of fissile materials which were not safeguarded by the IAEA. This produced a list of six 'suspects': Argentina, Brazil, India, Israel, Pakistan and South Africa.<sup>22</sup> Since 1990 this

<sup>20</sup> For text, see *Programme for Promoting Nuclear Non-Proliferation (PPNN) Newsbrief*, 17, Spring 1992, p. 15.

<sup>21</sup> For a detailed review of the nuclear suppliers regime and its weaknesses see Harald Müller and Lewis A. Dunn, *Nuclear export controls and supply side constraints: options for reform*, PPNN Study 4 (Southampton: Mountbatten Centre for International Studies for PPNN, 1993).

<sup>22</sup> For a representative treatment of this approach prior to 1990 see Josef Goldblat, ed., *Non-proliferation: the why and the wherefore* (London: Taylor and Francis for SIPRI, 1985), esp. pp. 73–160.

listing has changed radically. The good news is that Argentina, Brazil and South Africa have now removed themselves from this list, either by negotiating a full-scope safeguards agreement with the IAEA or by acceding to the NPT.<sup>23</sup> The bad news is that two new categories of 'suspect states' have emerged. The first is that of an NPT renegade. This covers states such as Iraq, North Korea and possibly others who have breached their commitments under the treaty. The second is the fragmented nuclear weapon state, specifically those republics of the former USSR which had nuclear weapons stationed on their territory when that country ceased to exist at the end of 1991. Although all tactical weapons were soon transferred to the Russian Federation, regarded as the successor nuclear-weapon state to the USSR by the other nuclear-weapon states, large numbers of strategic warheads remain in Belarus, Kazakhstan and Ukraine.

Belarus has now ratified START I and the Lisbon Protocols,<sup>24</sup> and also acceded to the NPT. Kazakhstan seems likely to follow suit. But it appears increasingly unlikely that Ukraine will do so before mid-1994 at the earliest.<sup>25</sup> Moreover, Ukraine now claims 'administrative control' over these warheads. Although most observers see the refusal to move to an unambiguous nuclear weapon status as part of a bargaining exercise aimed at securing economic concessions and assistance from the West and Russia, the possibility that this process will break down and that nationalists will gain operational control over the weapons remains. In these circumstances, much effort has been expended in developing policies tailored to the individual republics, and to offer them economic benefits in return for transferring nuclear weapons to the Russian Federation.

Concerns over the internal political stability of the Russian Federation and China have stimulated concerns in the West that other nuclear weapon countries might in the future fragment in a similar manner to the USSR, leaving nuclear weapons in the possession of several of the states emerging from them. As a consequence, the nuclear weapon states can be seen now to pose a direct threat not only of nuclear war, but also of nuclear proliferation. For their collapse may itself lead to nuclear dissemination, not only of nuclear weapons but also of the fissile materials, non-nuclear components and human expertise needed to make them.

<sup>23</sup> For a full account of the changed position of Argentina and Brazil see John R. Redick, 'Nuclear confidence building in Latin America', *Verification Report 1993* (London: Brassey's for VERTIC, 1993 forthcoming).

<sup>24</sup> START I was originally signed in Moscow on 30 July 1991 between the US and the USSR. Under the terms of the Treaty, both parties were to reduce their arsenals to 1,600 Strategic Nuclear Delivery Vehicles mounting a maximum of 600 warheads over a seven-year period from its entry into force. The Treaty had not been ratified when the USSR broke up, and it was necessary to negotiate an additional protocol signed by the US, Russia, Belarus, Kazakhstan and Ukraine, under which all five states became parties to the Treaty and all nuclear weapons would leave the latter three states by the end of the seven-year period.

<sup>25</sup> See *PPNN Newsbrief*, no. 23, third quarter 1993, pp. 3-4.

*The need to reinforce the operation of the NPT regime*

In the aftermath of the revelations about Iraq's clandestine nuclear weapon programme,<sup>26</sup> the revelations that South Africa had manufactured nuclear devices during the 1980s,<sup>27</sup> and the uncertainties over North Korea's nuclear status, considerable criticism has been directed at the ability of the nuclear non-proliferation regime to provide assurance of the non-nuclear weapon status of a state. In particular, criticism has been directed at the inability of the IAEA to detect nuclear-weapon related activities in Iraq and South Africa and to obtain a clear picture of what has been taking place in North Korea. In most respects, these criticisms are misguided, but they have precipitated an effort to redirect and strengthen the NPT verification system.

The core problem in the Iraq case was that no national intelligence system appears to have detected its clandestine nuclear programme; or, if it did, it failed to provide this information to the IAEA. As the IAEA has no satellite surveillance or other intelligence gathering capabilities of its own, it has to rely on national intelligence information in order to act. In the case of South Africa, the materials and plants involved in its programme were not placed under safeguards until 1992, at which point all traces of the devices and the means to produce them had been eliminated, with the exception of the unused testing site. The IAEA safeguards system could not be expected to uncover something which did not then exist. Finally, in the case of North Korea, it was the IAEA which uncovered the technical anomalies in North Korea's initial declaration of plutonium production. This precipitated the decision of North Korea, subsequently suspended, to withdraw from the NPT.<sup>28</sup>

In the aftermath of the Iraq case, several significant changes were made to the operation of the IAEA safeguards system. The meeting of the IAEA board of governors in February 1992 reaffirmed the agency's right to undertake special inspections to investigate allegations of non-declared nuclear activities within a state covered by its safeguards, and its right of access to the relevant locations. In addition, it asserted the right of the IAEA to be given design information on new facilities and on major modifications to existing ones at the earliest possible date; and to obtain and have access to additional information from safeguarded nations and from other sources (including national intelligence ones) to carry out its tasks. By these actions, the board eliminated some of the more obvious limitations in existing IAEA safeguards practices that had been revealed by the case of Iraq.<sup>29</sup>

<sup>26</sup> For a detailed account of Iraq's activities see David Albright and Mark Hibbs, 'Iraq's nuclear hide-and-seek', *Bulletin of the Atomic Scientists*, 47: 4, Sept. 1991, pp. 15-23.

<sup>27</sup> For a full technical account of the South African activities see Mark Hibbs, *Nucleonics Week*, 6 May 1993 and *Nuclear Fuel*, 11 May 1993; David Albright, 'A curious conversion', *Bulletin of the Atomic Scientists*, 49: 5, June 1993, pp. 8-11.

<sup>28</sup> *PPNN Newsbrief*, no. 21, first quarter 1993, p. 13.

<sup>29</sup> For a full account of these changes see David Fischer, Ben Sanders, Lawrence Scheinman and George Bunn, *A new nuclear triad: the non-proliferation of nuclear weapons, international verification and the International Atomic Energy Agency*, PPNN Study 3 (Southampton: Mountbatten Centre for International Studies for PPNN, 1992).

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The IAEA board also discussed at this meeting a proposal to make it mandatory for states subject to 'comprehensive' (i.e. NPT or full-scope) safeguards to report to the agency all exports, imports and production of nuclear materials and sensitive, nuclear-related equipment. This was intended to implement a new concept of safeguards transparency, under which much greater information on nuclear activities, imports and exports would be provided to the IAEA, and the agency would have the right to request any additional information it required to verify all the inventories of materials and equipment reported by the state.<sup>30</sup> At the June 1992 meeting of the board, the IAEA secretariat was requested to ask states to provide it with this information on a voluntary basis.<sup>31</sup>

One issue hampering a positive decision on further moves to assist transparency was that if the IAEA were to make acquisition and collation of this additional information part of its safeguards system, it would be moving into the area covered by the NSG and appearing to be acting in support of their discriminatory activities. Another problem was that it might place significant new financial burdens upon states whose sole nuclear activities are uranium mining. For their part, the nuclear suppliers, again stimulated by the Iraq experience, had in April 1992 strengthened supply constraints by drawing up guidelines for the export of dual-use technology; by making full-scope safeguards a condition of supply; and by setting up a permanent consultative mechanism to prevent clandestine proliferators using the strategy of approaching a series of countries in their pursuit of sensitive technology.<sup>32</sup>

Further moves to strengthen compliance with the NPT regime started with the disarming of Iraq by the UN Security Council, the penalties imposed upon it by the IAEA,<sup>33</sup> and the statement by the meeting of UN Security Council heads of state in January 1992 that nuclear proliferation would in future be regarded as a threat to the peace under Chapter VII of the UN Charter. This has been followed by the active involvement of the UN Security Council in the situation following North Korea's decision to withdraw from the NPT in 1993.<sup>34</sup> This demonstrated that diplomatic pressure may not be sufficient to prevent proliferation, especially if a state is already economically isolated, like North Korea. As a consequence, the option of using military force to destroy clandestine nuclear facilities and nuclear stockpiles has started to be canvassed, especially in the United States, to deal with such circumstances.<sup>35</sup> Whether air attacks would destroy such nuclear capabilities, especially if they were sited underground, must be doubted. But if that is so, the general

<sup>30</sup> *IAEA Newsbriefs*, 7: 1, January/February 1992; *IAEA Press Release* PR 92/12; *Nucleonics Week*, 27 Feb. and 5 Mar. 1992.

<sup>31</sup> *IAEA Newsbriefs*, 7: 3, June/July 1992.

<sup>32</sup> See Müller and Dunn, *Nuclear export controls*.

<sup>33</sup> These include measures such as the withdrawal of Iraq's voting rights at IAEA General Conferences. See *PPNN Newsbrief*, no. 23, third quarter 1993, p. 11.

<sup>34</sup> David Albright, 'North Korea drops out', *Bulletin of the Atomic Scientists*, 49: 4, May 1993, pp. 9-11; *PPNN Newsbrief*, no. 22, second quarter 1993, pp. 1-3.

<sup>35</sup> Peter Rodman, *National Review*, 5 July 1993, pp. 34-7.

problem posed by the North Korean experience remains unanswered: how can and should the international community act when all normal means of diplomatic persuasion and economic pressure appear to have been exhausted?

*The 1995 NPT conference: issues and consequences*

In this nuclear non-proliferation context of old problems being resolved but new ones appearing, a conference will be convened from 17 April to 12 May 1995 at the UN in New York to decide on the further duration of the NPT, as well as to review its implementation. The significance of this event is that the NPT is the keystone of the non-proliferation regime. Yet it is within the competence of this conference, even if such a result is highly unlikely, to terminate the treaty's existence a short, fixed period of time after the end of the meeting. In 1996 there could be no NPT in existence. Two types of issues seem likely to influence the outcome of this 1995 NPT review and extension conference: those of treaty interpretation and management; and those of substance.

NPT conferences have occurred at five-year intervals since 1975, and normally last four weeks. Two weeks are taken up with plenary speeches and the remainder with discussions in committee. The review process examines the implementation of the treaty, not its substance, and the outcome that has been sought in the past is a consensual final document. Such a document was agreed in 1975 and 1985, but not in 1980 and 1990.

The 1995 NPT conference will have the twin tasks of reviewing the operations of the NPT, as specified in Article VIII.3, and deciding on an option for extension, as specified in Article X.2. The latter states: '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.'

Two mechanisms exist through which the actual extension decision could be taken and expressed: as a resolution of the 1995 conference; or as an integral part of its final document. The latter may be politically preferable, as it would be a consensus document, although it would risk the extension decision becoming a hostage to disputes over the wording of the report on the treaty review. Voting on a resolution would leave no doubts about the decision that had been taken, but the voting process itself might prove highly divisive and undermine the authority of the NPT, especially if a significant minority opposed the option which gained majority support.

Article X.2 specifies three alternative options for extending the treaty: extension for a single fixed period; for 'additional fixed ... periods'; or indefinitely. The first and last options are unambiguous. The first option is a decision to terminate the treaty at the end of the single fixed period, with no mechanism for any reprieve, and may thus be regarded as the least desirable

option. The middle option, however, does contain significant areas of ambiguity.<sup>36</sup> No specific guidance exists within the treaty text itself on the mechanism for the parties to decide on the move to further fixed periods, and this procedure would need to be spelt out in any 1995 extension resolution, or, if the decision were a consensual one, in the 1995 conference document.

One major problem with international conferences of this type is that unless members of the key delegations know each other from other fora, or a series of detailed preparatory meetings is convened in advance of the conference, there is a danger that the proceedings will lack direction and drive, and time will run out before it can complete its work. Strong direction from the president and the chairs of the conference committees is essential for the success of such an event. One danger in 1995 is that failures in preparation and conference management could lead to an outcome which damages the NPT regime, even if the majority of states attending the conference were supportive of the Treaty.

So much has changed in the nuclear non-proliferation area since the 1990 NPT review conference, and so much may still change before 1995, that offering a view on the substantive issues which will influence the outcome of the 1995 conference is necessarily speculative. Current indications are that the voting strength of the Group of Seven advanced industrial states (Canada, France, Germany, Italy, Japan, United Kingdom and United States) and their allies is such that they may be able to attain their stated objective of an indefinite extension of the treaty,<sup>37</sup> if the decision is taken by a vote. There are good grounds for arguing, however, that a consensus decision is to be preferred. This would necessitate parallel agreement on the passages in the document reviewing the implementation of the treaty in at least six substantive areas: allegations under Articles I and II that state parties have assisted nuclear proliferators; security assurances to non-nuclear weapon states; Article III and IAEA safeguards; access by the developing world to nuclear energy under Article IV; the nuclear disarmament provisions of Article VI; and regional nuclear proliferation situations.

Debate on Articles I and II, under which nuclear weapon states pledge not to transfer weapons and non-nuclear weapon states pledge not to acquire them, has in the past centred mainly on alleged breaches of Article I, particularly allegations that nuclear weapon states have provided assistance to nuclear weapon programmes in Israel and South Africa. Allegations of assistance to Israel will probably persist, unless the Middle East peace process makes significant advances, and Russia may be accused of transferring weapons to Ukraine. Accusations of breaches of Article II will almost certainly arise in

<sup>36</sup> For a detailed analysis of these matters see George Bunn, Charles Van Doren and David Fischer, *Options and opportunities: the NPT Extension Conference of 1995*, PPNN Study 2, (Southampton: Mountbatten Centre for International Studies for PPNN, 1991).

<sup>37</sup> The commitment to an indefinite extension was made at their meeting in Munich in July 1992. See *The Times*, 9 July 1992.

1995, however, as no review of the treaty could omit discussion of Iraq's clandestine programme and a condemnation of its actions. Whether North Korea's nuclear programme will also be the subject of similar discussions remains to be seen. Finally, internal events in South Africa will determine the situation with regard to accusations connected with that state. What seems certain is that if Iraq and North Korea remain parties to the treaty, any condemnation of their activities in a conference final document will result in their refusal to accept it, while failure to do so might lead strong supporters of the treaty to do the same. Unless some way can be found of getting round this issue, it could have a very disruptive influence on the conference, and reduce the possibilities of extending the treaty through a consensus decision.

The NPT text contains no security assurances for non-nuclear weapon states, and commitments to new proposals in this area are being sought by many such states. The accession of China and France to the treaty has cleared the way for a new UN Security Council Resolution on positive security assurances subscribed to by all the nuclear weapon states. It may also be possible for them to subscribe to an unconditional collective negative security assurance, involving pledges not to use nuclear weapons first nor threaten their use against non-nuclear weapon states. Discussions on such innovations are taking place, though the problem is to provide them in the form desired by NPT non-nuclear weapon state parties, namely that they should be in a multilateral legal form; should be offered collectively by all five nuclear weapon states; and, in the case of positive security assurances, should contain detailed and specific statements of the actions to be taken if a non-nuclear weapon state is threatened with the use of nuclear weapons.

At the same time, it has been recognized that nuclear threats may now originate from a non-nuclear weapon state suddenly declaring itself to be a nuclear weapon state, and that the new security assurances will have to address themselves specifically to this case. They may also have to provide some mechanism to release existing nuclear weapon states from their negative security commitments in the event of such a breakout, and to deal with the cases of threats by other types of weapons of mass destruction (i.e. chemical and biological weapons). Existing requests for security assurances from many Commonwealth of Independent States (CIS), Central European and developing states suggest that such new commitments could serve to reinforce the regime and secure support for a long extension of the NPT in 1995. The key issue is whether the nuclear weapon states will feel able to provide them in the form demanded, which in some cases comes close to the type of nuclear alliance deterrent guarantee provided by the United States to its NATO allies during the Cold War era.

Following the discovery of Iraq's clandestine nuclear programme, which illuminated several of the known limitations of IAEA safeguards under Article III of the NPT, sustained efforts have been pursued to improve those procedures. Attempts have also been made to introduce new safeguarding concepts.

Other factors which may also enter the safeguards debate in 1995 are the efficacy of further regionalization of safeguards systems, especially the new Euratom partnership agreement;<sup>38</sup> the question of expanding the scope of IAEA safeguards within nuclear weapon states; and whether it would be appropriate to revive the concept of an international storage system for plutonium and high enriched uranium. However, debate on these issues seems likely to take place mainly between industrialized states which are already committed formally to an indefinite extension of the NPT, and it therefore seems unlikely significantly to affect the outcome of the extension decision at the 1995 conference.

A further issue likely to be discussed in 1995 is the implementation of additional measures to expand IAEA safeguards activities in NPT nuclear weapon states. This matter has been on the agenda of previous NPT conferences as part of a scheme aimed at isolating the military nuclear energy activities in these states and making it easier for disarmament to be implemented within them. Following the decision of the US government in September 1993 to place fissile materials released by the warhead dismantling process under IAEA safeguards, and moves to implement a cut-off in the production of all fissile materials for military explosive purposes, the IAEA's activities in these states seem likely to expand significantly prior to 1995.<sup>39</sup> This in turn should have a positive impact upon both the debate over Article VI and the extension decision.

To date, the contradiction between the unrestricted right of access of NPT parties under Article IV to all nuclear energy capabilities and the restrictions placed upon that right by supplier states has resided more in the realms of principle than in those of practice. Perceptions of nuclear energy as an economical and safe source of electricity have declined in both the industrialized and developing worlds, with the exception of the states on the Pacific Rim. The recent agreement by supplier states to constrain dual-use technologies may serve to enhance sensitivities to the political symbolism attached to this matter, however. The degree to which this becomes an issue could also be affected by any attempt by Iraq to gain support for a relaxation of the constraints placed upon its nuclear energy activities by the UN Security Council.

A further issue that may be raised in connection with this Article is attacks on nuclear facilities. This was controversial in the review conferences of 1985 and 1990 and could be so again in 1995, especially if Iraq seeks to condemn the attacks on its reactors in 1991, and the United States has articulated more fully a doctrine for the use of military force against the nuclear facilities of proliferant states.

<sup>38</sup> *PPNN Newsbrief*, no. 23, third quarter 1993, p. 12; Fischer *et al.*, *A new nuclear triad*, pp. 33–7.

<sup>39</sup> For details, see IAEA General Conference, Thirty-Seventh Regular Session: 27 Sept.–1 Oct. 1993, remarks by the Honorable Hazel O'Leary, head of the US Delegation.

In 1995, representatives of all five declared nuclear weapon states will be present at an NPT conference for the first time. The debate over nuclear disarmament will thus differ significantly from those of the past, as the policies of all of the nuclear weapon states are likely to be critically examined. It will be difficult to argue, however, that 'the nuclear arms race', which was traditionally interpreted by the non-aligned movement as competitive arming by the United States and the Soviet Union, is still continuing, if only because the Soviet Union no longer exists. And unlike the situation in 1990, France, Russia, the United Kingdom and the United States will be able to argue that they have been reducing their nuclear weapon stockpiles. These states are also likely to point out that this is an ongoing process that will take years if not decades to complete.

The perennial controversy over a ban on nuclear testing and the NPT will undoubtedly recur in 1995. Negotiations on a CTBT are due to start in early 1994 in the Conference on Disarmament, but it remains unclear whether the political arguments for sustaining the current moratorium on testing by France, Russia and the United States (and involuntarily by the UK) through to the 1995 conference will persist over the technical pressures to carry through test series prior to the signature of a CTBT.<sup>40</sup> If testing by these countries does recommence, especially if it occurs in late 1994/early 1995, it will re-ignite the controversy. In the absence of a completed and operating treaty, the CTBT issue seems destined to remain the major source of discord in the debate over Article VI.

A second area of debate may be the issue of a 'treaty on general and complete disarmament'. The European states will doubtless point to the reduction in nuclear and conventional disarmament levels in Europe and demand similar reductions in other regions. A more divisive issue may be a demand by many parties for a clear commitment by the nuclear weapon states to a timetable for their nuclear disarmament. This issue could become merged with debates on a CTBT, as one key argument against a testing ban has been the need to maintain nuclear weapon stockpiles indefinitely. Ukraine and Kazakhstan, if they have acceded to the NPT by 1995, and other CIS and Baltic state parties, might also be expected to press specific demands for Russia to commit itself to a timetable for nuclear disarmament. The position of Japan and Germany may also differ appreciably from that in 1990, as they too may take a much more active and positive stance over nuclear disarmament. Individuals within several of these states have already argued against an indefinite extension of the NPT in the absence of more positive commitments to total nuclear disarmament by the nuclear weapon parties. There is a risk that further moves in this direction could generate a totally new set of post-Cold War political alignments on the nuclear disarmament issue at the 1995

<sup>40</sup> One major issue at the moment is that if testing is allowed prior to 1995, it may make it easier for the nuclear weapon states to agree to a CTBT of indefinite duration. If not, there will be strong pressure from the nuclear laboratories for a ban limited in the first instance to ten years.

conference, with unpredictable consequences for attempts to agree a consensus final document and for the extension decision.

At past review conferences, regional issues have often proved a major barrier to the achievement of consensus language. In 1995, it seems likely that the Middle East situation will continue to generate difficulties for the conference. All the states in the region are parties to the NPT except Israel, which is believed to have had a covert nuclear weapon programme since the 1960s. Many Arab states have refused to sign the Chemical Weapon Convention unless Israel accedes to the NPT. In these circumstances, it would be illogical for them to accept an indefinite extension of the treaty unless Israel becomes a party. However, they would not necessarily wish to see the treaty terminated or to withdraw from it.

A second regional problem is likely to be the Korean peninsula, unless current difficulties can be resolved. North Korea is an NPT party, but IAEA safeguards have still not been fully applied to it, and suspicions exist that it has a clandestine nuclear weapon programme. Any acquisition of nuclear weapons by North Korea would significantly affect the security position of South Korea and Japan. If uncertainty over the status of North Korea's nuclear programme persists through to 1995, this may create pressures within both these states to press for something less than an indefinite extension of the NPT so as to avoid any unconditional commitment to non-nuclear weapon status.

## **Conclusions**

The 1995 NPT conference will be a watershed for the nuclear non-proliferation regime. Not only will its outcome determine the foundation upon which that regime will rest for the remainder of this century and beyond; it will also provide an authoritative illumination of the many changes that have occurred in both the regime and its context since the last NPT conference in 1990. For it is evident at the end of 1993 that the slow evolution of the non-proliferation context since the signing of the NPT in 1968 has given way over the last three years to a succession of revolutionary, rather than evolutionary changes.

The end of the Cold War has both opened the way to greater international collaboration to prevent nuclear proliferation and led to a merger of nuclear arms control and non-proliferation activities. It has opened the prospect of a greatly enlarged role for the IAEA, not only in terms of the existing regime but also in two other areas. One is in safeguarding fissile materials recovered from dismantled nuclear warheads. The other is in providing secretariat, verification and inspection services for state parties to a CTBT. This offers unique opportunities to strengthen both the political and the technical base of the non-proliferation regime. Yet events which occurred at the end of 1991 have also created a new category of proliferation problem, namely, the consequences of the fragmentation of nuclear weapon states. Currently, this is

highlighted by the nuclear warheads that remain in Ukraine, and to a much lesser extent in Kazakhstan. Neither China nor the Russian Federation—nor for that matter, France, the United Kingdom or the United States—can be entirely excluded as a possible future candidate for this category.

Events in Iraq, North Korea and South Africa have also served to illustrate vividly the inability of technical denial strategies, and international monitoring of nuclear capabilities, physically to prevent nuclear proliferation. This is not to argue that such activities should not be further refined and reinforced, for they do serve to make proliferation more difficult, expensive and time-consuming, and in so doing deter a state from embarking upon it. In addition, technical denial buys time for political change to occur both within and between states.<sup>41</sup> But the central core of the nuclear non-proliferation regime remains political commitments, rather than technical solutions. It is the global growth and strength of the non-proliferation norm that is the most remarkable development over the last thirty years, embodied as it is in membership of the NPT,<sup>42</sup> and the unwillingness of 'ambiguous' nuclear weapon states to breach overtly that norm. This in turn is a reflection of changing international perspectives upon the military utility of nuclear weapons and their political status.

These changes suggest that in the coming decade the behaviour of all the declared nuclear weapon states is likely to play an increasingly significant role in the evolution of the nuclear non-proliferation regime. Playing down the significance of nuclear weapons in their security policies will in itself serve to reinforce the non-proliferation norm, by denying to potential proliferators evidence of the utility of proliferation, either as a usable source of military or political power or as a means to counter nuclear threats from the existing nuclear weapon states. Dismantling nuclear weapons under international supervision, and ceasing the production of fissionable material for such weapons, will also offer some assurance to the international community that new nuclear weapon states will not spring up overnight.

The most remarkable feature of the new situation is the strength of the international political consensus now underpinning it, in comparison to the position in the late 1970s. Yet emanating largely from the United States are two sets of challenges to that consensus. One is the desire to strengthen the regime by changing some of its technical rules. The other is the attempt to bring military ideas and concepts to bear upon the non-proliferation problem. Both seem likely to result in conflict between the advanced industrialized states most heavily committed to sustaining the regime.

Changing the technical rules may involve banning all reprocessing of

<sup>41</sup> This point has been frequently stressed in the writing of Lewis Dunn. See, e.g., Müller and Dunn, *Nuclear export controls*, p. 20.

<sup>42</sup> It is instructive to revisit the views of the world's leading non-proliferation experts in 1966 on this point: 'the biggest gap in the chain reaction of proliferation may be between the fifth and sixth nuclear power. From the sixth to the sixteenth the progression might be rapid.' Alistair Buchan, ed., *A world of nuclear powers?* (Englewood Cliffs: Prentice Hall for the American Assembly, 1966), p. 9.

nuclear fuel, phasing out all use of high enriched uranium in research and isotope production reactors, and banning all enrichment of uranium above a level of, perhaps, 20 per cent.<sup>43</sup> In circumstances where uranium prices are low, and significant quantities of HEU and weapons grade plutonium need to be disposed of from the nuclear arming of the Cold War, this appears to be a sensible strategy. Yet the political price will inevitably be acute conflict with at least three of the states most supportive of the existing regime, France, Japan and the United Kingdom, not to mention the Russian Federation. Although all these states would probably be prepared to accept limitations on levels of uranium enrichment for non-military purposes, they are not likely to accept constraints on their right to engage in enrichment itself. More significantly, they have all invested heavily in fuel reprocessing and plutonium separation facilities, and are unlikely to abandon this option lightly. Is it worth paying the political price of another 'war on plutonium' to strengthen the technical basis of the regime? The experience during the Carter years of the late 1970s would suggest it is not.

One element of the second challenge arises from the unwillingness of supporters of the existing regime to address the possibility that nuclear weapon states other than the declared five exist, in part because to do so would almost certainly undermine the authority of an NPT that recognizes only two categories of state: those which exploded a nuclear device before 1 January 1967 (nuclear weapon states) and those that did not (non-nuclear weapon states). The existence of the small number of states whose nuclear weapon status is ambiguous is seen by many as a weakness in the existing regime, generating a need for new policies to be constructed to encompass those states formally within the regime. One response to this has been proposals that a new category of 'ambiguous' nuclear weapon states should be created in relation to the regime, and plans developed to provide such states with the attributes of overt nuclear weapon status, such as deterrence and targeting doctrines and physical security technologies and procedures.<sup>44</sup> These proposals rest on the perception that if these states have nuclear weapons, the first priority is to provide safeguards against accidental, inadvertent or ill-thought out use. However, such a move would undermine the rigid division between nuclear and non-nuclear weapon states contained in the NPT, and would remove the incentives for 'ambiguous' nuclear weapon states to follow the lead of South Africa and accede to the NPT as non-nuclear weapon states.

Another element of the second challenge is the development of a much more aggressive policy of physically preventing proliferation, by turning the IAEA inspectorate into an international nuclear police force and by using force to destroy nuclear facilities.<sup>45</sup> Again, this is an attempt to impose

<sup>43</sup> See Leventhal, 'Nuclear export controls', pp. 50–51.

<sup>44</sup> Frankel, *Opaque nuclear proliferation*.

<sup>45</sup> Roberts, 'From non-proliferation to antiproliferation', p. 140.

technical solutions upon what is essentially a political problem. It implies moving the cutting edge of the regime to the UN Security Council, as in the case of Iraq. But it also highlights the fact that some potential proliferators will be economically and physically isolated from the rest of the international community. States which are not in this position can be subjected to a wide range of sticks and carrots to persuade them to conform to the non-proliferation norm: those that are cannot.

The dilemma over the use of force in such circumstances is that while it may be the only option that appears available, there is little likelihood that it will be completely successful and it may precipitate ecological disasters and nuclear war. The capability to act in this way may be a useful bargaining tool, but implementing such threats appears likely to provide only an incomplete answer to the problem, and to have incalculable consequences for the global consensus upon which the current regime rests.

Both of these challenges are likely to be lurking in the background at the 1995 NPT conference, but the outcome of that conference is likely to rest on other substantive issues, as well as treaty interpretation and conference management matters. The growth of the non-proliferation norm since the 1960s offers the prospect of considerable support for a long extension of the treaty. Indeed, the main danger to this probably lies in the lack of detailed guidance in the treaty itself on the extension decision. Further initiatives to reinforce the regime through collateral international agreements between NPT parties are necessary if a positive atmosphere is to be sustained within which this decision can be taken. Such initiatives might include three 'package' agreements, in addition to the imminent completion of a CTBT:

- Strengthened nuclear security assurances, linked to acceptance of more intrusive IAEA inspection procedures by NPT non-nuclear weapon state parties.
- Cessation of the production of military grade fissile materials and the placing of surplus military stocks of fissile material under IAEA safeguards, linked to the creation of an international plutonium management (IPM) system for materials of both military and civil origin.
- Acceptance by NPT non-nuclear weapon state parties of the current nuclear export control guidelines and intrusive end-use controls over exported technology, in return for 'most-favoured nation' access to nuclear technology and access to blended-down enriched uranium released from military stockpiles at favourable prices.

The biggest danger to consensus at the NPT conference, however, may well be splits on regional, rather than regime issues. At least one of these regional problems is the linkage made by some Middle Eastern parties between the NPT and the CWC. Under current circumstances, it appears that these Arab states will not agree to an indefinite extension of the treaty,

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nor will they sign the CWC, unless Israel accedes to the NPT. It is a salutary thought that at the 1985 NPT review conference it was regional not regime issues, and specifically those related to the Iran–Iraq war, that came close to preventing agreement on a final document. It would be unfortunate indeed if, despite the growth and strengthening of the non-proliferation regime, similar regional disputes prevented agreement on a long extension of the treaty by consensus, or led to a significant minority opposing it in a vote and threatening to withdraw from the treaty.