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Introduction

Jean Pascal Zanders

The eighth review conference of the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) will be held in New York between 3 and 28 May 2010. Three Preparatory Committee sessions, held in 2007, 2008 and 2009, laid the groundwork for the agenda and the areas of the treaty regime the States Parties wish to develop further.

The NPT remains a central pillar in the global quest to prevent a destabilising armament competition and nuclear war. Negotiation of the treaty was concluded in 1968 and the document entered into force on 5 March 1970. It was constructed around three interlocking principles, namely nuclear non-proliferation, cooperation in peaceful uses of nuclear energy, and nuclear disarmament. They make up the grand bargain in the NPT: the five nuclear weapon states (China, France, Russia, United Kingdom and the United States) commit themselves to disarmament while the non-nuclear weapon states pledge not to acquire these weapons, in return for which they receive access to nuclear technology and energy for peaceful purposes. As of March 2010, 189 states are party to the NPT, making it the most universal of all disarmament and arms control agreements. Just three countries have remained on the outside: India, Israel and Pakistan. However, each one of them is armed with nuclear weapons or widely believed to have stockpiled them. North Korea is the only country to have withdrawn from the NPT.

The stakes in the 2010 review conference are considerable, because the previous meeting, held in 2005, ended without any substantive agreements and amid a lot of bitterness. The two earlier meetings in 1995 and 2000 saw the indefinite extension of the duration of the NPT and the adoption of a 13-point disarmament action plan respectively, thus generating a degree of optimism about the treaty's future. By 2005, however, some intrinsic weaknesses of the treaty regime were exposed to the full glare of international attention. North Korea had admitted to a nuclear weapons programme in 2002, which it was conducting under the cover of the NPT, and then proceeded to withdraw from the treaty in response to the international uproar that followed the disclosure. Around the same time, nuclear activities at undeclared sites in Iran were

uncovered. So far, the International Atomic Energy Agency (IAEA), which the NPT entrusts with the oversight of the States Parties' commitment to non-proliferation and the organisation of international cooperation, and the international community have not been able to persuade the Iranian government to halt the enrichment work or generate greater transparency about the programme's intent. In addition, the scale of activities by an underground international nuclear technology supply network run by the father of the Pakistani nuclear bomb, Abdul Qadeer Khan, were exposed in 2003 when Libya decided to abandon its nuclear, biological and chemical weapon programmes. The Khan network also sold nuclear technology and blueprints for weapon design to North Korea and Iran. Earlier, Pakistan had arrested three senior nuclear scientists, all colleagues of Khan, for their close connections to the Taliban in Afghanistan and alleged assistance in al-Qaeda's quest for a crude nuclear or radiological device. Although Pakistan is not a party to the NPT, Iran, Libya and North Korea were.[1] The effect of all these developments was rising concern about the potential misuse of the NPT arrangements and procedures to hide illicit weapon programmes. In response to the challenges, the parties to the NPT split into a group that sought to constrain the fuel cycle, thus terminating all enrichment programmes for nuclear weapons, and a second one that wanted to limit access to nuclear technology for so-called rogue states and other countries of concern only. The division struck at the heart of the NPT: it pitted comprehensive nuclear disarmament against non-proliferation, which would allow nuclear weapons states to retain a certain nuclear capability for an indefinite period.

The cloud of pessimism about the treaty's future lifted somewhat with the election of US President Barack Obama in November 2008. During a visit to Prague five months later, he contemplated a world free from nuclear weapons as he reintroduced the notions of multilateral disarmament and arms control to the international security debates. Appreciative of the big ambition behind his vision, he added that he may not see the dream fulfilled in his lifetime and proceeded to outline some immediate and concrete steps. He pledged to reduce the role of nuclear weapons in US strategy, negotiate a new Strategic Arms Reduction Treaty (START) with Russia, US ratification of the Comprehensive Test Ban Treaty

1. Afghanistan acceded to the NPT in 2003 following the overthrow of the Taliban regime by an international coalition of forces in response to the al Qaeda strikes on US territory on 11 September 2001.

(CTBT), strengthen the NPT, and promote the negotiation of the Fissile Material Cut-off Treaty (FMCT) in the Conference on Disarmament in Geneva. Despite the forward-looking dimension, most of his programme reflects unfinished business on an agenda proposed in the mid-1960s in response to China's first nuclear detonation.

Obama's speech, his earlier electoral platform and his quick moves to engage Russia in bilateral negotiations to cut down holdings of strategic delivery systems and their warheads generated worldwide optimism. The fresh mood was immediately reflected in the constructive working atmosphere of the 2009 Preparatory Committee for the 2010 Review Conference. After the summer, however, as the Obama administration became increasingly consumed by the domestic battles over the economic crisis and health care reform, a certain gloom began to set in. Russia and the United States missed several announced negotiation deadlines and on 5 December the 2001 START treaty expired without an agreement on a new treaty. Obama's overtures were coldly received in Iran, which procrastinated over accepting negotiated compromises to resolve the international crisis regarding its nuclear activities. Deadlines, after the expiry of which the United States would seek additional international sanctions against Tehran, quietly slipped by. Early in 2010 Obama appears to have regained control over his domestic and international political agendas as the announcement that he and Russian President Dimitri Medvedev would sign the New START treaty on 8 April followed on the heels of his signing the health reform bill into law. The new treaty, was preceded by the annoucement on 6 April of a new nuclear doctrine that forswears the use of nuclear weapons against non-nuclear weapon states if they are in compliance with the NPT and other arms control treaties. These positive new developments also inject fresh energy into the nuclear summit on securing nuclear materials that President Obama convened in Washington, D.C. on 12–13 April, thus building further momentum for the NPT Review Conference the followng month.

Success at the eighth NPT Review Conference is by no means guaranteed. Obama's deep personal involvement in achieving the major policy goals of his administration and refound US commitment to multilateralism in disarmament and arms control do not erase the profound problems

affecting the NPT. The New START is but a small step down the long path of comprehensive global disarmament. The remaining strategic and non-strategic nuclear arsenals in the United States and Russia are huge by any standard. Already sensitive discussions on the implementation of the disarmament obligation in Article VI of the NPT will furthermore be affected by the degree to which the three smaller nuclear weapon states will seek to preserve their capabilities in the short and mid-term.

The conditions under which North Korea may agree to rejoin the NPT remain obscure. Iran will try to further exploit the division among States Parties at the 2005 Review Conference on how to deal with compliance concerns in order to build support for its interpretation of the inalienable right to have access to nuclear technology for peaceful purposes in Article IV. A nuclear disarmament conference in Tehran on 17 and 18 April has been announced to bolster its position. Politics in the Middle East have always been a sword of Damocles hanging over the outcome of review conferences. Israel's nuclear opacity and the country's backing by Western powers have traditionally generated the greatest reluctance among the Arab states to move forward. Iran's nuclear activities have now become a major source of Arab concern, particularly in the Gulf region. In response to the threat of international sanctions and possible military strikes over its growing nuclear enrichment capacity, Iran has become increasingly vitriolic in its rhetoric against Israel, which in turn has threatened to bomb Iran's nuclear installation. How this escalatory dynamic will affect the deliberations at the Review Conference remains unpredictable. Although they are not a party to the NPT, the fact that both India and Pakistan possess nuclear weapons and the high conflict potential between both countries continue to cause deep concerns. India's success in gaining US support to have access to nuclear fuel and technology in spite of its refusal to join the NPT is likely to have an impact on the debates. Indeed, the technological mercantilism pursued by certain leading exporters of nuclear technology and their interest in the Indian (and possibly Pakistani) market is bound to erode the non-proliferation norm. Positions over these issues could easily become irreconcilable.

Another important dimension is the renaissance of nuclear energy for civilian purposes. A growing appreciation that fossil fuel reserves are finite and a perception that nuclear energy offers the best short-term answer to the reduction of carbon emissions responsible for climate change have led a large number of states to declare their interest in developing a national nuclear energy programme. Several among them have already submitted requests for assistance to the IAEA. The development raises several challenges for the international organisation, most important of which will be the need to increase and reorganise its inspection capacity. Of the states requesting assistance, many are located in areas of high regional tensions. The presence of a nuclear energy programme may in itself already perform some sort of deterrent function, as well as potentially lay the foundations for a future nuclear weapon programme.

It is precisely because of the realisation that a weakening NPT may no longer be able to contain the nuclear genie that in different countries senior politicians and former high-level government officials from across the political spectrum – many of whom used to be ardent supporters of a robust nuclear posture – have begun arguing in favour of nuclear disarmament over the past couple of years. For many among them, the new position is not a question of altruism or agreement with long-held positions by peace movements and other concerned citizens, but the outcome of a hard-nosed reevaluation of threats and national security interests.

The present *Chaillot Paper* continues a tradition of reflecting on issues affecting the NPT in the run-up to a review conference.[2] As the 2010 Review Conference takes place amid rising proliferation concerns and a fresh focus on the global elimination of nuclear weapons, it examines closely the interface between the obligations in Articles IV (non-proliferation) and VI (disarmament).

Camille Grand outlines the current strains on the NPT and how they evolved from the 2005 Review Conference in particular. He then proceeds to discuss several salient issues and how they might be resolved at the forthcoming review conference. Key among these will be the degree to

2. Camille Grand, 'The European Union and the non-proliferation of nuclear weapons', *Chaillot Paper* no. 37 (Paris: WEUISS, January 2000); and Burkard Schmitt (ed.), 'Effective non-proliferation: The European Union and the 2005 NPT Review Conference', *Chaillot Paper* no. 77 (Paris: EUISS, April 2005).

which the international community can express consensus on several core issues currently affecting the treaty and adopt a forward- looking agenda to address them. Ian Anthony analyses the present governance regime for nuclear technologies with potential application for weapons purposes and the challenges to it that have emerged over recent years. Using the case of South Africa, he argues that some of the governance problems cannot be overcome by simply reforming the system of non-proliferation rules and regulations. He then proceeds to suggest a new foundation for international nuclear cooperation, combining positive measures and technical barriers to proliferation. In his chapter, Christian Mölling looks more specifically at the role the European Union can play in safeguarding a future for the NPT. When adopting the 2003 Strategy against Proliferation of Weapons of Mass Destruction, the EU committed itself to an active role in the grand bargain of the NPT. However, it currently has a rather limited influence on the grand bargain. He identifies the challenges to the NPT in the period up to 2020 and discusses how the EU may be able to exert a more significant impact on developments after the entry into force of the Lisbon Treaty reforming EU institutions and decision-making.

The United Kingdom is one of the two EU members to be a nuclear weapon state as recognised under the NPT. Over the past few years several leading politicians from the three main parties have called for the termination of the UK deterrent. However, as Mark Smith argues, despite such calls, there remains a remarkable pragmatic consensus about the role of nuclear weapons in UK security policy. Given the small number of warheads and missiles, it will be difficult for the UK to take incremental steps towards nuclear reductions in the way the United States can. In the light of the new proliferation challenges, it may also be difficult for the present and future UK governments to accept full, unilateral nuclear disarmament. In the final chapter, Łukasz Kulesa discusses the prospects for comprehensive nuclear disarmament in Europe. Two regional organisations – the North Atlantic Treaty Organisation (NATO) and the EU – are central to the debate. NATO has a clear security dimension based on nuclear deterrence; the EU, while it is developing a military arm in support of its common foreign and security policy, is not considering any role for nuclear weapons. Two EU

Member States are not in NATO and both, Ireland and Sweden, have outspoken views against nuclear armament. In contrast, two other EU Member States have independent, national nuclear arsenals. Finally, the most recent EU members from Central and Eastern Europe identify security guarantees in the US extended deterrence policy offered under the NATO umbrella. Europe presents the advantage of being the most promising region for moving ahead with (non-strategic) nuclear weapon reductions: however, in order for this to be achieved, it needs to overcome the obstacles to comprehensive nuclear disarmament represented by overlapping and interlocking interests on the continent.

Chapter 1

The Non-Proliferation Treaty in an era of proliferation crises

Camille Grand

'The era of procrastination, of half-measures, of soothing and baffling expedients, of delays, is coming to its close. In its place we are entering a period of consequences.'

Winston Churchill, Speech in the House of Commons, 12 November 1936[1]

Introduction

For almost four decades, the Nuclear Non-Proliferation Treaty (NPT) was an unprecedented success story in the field of arms control treaties. It played an invaluable role in establishing a robust nuclear non-proliferation norm. This norm is now under severe strain and it looks like the 2010 NPT review conference will possibly be the last opportunity to re-establish the value and strength of the treaty.

Since 1968, this norm was founded on what are traditionally described as the NPT 'three pillars'. Enshrined in articles I and II of the NPT, the non-proliferation commitment by which nuclear weapon states (NWS) renounce assisting others in acquiring nuclear weapons while non-nuclear weapon states (NNWS) renounce the development, acquisition, manufacture or possession of nuclear weapons, is at the core of the treaty. It is the legal basis of the renunciation of nuclear arms by an overwhelming majority of the international community: non-nuclear states are committed under article II 'not to receive the transfer from any transferor whatsoever of nuclear weapons or other nuclear explosive devices or of control over such weapons or explosive devices directly, or indirectly; not to manufacture or otherwise acquire nuclear weapons or other nuclear explosive devices; and not to seek or receive any

1. In the famous 'Debate on the Address'. See the full speech at http://hansard.millbanksystems.com/commons/1936/nov/12/debate-on-the-address#column_1117.

assistance in the manufacture of nuclear weapons or other nuclear explosive devices.'[2]

Furthermore, this commitment is verified by the International Atomic Energy Agency under article III. The fact that 184 States (the non-nuclear weapon states in treaty language) have voluntarily renounced seeking to acquire the most powerful weapon ever produced is in itself a demonstration of the importance of the Non-Proliferation Treaty and a unique achievement. From this perspective, the NPT appears as more than an arms control treaty and has established itself as a unique collective security mechanism.

A second pillar fosters nuclear cooperation for peaceful purposes (article IV) and has facilitated the development of nuclear energy and access to technology by developing countries.

The third pillar deals with disarmament through article VI by which 'each of the Parties to the Treaty undertakes to pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a treaty on general and complete disarmament under strict and effective international control.' Article VI has been an important driver in the progress of arms control and disarmament since the entry into force of the Treaty in 1970.

In the last 40 years, the NPT has thus played a significant role in ensuring that proliferation has been contained to a limited number of countries and that President Kennedy's dark forecast of a nuclearised world has not come true. It has also facilitated the development of nuclear cooperation for peaceful purposes and triggered progress in nuclear arms control and disarmament and the reduction of nuclear stockpiles.

Going further, it has also established a norm which contributed to the non-use of nuclear weapons and the preservation of the nuclear taboo. The successful universalisation process has successfully brought all NWS into the Treaty (since the accession by France and China to the Treaty in 1992), and, as NNWS, various countries which had nuclear weapon capabilities (South Africa, Ukraine), active military programmes (Brazil, Argentina) or the potential to develop such programmes. It has also facilitated the dismantlement of the nuclear programmes of Iraq and Libya.

In combination with the IAEA and the export controls established primarily within the Nuclear Suppliers Group (NSG), the NPT is at the heart of the most robust weapons of mass destruction (WMD) non-proliferation regime (at least by comparison with the chemical, biological or missile regimes). The NPT has also been the main discussion and negotiation forum related to nuclear issues and has, for example, led to

2. Article II, Treaty on the Non-Proliferation of Nuclear Weapons, 1968 (see Annex).

the signature of the Comprehensive Test Ban Treaty (CTBT) in 1996, by offering a last political push during the 1995 Review Conference as part of the declaration on the 'principles and objectives of non-proliferation and disarmament.'

These impressive achievements combined with the quasi-universality of the NPT (189 States Parties) make it clear why the NPT community decided by consensus to extend the treaty indefinitely during the 1995 Review and Extension Conference when the original negotiators had only agreed to establish it for a limited duration of 25 years.

It is this entire system that is currently under strain and it could – if resolute efforts to fix it are not undertaken during the 2010 Review Conference – be in jeopardy.

What went wrong? The nuclear non-proliferation regime under strain

When the treaty was indefinitely extended in 1995 with a package of three important decisions and a resolution, many observers felt the NPT norm was stronger than ever. In retrospect, the 1990s (or to be more precise the decade running from 1987 to 1997) appear as a golden age of non-proliferation and arms control combining a range of progressive developments: universalisation of the NPT, enhancement of non-proliferation tools (the IAEA Additional Protocol), meaningful work at the UN Conference on Disarmament (CD) and adoption of new treaties (the Chemical Weapons Convention - CWC, and the Comprehensive Test Ban Treaty - CTBT), significant progress in US-Russian bilateral arms control and unilateral steps towards nuclear disarmament by the US, Russia, the United Kingdom and France, and the reversal or freezing of proliferation activities by South Africa, Iraq or North Korea.

Since the late 1990s, things have started to derail, first outside the NPT with the Indian and Pakistani nuclear tests of 1998, and soon after within the treaty itself. In spite of sometimes difficult and bitter debates, the 2000 Review Conference with its final report appears as a last successful attempt to preserve consensus around non-proliferation. In the decade since then, it seems the regime has unravelled, failing to prevent further nuclear proliferation or to deliver in terms of meaningful progress on each of the 'three pillars'.

In that context, the failure of the 2005 Review conference to achieve a meaningful result and the polarised debates that took place on many issues could well be a rehearsal for the 2010 Conference. Before examining

possible steps to prevent such a dramatic outcome, it is necessary to identify what went wrong. The few following trends can be underscored as defining the emerging nuclear disorder.

Non-compliance within the Treaty

For more than two decades, the main objective to enhance non-proliferation was universalisation of the NPT. Although it had been open to signature in 1968, it took more than 20 years to achieve a reasonable degree of universality (130 States Parties in 1990, 178 by 1995). In this context of dozens of States contesting the logic of nuclear non-proliferation altogether, the issue of compliance with Treaty obligations came only second and for years the main objective was to enlarge the number of signatories in order to ultimately achieve universalisation of the Treaty. For years, compliance was therefore perceived as less relevant and, by many, taken for granted for signatories given the existence of a reasonably robust verification regime.

The treaty having become almost universal by 1998, with only Israel, India and Pakistan remaining outside the NPT, the issue of compliance grew in importance if only because of the experience with Iraq in the 1980s, disclosed after the first Gulf War. This was the first major case of an NPT State engaging in covert military nuclear activities and acting in non-compliance with its obligations. This first discovery of a clandestine nuclear programme was only resolved after the first Gulf War by the work of the IAEA Action Team.

The North Korean nuclear crisis which developed after 1993 was a second disclosure of undeclared military-related activities in breach of treaty obligations. The bilateral US/DPRK provisional settlement with the so-called Agreed Framework of 1994 overlooked that non-compliance issue to achieve a compromise via which Pyongyang remained a party to the NPT. In the 1990s, it could reasonably be assessed that non-compliance cases had been resolved. Moreover, many hoped that the adoption and entry into force of the IAEA's Additional Protocol would make non-compliance almost impossible by reinforcing and developing the Agency's ability to discover clandestine activities.

In the last decade, the 'second wave' of non-compliance therefore came as a shock as it became suddenly apparent that not only was the DPRK able to continue its programme while having signed the Agreed Framework, before ultimately withdrawing from the Treaty in 2003 and testing two nuclear devices in 2006 and 2009, but that additional countries had for a number of years been conducting covert nuclear activities.

The Libyan case was disclosed and resolved at the same time in 2003 through a behind-closed-doors trilateral process with the US and the

UK; it nevertheless demonstrated that Libya had been able to purchase sensitive nuclear technology and develop a military programme of a greater magnitude than intelligence and experts had previously suspected.

Questions also arose about Syrian activities following the Israeli bombing of an undeclared Al-Kibar nuclear facility in 2006 and the case is still being investigated by the IAEA. More recently, doubts about a facility in Burma/Myanmar have also been raised.

The case of Iran is the best known and the most worrying from a proliferation perspective. To summarise a long chain of events, it has been established (and acknowledged by Tehran) that Iran conducted undeclared activities in the sensitive fields of enrichment and reprocessing in breach of its IAEA safeguard agreement over a period of more than 18 years prior to its involuntary disclosure. The final objectives of Iran remain unclear, but many past and present activities and the conclusions of IAEA investigations suggest that the Iranian programme certainly has military implications.

The issue is not so much to decide if Iran is seeking a fully-fledged nuclear arsenal, a breakout capability, a covert nuclear bomb or if it only wants to leave its military options open. The issue is that a NPT signatory has violated and continues to violate on a regular basis its safeguard commitments and its non-proliferation commitment by not disclosing sites and activities and continues to limit the IAEA inspections teams' access to various sites and facilities in spite of international pressure. The repeated provocations, the disclosure under pressure of a second underground enrichment facility in Fordow as late as September 2009 and the decision to enrich uranium up to 20 percent demonstrate – if any further proof was necessary – that Iran has not followed the path of transparency and cooperation in spite of several IAEA and Security Council Resolutions since the start of the crisis in 2003.

In all above-mentioned cases, the core issue is that States Parties to the NPT have not only not respected their commitments but have covertly, deliberately and in some cases successfully conducted prohibited nuclear activities without being caught at least in the first phases of their nuclear programme. These non-compliance cases create an atmosphere of general mistrust and constitute a major blow to the treaty itself. Many countries have committed themselves to the NPT in good faith based on the understanding that regional rivals and other players would be prevented from acquiring a nuclear capability.

North Korea's clandestine programme, followed by the DPRK's legally questionable withdrawal from the NPT and its testing of nuclear devices, and Iran's secret build-up of large-scale enrichment capability, are developments that could fundamentally alter the nature of the NPT

security bargain. The fact that such events could take place within the treaty and without being truly sanctioned could lead many States Parties to revisit the security benefits offered by the treaty and re-open debates about the benefits of nuclear abstention.

South-South proliferation networks

Another troublesome development of the last decade is the emergence of South-South proliferation networks that have made the traditional control over nuclear technologies by developed countries less significant in terms of proliferation. The experience with the Pakistani A.Q. Khan network, and possibly tomorrow the spread of North Korean nuclear technologies (if North Korea decided to engage in the dissemination of nuclear secrets as it has done for missiles and missile technologies) have demonstrated that access to technology is possible for a determined proliferator through channels that did not exist fifteen years ago.

It has also made the existing export control mechanisms such as the Nuclear Suppliers Group less relevant. Moreover, the assistance of the IAEA and the deliveries of technologies for peaceful purposes can be combined with clandestine technology and know-how acquisition through illicit back channels. The NPT and the whole nuclear non-proliferation regime are not well-armed to deal with these illicit trafficking networks.

Lack of political will to use verification tools and to effectively sanction misbehaviour

In the light of the two previous developments, a robust international reaction would have seemed a minimum response. It has unfortunately proved complicated to achieve clear majorities in the IAEA board of governors and even more difficult to produce meaningful resolutions in the UNSC regarding the Iranian and North Korean nuclear activities. Although no country seriously questions that they are guilty of non-compliance, many hesitate to adopt sanctions that could really alter the decision-making process in Tehran or Pyongyang towards more cooperation and a resolution of the nuclear crises.

On the technical side of verification, additional protocols allowing strengthened safeguards have entered into force for only half of NPT Parties. As of 3 March 2010 and according to the IAEA[3], additional protocols had entered into force in only 95 countries (128 had signed one). More worryingly, the presence among non-signatories of many regional players with current or past nuclear ambitions (including Argentina, Brazil, DPRK, Egypt and Israel) should be underscored, when Iran's and India's additional protocols have been signed but have not entered into force.

3. Regular updates can be found on the IAEA website: http://www.iaea.org/OurWork/SV/Safeguards/sg_protocol.html.

Original bargains under debate and the end of the non-proliferation consensus?

The lack of consensus and the bitter debates during the 2005 Review Conference and during some of the preparatory committees could well prefigure the sort of outcome that the 2010 Conference might witness as the overall non-proliferation situation has deteriorated rather than improved.

In the history of the NPT, the Parties have always had different priorities and often had conflicting agendas and expectations. Nevertheless, when the NPT was working properly, those differences could be overcome through serious negotiations in order to ultimately achieve consensus because the States Parties shared a broader objective: enhancing and preserving the regime. The 1995 and the 2000 Review Conferences were in that respect successes, although it could be argued that the 2000 Revcon debates already conveyed a sense of the future bitterness of debates among NPT Parties. Both Revcons nevertheless succeeded in producing meaningful and consensual documents which confirmed the non-proliferation consensus and the global support for the regime.

In the last ten years however, this consensus-building process has become increasingly difficult. Many non-nuclear weapon states (NNWS), in particular among non-aligned countries, question the emphasis put on proliferation by several countries in the Western world. Following the views of the Non-Aligned Movement (NAM) or the leadership of the New Agenda Coalition (NAC), a vast majority of non-nuclear countries has expressed expectations in the field of nuclear disarmament and criticises the lack of progress by the NWS. The control of sensitive technologies and the strengthening of IAEA safeguards themselves are no longer perceived as a sufficient guarantor of progress as many emerging countries appear reluctant to subscribe to new obligations. On the question of their own access to nuclear technology for peaceful uses, the NPT community is divided between a group which opposes nuclear energy as a matter of principle, a group of nuclear exporters interested in facilitating the so-called 'nuclear renaissance', and those who need foreign assistance in developing their nuclear programmes and fear the effect of tightened export controls and further restrictions on access to sensitive technologies.

The three pillars are therefore all under question and the NPT community divided. Can non-compliance cases be effectively resolved through diplomatic negotiations? Can the non-proliferation objectives be fulfilled at the expense of unlimited access to nuclear technologies? Should the implementation of the vision of a nuclear-weapon-free world become the key driver of the NPT? Can the promises set out in article VI be achieved short of global nuclear disarmament or can the NPT deliver significant steps? Can the nuclear renaissance take place without further

proliferation? There are no agreed answers to these questions that will have to be tackled during the Review Conference.

Facing the challenges during the 2010 Review Conference

As the NPT conference approaches and in order to avoid a worst-case scenario in which not only would the conference fail to adopt a final document, but it would also send out the signal of a divided NPT community and a weakened non-proliferation regime, the key issues are now well-identified.

These are the issues on which the EU could focus in order to offer a path out of the current crisis of the non-proliferation regime. Based on the experience of the success and failures of previous NPT conferences and the different expectations of States Parties, this list of points set out below offers a serious agenda for consideration at the Revcon that could rally a vast majority of the NPT community.

The overall objective is to recreate a robust non-proliferation consensus at the 2010 NPT conference and to avoid the unravelling of the regime. In the absence of such an outcome, and within a few years, the Treaty could start falling apart. New proliferators could emerge. In such a scenario, the taboo on WMD use is likely to vanish.

Non-proliferation

1. Address the challenge of current nuclear proliferation crises

Some argue that the NPT should not address the current Iranian nuclear crisis because of its rules of procedure as the consensus decision-making process makes it virtually impossible for the NPT to adopt any decision condemning a State Party. The approach adopted in the United Nations Security Council Resolution 1887 which avoids 'naming names' resorts to using the following formula: '[the Security Council] expresses particular concern at the current major challenges to the non-proliferation regime that the Security Council has acted upon'. Such vague and minimalist language would however miss the point about non-compliance by specific countries that are parties to the NPT.

Although it seems unlikely that the NPT conference will be a negotiation forum for trying to find a solution to the Iranian nuclear crisis, and even more improbable that Iran will accept to be finger-pointed at in a consensus document, it would be strange for the Revcon to ignore

the issue altogether as was to a large extent the case during the 2009 Prepcom. After all, the NPT is the nuclear non-proliferation treaty. At the very least, a substantial debate can be expected. The option of a resolution voted by a vast majority of Treaty Parties has also been mentioned as a way to circumvent a potential Iranian veto.

Whatever option is chosen and bearing in mind that the chances for a positive outcome on the Iranian nuclear dossier are slim, a Revcon that would simply ignore the issue would disgrace the States Parties and lead to the unavoidable weakening of the treaty.

2. Prevent further proliferation and prepare for the next proliferation crisis

A very useful result for the Revcon would be the adoption of some substantial recommendations aimed at preventing further proliferation and improving our ability to deal with the next proliferation crisis. Some good ideas have already been tabled by governments or experts in order to complicate withdrawal under article X.2 (by denying this option to non-compliant countries) and restricting the current possibility for a country to withdraw after having benefited from technology transfers. Another interesting option would be to decide that a State in violation of its commitments would be denied the right to vote as long as compliance is not re-established. Past experience with Saddam Hussein's Iraq in 2000 and current fears of an Iranian veto demonstrate the value of this approach.

All these potential developments would play a valuable role not so much in the Iranian context directly, but as a clear warning for future proliferators. The NPT community and the regime should learn from past experience and send out the right message. After Iraq's non-compliance, the reaction was much tougher as it led to the establishment of strengthened safeguards by the IAEA through the '93+2' process with the unequivocal support of the NPT community.

3. Tackle the issue of the 1995 Middle East Resolution

Egypt is always a key player and chairs the NAM this year. It has a diplomatic priority in the NPT context: to promote the implementation of the 1995 Middle East resolution calling for a Middle East free of weapons of mass destruction and their means of delivery. For Egypt, this resolution is primarily focused on Israel (the only NPT non-signatory in the region) and, since 1995, it has been ignored by the NWS that have preferred not to expose the Israeli nuclear programme.

Although the Egyptian focus on Israel is highly questionable as many other proliferation-related events are taking place in the region (in Iran and Syria specifically), it might prove appropriate to provide

some answers to this divisive issue by assessing proliferation-related progress and problems in the region since 1995: on the positive side, expansion of the NPT, BTWC, CWC and CTBT in the region, and the dismantlement of the Iraqi and Libyan programmes; on the negative side, remaining countries that refuse to sign up to the NPT and other non-proliferation treaties such as the CWC and the BTWC, and further missile and nuclear proliferation notably by Iran.

Furthermore, a dedicated event or significant slot in the NPT process could make sense as a way of highlighting the issue. Such an approach could turn Egypt into a more positive player, when it is currently perceived as a potential spoiler.

Disarmament

4. Promote a short-term nuclear disarmament agenda

The first objective for an NPT conference in the field of disarmament is to promote concrete steps. The NPT Revcon could therefore express strong support for a START follow-up, the entry into force of the CTBT and a call to abstain from testing, the negotiation of the FMCT and a moratorium on fissile material production. In 1995, the Revcon played a crucial role in providing a final push for the negotiations that led to the signing of the CTBT. Something similar could be expected from the 2010 Revcon for the conclusion of the FMCT negotiations or the entry into force of the CTBT, both by a specified date (2015?).

5. Creating the conditions for deeper cuts: a new nuclear order

Going beyond the immediate agenda, the Revcon could further highlight some of the key features of the desirable interim nuclear order: a robust non-proliferation norm, reduced salience of nuclear weapons, the entry into force of the CTBT and FMCT, transparency on stockpiles and doctrines, strategic stability, improved security for all. Many of these elements were already quoted in the NPT 2000 'Thirteen Steps' which could serve as an interesting benchmark to evaluate the policies of NWS. If improved security for all and disarmament should go hand-in-hand, the list outlined above is also the basis for a path allowing deeper cuts.

6. Send out the right signal about global zero and abolition

Many delegations expect the NPT to endorse the objective of a nuclear-weapon-free world. Interestingly, there was already such an 'unequivocal undertaking' to eliminate nuclear weapons in the 2000 Revcon Final Report's famous 'Thirteen Steps'. Although there might be value in agreeing on such a declaratory statement in order to provide to NNWS a clear reiteration of past commitments taking into account the progress

of the debate in recent years (Obama's Prague speech, Resolution 1887, G8 commitment during the G8 Summit in L' Aquila in July 2009), it is clear that the issue is likely to be divisive when it comes to the details (e.g. target date? conditions?).

However, the fact is that, when and if the conditions are assembled, NWS will have to work in good faith towards an objective that is perceived as important by many. The key might here be a need to establish more clearly the connection between moving to zero and international security. Disarmament should not be about weakening international security but enhancing it.

In this context, the focus on the urge to delegitimise nuclear deterrence seems inappropriate. As long as nuclear weapons exist, the policies based on deterrence are the safest way to ensure that nuclear weapons will not be used. The focus should therefore not be on achieving shifts in declaratory policies (no first use, sole purpose) but in concrete steps towards creating the conditions for further nuclear disarmament.

Nuclear cooperation and peaceful uses

7. Address the non-proliferation challenges of the nuclear energy renaissance

If the 'nuclear renaissance' does indeed take place, it is necessary to ensure that it will not facilitate further proliferation. The development of robust technologies and the controlled access to the most sensitive elements of the fuel cycle are therefore critical. A message from the NPT Revcon combining unequivocal support to cooperation for peaceful purposes and an affirmation of the need for tougher international controls (safeguards and export controls) would be extremely useful and be a part of the broader bargain in a context in which Iran's repeated statements about 'inalienable rights' have created some confusion.

8. Strengthen the regime by using the tools available (IAEA Additional Protocol)

As for steps towards disarmament, a call should be made for the early entry into force of many of the outstanding additional protocols that remain to be negotiated, signed or ratified. Such a strong push in favour of strengthened safeguards would foster the non-proliferation pillar of the NPT and certainly facilitate the development of nuclear cooperation to meet the growing demands for access to atomic energy and technology for peaceful uses. A target date of 2015 for entry into force of all additional protocols would be a most welcome addition.

9. Addressing the new threats coming from non-state actors

Although the issue of threats posed by non-state actors is primarily dealt with outside the NPT, a call to secure fissile materials and sensitive facilities in order to limit the risks associated with illicit trafficking and terrorism would be a welcome innovation in the NPT context. Some have argued for the need to add a fourth pillar to the NPT focused on 'nuclear security', tasked with dealing with the various risks associated with the safety and security of nuclear materials and technology, bearing in mind potential terrorist misuses. In this context, it will be interesting to assess which elements of the nuclear security summit due to take place in Washington in April 2010 could be incorporated into the NPT conference.

What role for the EU?

A common view is to insist on the division of the EU between NWS and NNWS and therefore its incapacity to play a meaningful role in an NPT context. This overlooks the fact that the EU, as a 'laboratory for consensus',[4] can lay the first stone of this consensus-building process and is expected to provide a lot of the ideas and language for any final document(s).

Based on the nine-point agenda above (and possibly others), the EU can certainly achieve a reasonable degree of common understanding of where it wants to go and play a role in leading the conference towards a successful outcome. The bitter intra-EU debates and the real divisions that will remain should not prevent the EU from playing an active role – after all, EU countries do share 95 percent of the agenda even when it comes to the details.

The EU should in particular focus on the shared agenda on which the Europeans have broad common interests:

- In the field of non-proliferation: promoting strengthened safeguards, addressing the issue of withdrawal.
- In the field of arms control and disarmament: early entry into force of the CTBT, negotiation of a FMCT, nuclear transparency, addressing the specific issue of tactical nuclear weapons stockpiles, irreversibility of disarmament steps, deeper cuts of nuclear stockpiles.
- In the field of peaceful uses: establishment of norms facilitating nuclear cooperation to meet the challenges of the 'nuclear renaissance' without creating proliferation or security risks.

4. On this concept of the EU as a laboratory for consensus see Camille Grand, 'The European Union and the non-proliferation of nuclear weapons', *Chaillot Paper* no. 37 (Paris: WEUISS, January 2000). Available at: http://www.iss.europa.eu/uploads/media/cp037e.pdf. Also, for a more recent analysis, see : Camille Grand, 'L'Europe et le désarmement : entre prolifération, dissuasion et abolition' in Thierry Chopin and Michel Foucher (eds.), *L'état de l'Union 2010 Rapport Schumann sur l'Europe* (Paris : Editions Lignes de Repères, 2010), pp. 161-67.

Success or failure at the 2010 Revcon

Assessing success or failure is always a difficult task ahead of a review conference. Artificial benchmarks such as the adoption of a final report can create false expectations and miss the point.

In this regard it might be interesting to distinguish between outputs and outcomes and to focus on the latter. Diplomats tend to focus on the need to prepare and adopt a final report as in 1975, 1985 or 2000, or a set of final documents (decisions and resolution) as in 1995 and view this as the benchmark for success or failure of a review conference. At this stage, it is interesting to note that four out of seven NPT review conferences have failed to adopt such final reports (1980, 1990, 1995 and 2005) and that the Treaty did not collapse or disappear after these.

The real issue is therefore whether the NPT has been strengthened by the Revcon. Fulfilling this objective implies a reasonable degree of consensus (and possibly the isolation of spoilers) on the core issues and the current state of the regime. It also implies a forward-looking agenda demonstrating the joint willingness of NPT parties to move forward on all three pillars by adopting substantive recommendations and drafting the agenda for the next few years.

Policy relevance has always been the key issue for a successful NPT conference; the NPT community should preserve its ability to frame the non-proliferation debate. If it turns into a stage for repeated inconclusive debates like the United Nations General Assembly (UNGA) First Committee or the CD, it will become increasingly irrelevant. This will in turn foster alternative approaches (e.g. Resolution 1540, *ad hoc* and unilateral policies) to address the proliferation and disarmament challenges of the twenty-first century, not to mention the role of military coercion.

The NPT has always been – in its own way – a collective security mechanism. This is what has made it so unique among arms control and non-proliferation treaties, and this is what needs to be preserved at the 2010 review conference in a context in which this promise of providing security is more challenging – and challenged – than ever before.

Chapter 2

Managing the transfer of nuclear technologies under the NPT

Ian Anthony

Introduction

When the parties to the 1968 Treaty on the Non-proliferation of Nuclear Weapons (NPT) meet in May 2010 to review the current status of the treaty, one issue that will be discussed is the question of how to ensure equitable access to technology without jeopardising the objective of non-proliferation.

A significant number of legal and technical innovations developed to strengthen the non-proliferation regime in recent years are not being applied and used to the degree that is desirable even though they are potentially powerful tools. One hypothesis to explain why that should be is that states are unwilling to bear the cost of applying these tools in support of the NPT because they see less and less advantage to themselves in working actively to strengthen the non-proliferation regime.[1]

Even if a growing number of countries no longer feel current arrangements for nuclear non-proliferation are equitable, it does not follow that they will leave the NPT. Neither does it mean that countries will knowingly violate their obligations in order to support proliferation. However, countries may fall into a pattern of neglect that creates openings for proliferators to exploit.

The evidence that Iraq and North Korea were pursuing clandestine nuclear weapon programmes in clear contravention of their NPT obligations increased the emphasis on further developing and enforcing non-proliferation instruments, including export controls. While strengthening the non-proliferation regime was justified, there is a need to ensure that the balance between facilitating legitimate trade and technology transfer on the one hand and blocking illegal programmes on the

1. Christopher A. Ford, 'Nuclear Technology Rights and Wrongs: The NPT, Article IV, and Nonproliferation', Nonproliferation Policy Education Center Research Paper, 1 June 2009.

other does not tip too far in favour of the latter. A number of countries already complain that the progress made in the non-proliferation field can place unnecessary and unfair barriers in the way of countries with purely peaceful intentions and hamper economic and industrial development.

The Ambassador of Zimbabwe to the United Nations, speaking after the entry into force of the Pelindaba Treaty establishing a nuclear weapons-free zone in Africa, captured this perspective when he observed: 'In view of the critical energy challenges facing developing countries, especially those in Africa, the development of nuclear energy can make an important contribution to their sustainable economic development. It is my delegation's view that Africa should be allowed to benefit from nuclear energy without any constraints or obstacles being put on its way'.[2]

Although there is evidence of renewed interest in nuclear energy in a significant number of countries, recent studies have also underlined that the barriers to access to the nuclear fuel cycle remain high.[3] If the benefits from expanding the peaceful use of nuclear technology are considered to justify initiating new national programmes, it will be necessary to go further than the steps proposed by the Ambassador above. Positive measures could help the great majority of states participating in the NPT Review Conference to meet their primary national goals of peaceful development. In the absence of such a package there may be a continued slide into indifference about the fate of the non-proliferation regime. As Lawrence Scheinman has expressed it, 'the path of denial without adequate incentives is a path not to be taken'.[4]

This is a similar logic to that which underpinned the Atoms for Peace programme launched by the United States and the foundation of the International Atomic Energy Agency in the 1950s. In 2010 encouraging the peaceful use of nuclear technology may carry greater significance because of the intersection of three prominent public policy debates – though it is too soon to say whether this high salience will translate into a greater willingness to find broad agreement based on compromise or, on the contrary, will make states even more eager to pursue their specific interests to the exclusion of issues considered important by others.

First, the possibility that technology ostensibly acquired for use in a civilian nuclear fuel cycle could contribute to a nuclear weapons programme has been underlined by international concern over the manner in which Iran has developed its nuclear programme.

Second, because nuclear power plants emit relatively little carbon dioxide (and emissions from the nuclear fuel cycle are significantly lower than for most other sources of base load energy), a number of countries see

2. Ambassador Boniface Chidyausiki, Statement of Zimbabwe during the General Debate of the First Committee of the United Nations General Assembly, 12 October 2009. Available online at: http://www.reachingcriticalwill.org/political/1com/1com09/statements/12Oct_Zimbabwe.pdf.

3. Trevor Findlay, *The Future of Nuclear Energy to 2030 and its Implications for Safety, Security and Nonproliferation: Overview*, Nuclear Energy Futures Project, Centre for International Governance Innovation, 2010.

4. Lawrence Scheinman, 'Article IV of the NPT: Background, Problems, Some Prospects', Weapons of Mass Destruction Commission (WMDC) Background Paper no. 5, 7 June 2004, p. 6. Available online at: http://www.wmdcommission.org/.

nuclear power as an important element in their strategy to reduce risks arising from climate change.

Third, a growing number of countries are concerned over their future energy security. They worry that they will not have access to sufficient electricity to satisfy their economic development needs at the time they need it and at an affordable price. It is possible to predict the quantity of fuel that a nuclear power plant will need during its lifetime once the decision is taken regarding which reactors the plant will use. This fuel can be bought and, if necessary, stored locally as a hedge against future price fluctuations or the risk of being cut off by a supplier.

Many share the assertion by the UK government that 'nuclear power is an essential part of any global solution to the related and serious challenges of climate change and energy security'.[5] A number of recent analyses anticipate that the efforts to enhance energy security while mitigating risks from increased quantities of greenhouse gases will increase the size and change the distribution of the world nuclear industry.[6]

Mohamed ElBaradei, the former Director General of the IAEA, has predicted that over the next decades perhaps as many as ten new 'virtual nuclear weapons states' are likely to emerge because of developments in the civilian parts of the nuclear fuel cycle.[7] A list of 'virtual nuclear weapons states' by such criteria might include Argentina, Brazil, Canada, Iran, Japan, South Africa, South Korea, Taiwan and Ukraine. The list of countries that are seriously investigating the feasibility of significant nuclear programmes is longer. A recent report by a Bangladeshi scholar suggests that Bangladesh, Indonesia, Poland, Thailand, Turkey and Vietnam have 'strong plans to introduce nuclear power by 2020'. In addition, the same report notes that Algeria, Australia, Bahrain, Cameroon, Chile, Croatia, Egypt, Georgia, Ghana, Greece, Jordan, Kenya, Malaysia, Mexico, Morocco, Namibia and Nigeria have all investigated longer term plans to introduce nuclear energy.[8]

Some of these countries would have the single most important physical aspect of a nuclear weapon programme – gaining access to significant quantities of fissile material – within their grasp. If the nine countries that currently possess nuclear weapons were to reduce and then eliminate their deployed arsenals there would be a group of roughly 20-25 countries that could probably manufacture, deploy and deliver a nuclear weapon in a relatively short space of time. However, assuming that disarmament included the elimination of research, development and production facilities operating under a military umbrella, these national technical capacities would reside in the civilian part of the nuclear fuel cycle.

A so-called 'nuclear renaissance' would lead to an increase in the number of international transactions and this increase would be felt in many

5. *The Road to 2010: Addressing the nuclear question in the twenty-first century* (London: Cabinet Office, July 2009). Available at: http://www.fco.gov.uk/en/global-issues/weapons/nuclear-weapons/road-to-2010-1/.

6. There is some preliminary evidence that the discussion of climate change is having an effect on the nuclear industry. The Copenhagen Accord generated by the United Nations Climate Change Conference (UNCCC) in December 2009 invited developing countries to submit reports detailing how specific projects would reduce their greenhouse gas emissions. In one of the first submissions to be presented, Morocco included a project to build two nuclear power plants. China also included a significant expansion in nuclear energy in its submission.

7. Julian Borger, 'Mohamed ElBaradei warns of new nuclear age', *The Guardian*, 14 May 2009. See: http://www.guardian.co.uk/world/2009/may/14/elbaradei-nuclear-weapons-states-un.

8. Mohammad Shawkat Akbar, Bangladesh Atomic Energy Commission, 'Recent Global Concern And Basic Considerations For New Entrance Of Developing Countries To Nuclear Power Programme', Research Paper prepared for the International Symposium on the Peaceful Applications of Nuclear Technology in the GCC , 2009.

areas, not only the final stages of supply of major nuclear equipment.[9] Export controls are currently the main mechanism used to regulate the sector in order to reduce proliferation risks. Export controls criminalise the movement of specific items (normally those conforming to technical parameters that are published on a control list) across an international border without the necessary authorisation, which is normally provided in the form of an export licence.

A number of political, economic, technological and industrial trends in the marketplace are already undermining nuclear export controls. A change in the international marketplace that expanded the volume of transactions and also multiplied the number of participants could present an insurmountable challenge to the current system. Moreover, simply updating current laws might not be sufficient to maintain effectiveness even if additional resources are found and applied to enforce regulations unless new patterns of cooperation develop.

In the worst-case scenario a simple projection of the current system of nuclear governance onto future market conditions will leave many concerns related to non-proliferation and nuclear security unmet. However, this approach might choke off opportunities for sustainable development for all and reinforce the already widespread international perception that a small group of states regard nuclear technology as their exclusive preserve, to manage and use in accordance with their national priorities and definitions of interest.

The next section will briefly examine the current system of nuclear governance with an emphasis on the issue of nuclear non-proliferation. The issue of governance will be addressed in three dimensions: the political and administrative, legal and technical. Other important aspects of nuclear governance, including environmental protection, safety and security, are not discussed in detail here for reasons of space. This section will also briefly describe the main challenges to the current system.

The third section will use the case of South Africa to illustrate some of the problems that face a country which wants to play a full part in the peaceful use of nuclear technology, including entering the higher value-added and more advanced parts of the nuclear fuel cycle. The section will try to examine to what extent reform of the system of non-proliferation rules and regulations could address current problems for a country like South Africa and to what extent remedies lie in other areas of governance.

Finally, the chapter will suggest that a new basis for international nuclear cooperation has to include positive measures as well as erecting technical barriers to proliferation if engagement to enforce the NPT (rather than benign neglect) is going to be created.

9. There is also preliminary evidence that this process has already begun. 'Firms flock to Chinese supply chain', *World Nuclear News*, 7 January 2010. Available at: http://www.world-nuclear-news.org/C_Firms_flock_to_Chinese_supply_chain_0701101.html.

Nuclear governance

In relation to non-proliferation the system for nuclear governance can be broken down into its political, administrative, legal and technical dimensions. In the past two decades – that is to say, since the end of the Cold War – there have been changes in each domain. Nevertheless, there is no comprehensive or integrated nuclear governance system in place.

The political part of the governance system includes two different types of actor. One type has very broad or global participation, while the other type includes only a limited and self-selecting group of participants. While the limited and self-selecting governance bodies have been able to produce a large number of statements, declarations and other policy documents in recent years, the groups with broad or global participation have been less productive.[10]

Political level

Nowadays it is fairly common for decision-makers, including the most senior, to find nuclear issues on the agenda when they meet to set objectives and discuss the principles and guidelines on which governance structures will rest.

In January 1992 a Summit of leaders from the United Nations Security Council produced a unanimous statement that included a chapter on disarmament, arms control and weapons of mass destruction. In September 2009 a new Security Council summit of leaders produced Resolution 1887 (2009), described by the UN as 'a comprehensive action on nuclear issues'.

It is also customary for heads of state and government to address the UN General Assembly at an early stage of its yearly sessions, but this is not an opportunity for debate or decision-making. Special UN summits have periodically brought world leaders together, the most recent being in 2005.

The NPT Review Conferences do not really provide the opportunity for guidance on broad policy from the highest level either. Participation by the most senior political representatives is brief and usually limited to presenting national positions rather than focused debate.

Regional bodies in the Euro-Atlantic area, including the EU and NATO, have also included nuclear policy as an aspect of their high-level deliberations. However, while discussions in regional bodies developed a strong momentum in a period lasting from 2003-2006, including

10. The failure of the 2005 NPT Review Conference has been widely analysed while the 2005 UN Summit was not able to say anything at all about arms control and disarmament in its final declaration.

the publication of an EU strategy against proliferation, the issue has attracted progressively less attention at the highest political level inside the EU. Arms control will be debated at a politically high level within NATO during 2010 and the current Secretary General has pledged to organise a focused debate on the issue among Allies. However, it is not clear that NATO has the instruments at its disposal to make a major contribution to nuclear governance.

The Group of Eight (G8) industrialised states, where the European Union is also represented and fully participates, has provided a forum where senior leaders can address issues considered to be of acute international importance. Nuclear safety and security as well as nuclear non-proliferation have featured prominently in G8 discussions. It has become the normal practice for G8 meetings to produce high-level policy direction. As the G20 has decided to add the issues of energy security and climate change to its agenda, it is possible that it could develop into a forum for the discussion of nuclear matters – though this is uncertain.

The annual General Conference of the IAEA as well as more frequent meetings of the Board of Governors provide an opportunity for senior representatives of participating states to discuss nuclear policy. The Agency reports regularly to the UN General Assembly, and the presentation and discussion of the annual report by the IAEA Director General offers an opportunity to discussion.

The Global Nuclear Energy Partnership (GNEP) now consists of 25 countries and also includes the IAEA, EURATOM and the Generation IV International Forum as permanent observers. While the GNEP started life as a body with a technical focus on advanced fuel cycle technologies, the GNEP Executive Committee (made up of Ministerial-level officials) is evolving into a forum for wider policy consultation. The Executive Committee now regularly produces statements and guidelines on important aspects of nuclear policy.

Working-level bodies

The same conclusion reached for the political part of the governance system is broadly applicable for working-level forums where officials translate high-level guidance from leaders into practical programmes and decisions.

Neither the NPT Review Conferences nor the preparatory meetings that take place in the five years between them have produced significant changes at working level –though the informal as well as formal interactions between officials may inform national thinking. The same can be said of the First Committee of the United Nations dealing with

disarmament and international security as well as the now annual sessions of the Disarmament Commission, though this does provide states with an opportunity to engage in limited discussion.

In 2005 the IAEA Board of Governors created a special committee to provide a forum for focused debate on the wider policy issues related to nuclear safeguards.[11] However, thus far the special committee on safeguards at the IAEA has not solved key problems: securing access to more information from inspected states; endowing Agency personnel with greater authority to question states about their nuclear programme; and ensuring that the IAEA has the most modern equipment and techniques to carry out its work.

The most active working-level bodies share the characteristic of limited and self-selecting participation. In many cases these groupings have their roots in long-standing cooperation among Western allies during the Cold War, though this has begun to erode somewhat in recent years with the addition of new cooperation partners.

Within the more *ad hoc* groups a relatively dense network of contact has developed among officials tasked with the day-to-day implementation of key elements of non-proliferation policy. The fact that most members of the European Union participate in virtually all of the *ad hoc* arrangements and also meet each other regularly in the framework of the EU has also added an extra dimension to this growing pattern of cooperation.

In the field of export control the Nuclear Suppliers Group (NSG) brings together 46 countries to discuss how they can make their national export controls more effective. Other export control groupings, the Zangger Committee and the Wassenaar Arrangement, also contribute to strengthening national nuclear and nuclear-relevant dual-use export control systems. Within these bodies officials can discuss approaches to national legislation (including agreeing which items should be controlled), export licensing and enforcement issues. However, while the export control regimes made a lot of progress in developing modern and effective laws and regulations in the 1990s, the rate of progress has slowed down – perhaps in line with expanding participation as membership has grown. It has become more difficult for the export control regimes to achieve consensus around new proposals for reform of national controls as the participants have become more numerous and more diverse.

These bodies also facilitate exchanges of information on programmes of concern, the exporters and dealers whose activities should be watched closely, end-users whose activities may be the subject of concern, patterns in trafficking of controlled items or any other relevant issue.

11. A different Committee, SAGSI, exists to offer specialised technical advice.

Under the aegis of G8 senior officials, a Global Partnership Working Group provides a forum in which to coordinate international activities, report on progress in particular projects and plan future activities.

Within GNEP a Steering Group is the principal working-level body, but the practice of using working groups to address specific topics, including reliable nuclear fuel services and approaches to managing used fuel is now well established. The Steering Group has taken up questions such as multilateral nuclear approaches in its recent meetings.

Another recent working level activity, the proliferation security initiative (PSI), provides officials from the defence and law enforcement sectors with an opportunity to create a network of contacts and to plan and execute field exercises to test and further develop their practical cooperation.

Apart from new arrangements, the effort to prevent the spread of nuclear weapons has led some older initiatives to incorporate non-proliferation into their work. For example, the Financial Action Task Force (FATF) now considers how legislative changes and regulatory reforms in the financial system can strengthen export controls and hinder illicit trafficking.

Legal dimension

The legal framework for nuclear governance has developed in three areas since the late 1980s. After the accident at Chernobyl, Ukraine, issues of safety, environmental protection and liability for a failure to address safety issues adequately were a strong focus of attention. The need to address issues of non-proliferation in the light of developments in, for example, Iraq and North Korea, led to increased attention to strengthening nuclear safeguards and the development of a model Additional Protocol to bilateral agreements between states and the IAEA. Later, issues of nuclear security became a strong focus of attention after the attacks in the United States in September 2001 underlined the potential threats from non-state actors intent on carrying out acts of mass impact terrorism.

The attempt to strengthen safeguards, which are considered a core element of the verification system for the NPT, have also extended to discussions intended to develop new legal authority for IAEA inspections. The Agency has argued that to be effective in modern conditions safeguards need to be backed by enhanced legal powers as well as with information, advanced technology, and resources. The previous IAEA Director-General argued that the link between the work of the IAEA and the decisions of the UN Security Council should be more direct and continuous in identified cases of non-compliance with safeguards agreements.

A number of legal innovations have been introduced in recent years. Perhaps most notable is the more widespread use of UN Security Council Resolutions introduced under Chapter VII of the UN Charter. In the early 1990s the resolutions focused on Iraq broke new ground in cooperation between UN Member States to achieve nuclear non-proliferation objectives. Subsequent resolutions aimed at tackling identified nuclear non-proliferation challenges in Iran and North Korea have been narrower in scope than the Iraq resolutions.

In April 2004 UN Security Council Resolution 1540 was another innovation in that it introduced a binding obligation on all UN Member States to put in place a range of national laws and regulations to govern export and border control and to strengthen the security of sensitive materials. This UN Security Council legislation instructed states to modify their national criminal laws to introduce a range of offences related to support to illegal weapon programmes.

The multilateral legal dimensions of nuclear governance have also been strengthened in recent years in regard to nuclear materials, including the establishing of common rules related to what can legally be done with such materials, how they should be stored and transported. Since 2005 there have been amendments to the Convention on the Physical Protection of Nuclear Material and a new International Convention for the Suppression of Acts of Nuclear Terrorism has been negotiated and signed. Meanwhile other legislation has been amended in ways that impact on the nuclear sector. A new protocol has been added to the Convention for the Suppression of Unlawful Acts against the Safety of Maritime Navigation.

As a result of these changes many states are adapting their national legislation. Not only have nuclear terrorism and nuclear proliferation been criminalised, but new offences also cover a range of preparatory or supporting actions such as organising or directing others to smuggle nuclear material or carrying out any act that is intended to further a criminal activity detrimental to nuclear security.

In October 2009 the UN Committee established pursuant to Resolution 1540 organised a meeting to carry out a comprehensive review of implementation. Apart from UN Member States, the Committee also invited international and regional organisations to share experiences and express their views and held an open day in which non-governmental actors that are active in helping implement the resolution could present their projects and ideas. However, representatives of informal bodies, such as the relevant export control regimes, were not invited to participate.[12] The participants reviewed background reports describing the status of implementation prepared by the experts supporting the work of the 1540 committee.[13]

12. The decision not to invite the export control regimes was criticised by some states. Statement by Gary Quinlan, Ambassador and Permanent Representative of Australia to the United Nations Security Council Committee regarding the comprehensive review of the status of implementation of Resolution 1540 on Thursday 1 October 2009.

13. The experts produced several reports for the participants, all but one of which is publicly available. The public reports include a regional analysis of implementation, with some examples of national and regional practices and experience sharing, as well as an assessment of the reporting template used to gather information on implementation, in light of information gathered up to 2008.

Many of the interventions at the meeting indicated that states want to pursue practical, concrete measures to enhance the implementation of Resolution 1540. However, others underlined implementation problems, including the lack of clear guidance and definitions to help states understand what was required of them to meet the standard of appropriate and effective national laws established in the resolution.[14] The analysis of the meeting by the main organiser of the NGO open day concluded that more actions at a national level to enhance implementation and a process to develop criteria and standards for compliance were both needed.[15]

In the field of export control many states modernised and expanded the scope of legislation after 1990. This process has been informed by the information exchanged in the network of working-level officials noted above. The modernised legislation has included a focus on updating the lists that define which items cannot be exported legally without prior authorisation to include many dual-use products that were not specially designed, developed or adapted for military use. The updating of lists has been supplemented by introducing so-called end-use controls that require prior authorisation for export of any item, listed or not, if it is known or suspected to be destined for use in a programme of concern. Export controls have also been expanded to include not only the cross-border movement of physical items, but also a range of ancillary services associated with such items as well as the so-called intangible transfer of technology via email or the internet.

Overall, the discussion of legal framework for governance suggests a need for further progress in two areas in particular. One requirement is to change the patterns of cooperation between states. At present too few countries are engaged in the systematic and structured cooperation at the working level that has made the implementation of regulations more effective. A second requirement is greater engagement with the private sector. Traditional arms control was essentially a state-centric activity because the items that were being regulated were in the possession of the armed forces and under direct state control. However, many items that are in the ownership and control of industry are increasingly being brought within the scope of modern regulations. Therefore effective implementation of regulations requires greater cooperation between authorities and the nuclear and nuclear-related dual-use industry.

In 2009 the United Arab Emirates (UAE) permanently renounced national control over certain sensitive parts of the nuclear fuel cycle while negotiating with international suppliers bidding to supply nuclear reactors to the UAE. However, the case of the UAE also underlined the risks inherent in expanding participation in the nuclear industry without a comprehensive commitment to implementing modern and effective regulations. Building nuclear power plants in the UAE would also create

14. Summarised at: http://www.un.org/News/Press/docs/2009/sc9754.doc.htm.

15. M. H. Kraig, *United Nations Security Council Resolution 1540 At The Crossroads: The Challenges of Implementation*, The Stanley Foundation, 1 October 2009.

an international supply chain as well as a range of specialised service companies, including brokers, trading and transport companies, and providers of specialist financial services. The creation of these capacities in the Gulf region could further complicate the task of regulators in supplier countries seeking to ensure that controlled items are only provided to authorised end-users and for legitimate end-uses.[16] Clearly, extending the regulatory system to new actors is both necessary and complicated.

Technical dimension

Technical barriers have been strengthened to increase the effectiveness of safeguards and export controls. There have also been efforts to introduce features of proliferation resistance in different parts of the nuclear fuel cycle. A few examples of the application of technology in non-proliferation are noted below for purposes of illustration – this is not a comprehensive listing by any means.

In the field of safeguards technology the Joint Research Centre of the EU has developed a technique for 3-dimensional laser surface mapping that can provide accurate and precise models of nuclear installations, both indoors and outdoors. This technology can provide a 3D map of a facility (or part of a facility) that gives inspectors a clear indication of any changes that have occurred since a previous inspection. The result of comparing maps can be combined with the logs maintained by the facility operator to add to the understanding of what has been happening at the mapped location.[17]

In the field of export control information technology has been used more widely, for example, to develop databases that map the trade patterns and specific transactions that sensitive end-users are engaged in. The use of IT means information can be shared quickly both among different national authorities and with partners in other countries. Increased use of IT has also produced a range of risk assessment and product identification tools that are a great help to export control officers.

The IAEA has been developing a range of advisory services that can provide guidelines for modern and effective national procedures in law enforcement and monitoring of border crossings. Where the users of these services are interested in implementing the recommendations of IAEA assessment teams the Agency has entered into partnership with states, including the United States and the EU, to help deliver the necessary improvements. These efforts to strengthen nuclear security can include, for example, providing the tools mentioned above to law enforcement officials and training them in their use, or strengthening border control by upgrading border posts with new sensors and detection technologies.

16. Doug Palmer, 'US–UAE nuclear pact edges toward implementation', *Reuters*, 29 September 2009.

17. Robert S. Bean, Richard R. M. Metcalf and Phillip C. Durst, 'Design Information Verification for Nuclear Safeguards', paper presented at the Institute for Nuclear Materials Management Annual Meeting, Tucson, Arizona, 12-16 July 2009.

Technical measures to strengthen proliferation in the nuclear fuel supply include exploring new reactor designs with features that limit the requirement for, availability of or access to enriched uranium or plutonium. These measures also include redesigning nuclear fuel cycles to increase the degree of international ownership and control.

In recent years a number of proposals for so-called multinational nuclear arrangements (MNAs) have focused mainly on the front end of the fuel cycle and have been put forward as a safe and secure mechanism by which to include additional partners in the nuclear fuel cycle.[18] However, some countries have characterised these proposals as an additional restriction on participation in the civilian fuel cycle, rather than seeing them as an enabling mechanism. Furthermore, the proposals focus on an issue (access to enriched uranium for fuel fabrication) that many countries already address using the normal commercial market for nuclear fuel. The incentive to support Multilateral Nuclear Approach (MNA) initiatives at the front end of the fuel cycle is therefore low. At the same time there are few MNA initiatives that address what many see as a key problem at the back end of the fuel cycle – the management of nuclear waste.

The World Nuclear Association (WNA) has pointed to the risk that in the future an expansion in the use of nuclear power might create pressure on existing capacity for recycling used fuel. Under these circumstances there may be a renewed interest in the construction of reprocessing facilities or an expansion of capacity at existing plants. The widespread construction of national facilities for reprocessing used fuel could represent a challenge to the non-proliferation regime.[19] To reduce proliferation risk and increase efficiency the WNA recommend that a plan for international reprocessing/recycling centres 'deserve further, more detailed review. Effectively implemented, probably on a regional basis, such a concept could enhance guaranteed access to recycling services for countries wishing to close their fuel cycle.'[20]

There is evidence that the countries that are working to enhance civil nuclear energy cooperation are increasingly sensitive to the potential risk that activities developed for peaceful purposes might contribute to nuclear weapon programmes. However, the challenge of designing and using the technical tools that can reduce this risk will grow alongside the expanding number of manufacturers that can supply key technologies.

Not only are there more suppliers in more countries entering the nuclear industry, there are also likely to be larger quantities of sensitive material in more locations in future because of the difficulty states have had in finding permanent solutions to the problem of how to manage nuclear waste.

18. For a survey of proposals see *CRS Report for Congress* RL34234, 'Managing the Nuclear Fuel Cycle: Policy Implications of Expanding Global Access to Nuclear Power', 7 March 2008.

19. Such plans in South Korea have already given rise to a policy debate in the United States, Daniel Horner, 'S. Korean Pyroprocessing Awaits U.S. Decision', *Arms Control Today*, July/August 2009. Available at: http://www.armscontrol.org/act/2009_07-08/SouthKorea.

20. World Nuclear Association, *Ensuring Security of Supply in the International Nuclear Fuel Cycle*, 12 May 2006, p. 4.

The challenge is further increased by the use of new design and production techniques in industry, responding to the need to adapt to modern market conditions. The need to move production closer to the customer, reduce costs and take advantage of the best intellectual capital, wherever it is based, has led industry to adopt a more decentralised and international approach to operations. The pattern of finished manufactured goods crossing the border of an exporting country en route to a customer no longer mirrors the reality of industrial operations.

The information gathered from analysis of the covert proliferation networks undertaken in recent years also underlines that the behaviour of proliferators is continuously changing and adapting to new conditions. As access to items needed for a clandestine programme have been blocked, proliferators have resorted to more complicated operations involving an increased number of middlemen, disguised routing of goods, and concealed methods of financing. The range of items sought has also changed as countries of concern have gradually gained control over a wider range of development and manufacturing tasks.

Overall, there are a large number of serious challenges to the effectiveness of the current system of governance, and these challenges can be expected to grow.

Case study of South Africa: seeing how a country fits into the governance framework

Beginning in the 1990s, South Africa elaborated an energy policy that included a role for nuclear power plants.[21] Growing concerns about energy security in the light of pressing development needs (in particular the need to extend the electricity grid to new areas of the country) have increased demand for a more balanced approach to supplying base load power.

Electricity generation in South Africa currently depends heavily on burning coal and the country has one of the highest *per capita* levels of greenhouse gas emissions in the world. However, recognising the obligations of South Africa in regard to emissions, decision-makers have come to favour a policy of diversification of electricity base load supply in which nuclear power plants would play a prominent role. In June 2008 the government of South Africa laid out its current thinking in detail.[22]

In its nuclear energy policy South Africa describes short, medium and long-term perspectives. Starting with a project to build one nuclear

21. Department of Minerals and Energy, *White Paper on Energy Policy of the Republic of South Africa*, 1998.

22. Department of Minerals and Energy, *Nuclear Energy Policy for the Republic of South Africa*, June 2008.

power plant, the medium-term plan included a fleet of up to 10 power plants by the year 2025 capable of delivering roughly 20,000 megawatts. The long-term plan would involve the development of a South African nuclear industry able to compete and succeed on a commercial basis on the world market, including fielding new nuclear reactors that are tailored to meet the needs of developing countries.

As a first step ESKOM, the public company that supplies 95 percent of electricity in South Africa, published an 'Invitation to Negotiate' in November 2007, inviting foreign companies to put forward proposals that could be the basis for partnership in meeting the nuclear energy policy objectives. Several of the main players in the international nuclear industry put forward proposals. Inevitably, given the time frame, the proposals were based on current reactor designs. The future programme proposals were largely based on teaming with South African engineering companies to provide in-country manufacturing capabilities for foreign reactors. As part of the bids, foreign suppliers offered access to services that they were able to provide along the fuel cycle.

South African authorities evaluated the external offers through much of 2008 but were ultimately not able to reach agreement with any of the bidders. The decision by South Africa not to proceed with the first phase of the nuclear energy strategy reflected a number of factors.

One of the serious constraints was certainly financing the programmes offered by the main nuclear suppliers (either private companies or public companies that are expected to behave as private companies in their overseas transactions). The packages offered were put forward on a commercial basis and the cost to South Africa was considered unsupportable based on the assessment of a number of factors, including the comparative cost of nuclear *vis-à-vis* coal-fired power stations.

How the various bids could support South Africa's wider nuclear policy objectives was also assessed. South Africa also considered the issue of how to finance the development of a cadre of national experts, technicians and regulators that would be needed to support an expanded nuclear industry. The question of how to manage and dispose of the waste produced in the expanded nuclear sector was also an important factor.

The overall net assessment was that the packages on offer from foreign suppliers, combined with South Africa's capacity to contribute to the overall development of the nuclear energy strategy, prohibited a commitment to move forward at this time.

The long-term part of the South African nuclear energy programme includes the development of a high-temperature gas-cooled reactor

known as the Pebble Bed Modular Reactor (PBMR). This reactor is based on a German technology, to which the South African company PBMR Ltd has bought the rights. The reactor has some features that might make it an important element of energy policy that is sensitive to the demands of both the energy security and climate change aspects of public policy.

The attractive features of the PBMR include its relatively small size and the possibility of using the reactor in various distribution network configurations (which may make it an attractive product for less developed countries). The reactor can be built in the vicinity of small cities or in distant locations where a large power plant of the kind offered by suppliers in France or Russia would be too expensive or inappropriate.

The PBMR reactor also has certain features that introduce what can be described as elements of proliferation resistance. The reactor has a very high burn-up rate for the fissile material contained in the fuel. As a result, there is less purpose in reprocessing the fuel, since a much higher proportion of the fissile material in the fuel has been exhausted. Furthermore, the design of the fuel for the PBMR also raises the cost of reprocessing. The fuel is in the physical form of small pellets, each individually coated in a graphite material and then bundled into spheres each slightly larger than a tennis ball. To carry out reprocessing it would first be necessary to strip the graphite cladding from each individual pellet, a process that would be very time-consuming and costly after the pellets have passed through the reactor.

The fact that the fuel is virtually non-reprocessible is positive from a proliferation resistance perspective, but it leads to a high volume of waste consisting not only of the fuel but also the casing/moderator that has to be disposed of.

The fuel for the PBMR has some other distinctive aspects, including the fact that it contains uranium enriched to 11 percent of U235 – a higher level of enrichment than is the case for many current reactor fuels. One element of the South African plan for nuclear energy is the development of a commercial fuel fabrication capability to support future sales of the PBMR, perhaps including the provision of domestic uranium enrichment services to customers.[23]

This aspect of South African nuclear policy runs contrary to the tendency in the Nuclear Suppliers Group (NSG) to limit the spread of enrichment technology to countries that do not already possess a commercial enrichment industry. South Africa, which is a member of the NSG, has not supported this additional restriction, and has found it difficult to obtain an exception from this draft guideline for itself. South Africa therefore faces a choice of either foregoing the development of a domestic

23. South Africa has supplied high-quality feedstock to existing commercial reprocessing companies, such as URENCO, in the past.

enrichment capability permanently or blocking the adoption of a new NSG guideline that many of its partners have been calling for since 2004.

Frustration over the attempt to restrict access to sensitive technologies might be compounded if states that remain outside the NPT were able to gain access to technology that was denied to states in full compliance with the Treaty. This could have serious consequences in terms of willingness to work for the enforcement of the NPT.

Countries like South Africa are likely to monitor the implementation of the exception to NSG guidelines that was granted to India (a country outside the international non-proliferation framework) in September 2008. South Africa, which supported the exception granted to India in the NSG, cannot object to India being reintegrated into international nuclear commerce. However, it is open to question how South Africa would react if India was able to reach agreements with international suppliers for types of technology transfer that were not available to NSG participating states that were members of the NPT.[24]

South Africa has taken many steps to dispel international concerns about the potential future uses of its nuclear programme and has also moved to put in place a range of modern and effective non-proliferation assurances.

Since becoming the first country to abandon a fully developed indigenous nuclear weapons programme South Africa has made great efforts to demonstrate its willingness to comply with the highest international arms control and non-proliferation obligations and standards. The nuclear weapons programme was dismantled in full cooperation with international partners, including the International Atomic Energy Agency. Subsequently South Africa has implemented integrated safeguards tailored to its specific circumstances that incorporate elements based on the model Additional Protocol.

South Africa modernised its national laws to ensure that the exports of controlled items were subject to licensing prior to export. The national export control legislation incorporated the highest international standards available at the time it was enacted. Suppliers and intermediaries from South Africa played an important role in the international illicit trafficking network based on uranium enrichment technology and originating from the Pakistani metallurgist A. Q. Khan. However, there is no indication or suggestion that this activity by South African citizens was carried out with the knowledge of the national authorities. When involvement by South Africans came to light, the law enforcement system responded aggressively. South Africa is one of the few countries to have prosecuted individuals in the Khan network.

24. In 2009 it was reported that India was discussing the possible acquisition of reprocessing technology from international suppliers. Randy Woods, 'Progress in reprocessing talks seen as key to US-India trade agreement', *Nuclear Fuel*, 16 November 2009, p. 1.

South Africa is a participant in all of the multilateral nuclear arms control and disarmament agreements to which it could belong. South Africa also participates in the Nuclear Suppliers Group and therefore incorporates amended NSG control lists in its national export control law and applies the NSG guidelines in export licensing decisions.

A Trade and Development Cooperation Agreement (TDCA) signed in 2009 that defines the legal relationship between the EU and South Africa incorporates the so-called WMD clause. This was the first signed EU mixed agreement to include the provisions on export controls and accession to additional non-proliferation and disarmament instruments as essential elements, meaning that South Africa would risk the cancellation of relations with the EU, including preferential trade arrangements, should it ever violate its obligations under international arms control and disarmament treaties. The first request to include the WMD clause as an essential element in the agreement reportedly came from South Africa rather than the EU.[25]

In summary, South Africa has worked hard to gain the trust of the international community that the nuclear programme is (and will be) dedicated solely to peaceful purposes.[26] South Africa has also elaborated a nuclear energy strategy that is sensitive to both economic development and climate change policy needs. However, seen from a South African perspective it has been difficult to attract international partners to help implement the national nuclear energy strategy because of a perceived lack of support across a spectrum of commercial, technical and political spheres.

The difficulties facing the short and medium-term elements of the nuclear energy strategy were noted above. The long-term aspirations of South Africa also face serious challenges.

China is the only other country that is attempting to commercialise the high temperature gas-cooled technology on which the PBMR rests. China initially focused its research on the development of the thorium fuel cycle, but since the 1980s the research reactor programme has concentrated on constructing and testing a gas-cooled reactor. The test reactor, which was built in 1995, went critical in 2000 and reached full power in 2003. In 2004 construction of a demonstration power plant began. A number of industrial partners are collaborating in this project, including the Hua Nung Group and the China nuclear power plant construction group. Together the partners have formed a consortium to complete the plant.

China's research programme has been open to cooperation with other countries, including South Africa, and there are many common points of interest in regard to PBMR technology. The two countries have

25. Lina Grip, *The EU non-proliferation clause: a preliminary assessment*, SIPRI Background Paper, November 2009.

26. A good overview of South African efforts is contained in the national report to the United Nations pursuant to UN Security Council Resolution 1540. South Africa submitted a report in February 2005 and a detailed supplementary report in January 2006. The reports are available online at http://www.un.org/sc/1540/nationalreports.shtml.

signed a Memorandum of Understanding that paves the way for future collaboration and mutual support. The partners can support one another both in the development of the respective domestic programmes and internationally. The MoU is in essence a framework agreement that does not specify any particular kind of cooperation but establishes a channel for bilateral communication and information exchange, including data exchanges and reciprocal visits by scientists and engineers. The agreement could open the door for cooperation in a variety of practical areas such as plant design, engineering support and joint procurement. For example, a common supplier base might reduce project costs.

While the framework agreement could open the door for cooperation in the future, at present both China and South Africa prioritise their respective internal activities. Moreover, if the two sides develop divergent strategies for the use of PBMR technology this could reduce the possibilities for practical cooperation. This divergence is a risk because the difficulties faced by South Africa in finding financing for the next phase of PBMR reactor development have led to the development of a new commercial strategy based on selling a range of industrial services based on utilising the heat generated by the reactor, rather than generating electricity. These industrial services include using the heat in the extraction industries, including for the recovery of oil shale. If this strategy succeeds commercially it will reduce the value of the PBMR as an instrument to achieve climate change goals since the recovery of oil from shale is not only extremely energy-intensive, but the oil that is recovered emits greenhouse gases when burned.

The PBMR is included in the Generation IV International Forum, an international collaboration on advanced reactor designs, and is widely considered to be the project at the most advanced stage. The bilateral cooperation between China and South Africa grew out of an international activity carried out under IAEA auspices, namely a technology working group for gas-cooled reactors that united scientists from China, Japan, the Netherlands, South Africa, South Korea and the United States in one project.

Recently South Africa has signed a bilateral agreement with the United States Department of Energy to support work to produce new and innovative reactor designs. This agreement may provide South Africa with some of the financing needed to move to the next phase of the PBMR programme, the building of a test reactor. South Africa has also recently signed a bilateral agreement with the Mitsubishi Corporation that may also offer new avenues to address the commercial challenges facing the project.

South Africa has not made progress in two areas that might well compromise the future of the project. First, and probably most important,

the financing for the development of a demonstration reactor is not secure. In February 2010 the South African government made it clear that it would no longer pay for the PBMR project exclusively with public financing.[27] The decision underlines a problem facing countries with limited resources, namely how to determine which research and development projects to support with long-term financing and how to know when to terminate such funding in the light of other pressing priorities. Almost by definition projects involve risk because they are trying to develop innovative but new and untried products. Closing the funding gap using private financing has proved to be difficult because private sources of finance are unwilling to lend money to what they see as an uncertain project that would only offer returns on investment in the far future. The decision of the South African government might prove fatal to the PBMR project.

The second area where no resolution has yet been found is an international approach to governance that would permit a domestic commercial enrichment service industry if South Africa decided that it needed one.

Implications for the global nuclear governance framework

The nuclear non-proliferation objective is being challenged by the pressing need to achieve progress in energy security and reductions in carbon emissions. Putting states in a position where they feel pressed to compromise on their most important national objectives creates a risk that support for non-proliferation measures will erode. Efforts to create a new momentum behind nuclear arms reductions in 2009 are a positive signal that there will be a concerted attempt to address non-proliferation and disarmament in a balanced manner. Finding the balance between non-proliferation and the promotion of peaceful uses of nuclear technology is equally important.

A group of countries – of which South Africa is a good example – worry that the current structure of the global energy and nuclear sector, including governance, financing and technology development, effectively block entry into the high-value parts of the nuclear fuel cycle. In essence these countries could be locked forever into being customers for the products of established nuclear powers. The frustration this creates is corrosive to the NPT but cannot be addressed within the confines of the treaty.

27. Terence Creamer, 'PBMR Company could shed 75% of its staff after budget is slashed', *Engineering News Online*, 18 February 2010. Available at: http://www.engineeringnews.co.za.

The main conclusion of this chapter is that states need to look beyond the international legal framework for nuclear arms control and introduce a positive stimulus for increased international cooperation in order to strengthen nuclear governance. Given predictions that the nuclear industry will expand, it is better for this to happen with full transparency and within a common and cooperative framework.

A positive approach is unlikely to be found through a search for an agreed interpretation of Article IV of the NPT in isolation. States seem to have locked themselves into mutually incompatible positions on this point, without taking into account a wider set of issues related to economic development, energy security and climate change.

This broader discussion is unlikely to lead to quick solutions and states should enter into it with an open mind. It is not certain that a future governance structure will be based on the same principles as the current system, which relies on increasing the efficiency of markets to address energy security and climate change. A number of analysts have pointed out that the national policies of some of the most important actors (such as China and Russia) challenge the market-based approach currently favoured by Euro-Atlantic powers.[28]

The revised and evolving GNEP may emerge as a convenient and open forum in which to discuss a new international nuclear energy framework. It is unlikely that the NPT framework can provide such a forum at present, but the forthcoming Review Conference is an opportunity for states to re-evaluate their positions and take stock of the need for a new approach.

Failing to find the right approach to peaceful use of nuclear technology could reduce the commitment by states to support the more widespread use of the most advanced and modern instruments available to combat proliferation. States may be unwilling to continue with the development of additional non-proliferation measures that all agree are desirable and probably necessary given expectations of a future internationalisation of the nuclear industry. Therefore the stakes are high and the NPT Review Conference affords an early opportunity to begin the discussion of how to find an equitable balance between the obligations and entitlements found in the treaty.

At a minimum, the Review Conference should be an opportunity for states to move away from the recent tendency of different groups of states to use real or imagined weaknesses of the present system to criticise each other while distracting attention from questionable actions of their own. Maintaining the appropriate balance between the three 'pillars' of disarmament, non-proliferation and helping states to make use of nuclear technology for peaceful purposes has often provided the playing field

28. David G. Victor and Linda Yueh, 'The New Energy Order: Managing Insecurities in the Twenty-first Century', *Foreign Affairs*, vol. 89, no. 1, January/February 2010.

for these disputes. Differences of perspective over the most important priorities have offered states that do not want the non-proliferation system to succeed an opportunity for mischief making.

The failure of the 2005 NPT Review Conference underlined the fact that advancing competing interpretations of the true meaning of the NPT and then defending them as matters of principle does not produce results in present-day conditions. This pattern should be replaced in 2010 with an effort to launch a political process based on a balanced evaluation of the NPT without the expectation that the Conference will agree on a detailed plan with many separate technical elements. The 2010 Conference can help create a political climate in which such detailed proposals might succeed in future, though not necessarily under the direct umbrella of the NPT.

This line of argument has some direct implications for the European Union, which has approached past Review Conferences with a common position based on a long list of detailed proposals in different areas.

In the past the failure to achieve progress on this long list of detailed proposals has been seen as a setback for the EU non-proliferation strategy as well as the wider concept of effective multilateralism on which much of EU external action is based. However, for the reasons explained above, the EU must make a hard-headed evaluation of whether the 2010 Conference, where consensus is brittle and where there has been little detailed preparation of the issues, is likely to accept EU proposals.

Instead, the EU should consider whether its Common Position of 2005, with its 43 detailed recommendations, should be replaced with a much shorter and more political document emphasising the need to advance all of the objectives of the treaty through an open-minded and constructive dialogue. This document could not be produced in talks at the working level among officials, but would require a significant high-level political engagement at the Review Conference.

The rapid adoption of a high-level and more political document would also benefit from a dedicated effort to promote it in the run-up to the Review Conference among as many delegations as possible. Ideally, high-level political figures would also devote significant time at the Conference to promoting this idea with their colleagues from around the world. In this way the EU might help prepare the ground for broader compromises in future and both highlight and isolate those states that do not wish the Conference to succeed.

It is not suggested that the problems identified represent an immediate crisis for the NPT or more generally for governance in the nuclear sector. However, they do have a corrosive effect. Repeated failure to

agree on general issues reduces the willingness of states to cooperate on specific measures, such as the adoption of new guidelines and the implementation of practical actions that would, taken by themselves, be justified and useful.

Chapter 3

The grand bargain in the NPT: challenges for the EU beyond 2010

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Introduction

The grand bargain in the NPT is based on the permanent balancing of the three main pillars of the treaty: non-proliferation, disarmament and the civil use of nuclear technology. However this finely crafted balance is currently in jeopardy. This is due to two principal factors. On the one hand, the chronic crisis affecting the NPT reflects the unsatisfactory record of the NPT regime in terms of the concrete benefits it has yielded over the years. On the other hand, recent forecast studies envisage major shifts in the global power structure in the next 20 to 30 years. They will affect the general security context as well as the security postures of individual actors, but also the spread of technology and the economic considerations related to nuclear technology. This is likely to pose additional challenges to the regime.

The European Union has committed itself to an active role in the grand bargain of the NPT through its Strategy Against Proliferation of Weapons of Mass Destruction.[1] However, while the strategy sets the basis and ambitious aims for an EU engagement, the Union's current role in the NPT and its influence on the grand bargain is rather limited. Moreover, the Union now has new ambitions with regard to its security role. The Lisbon Treaty foresees 'the progressive framing of a common Union defence policy' and envisages the option of 'a common defence'.[2] The EU is also forced to recognise the fact that isolation is no longer a viable

1. Council of the Europan Union, 'EU strategy against proliferation of Weapons of Mass Destruction', Brussels, 10 December 2003.
2. Articles 24 and 42 of the Lisbon Treaty.

stance given emerging changes in power configurations on the global chessboard. Instead this new multipolar world means that the EU will have to take on a more active role to ensure that the security and economic interests of its members are represented effectively in the institutions of global nuclear governance. In the light of these challenges and gloomy perspectives, and given its so-far limited impact on the NPT, how should the EU react and formulate its ambitions for the future?

The EU can still meet foreseeable mid-term challenges and prepare for long-term ones. However, it has to start to define and implement a more active and preventive policy approach. To prevent some of the worst-case long-term developments and to prepare for a shifting nuclear order ahead, its political engagement in the next decade with regard to a rebalancing of the NPT objectives will be decisive. The 2010-2020 timeframe is often mentioned as the period remaining in which the EU can still influence longer-term changes in the world nuclear order.

There is also the danger of 'nuclear policy fatigue' over the next decade. It seems likely that the decade ahead will be relatively uneventful for the EU on the nuclear front. The most visible challenges will be identical to those prevailing during the last decade. Hence, raising political awareness through 'more of the same' will be difficult. Meanwhile, however, the unsolved challenges will continue to undermine the NPT. These ongoing problems constantly corrode the foundations of the grand bargain, and therefore it seems likely that they will accumulate and reach a critical level from 2020 on.

However, due to a lack of political awareness and preparedness the EU will be unable to react to then prevailing challenges let alone prevent serious developments unless it takes decisive action now.

How should the EU react to this changing nuclear landscape? How could the Union best devise a more effective policy response? In order to determine the political priorities the EU should set and implement during the next decade this chapter will seek to answer three questions:

- What are the challenges for the great bargain of the NPT looking ahead to 2020?
- To what extent is the EU already able to address these challenges?
- How can the EU prepare for the next decade's challenges to the grand bargain?[3]

3. This assessment and the recommendations are based mainly on relevant forecast studies.They therefore reflect the elements of uncertainty that are built into such evaluations.

The NPT's grand bargain and future challenges

Challenges to the NPT regime have always existed but they have acquired a new urgency and been aggravated by today's changing nuclear environment. Longstanding inertia and a failure to tackle the problems that have beset the NPT further exacerbate matters. However, the volatility of the emerging security landscape and nuclear environment indicate that the NPT grand bargain is in for a much tougher future. This is likely to accelerate the erosion of the NPT as it becomes increasingly difficult to balance the three main objectives of the NPT.

The grand bargain: objectives and drivers

The NPT seeks to prevent the acquisition of nuclear weapons by states other than the five nuclear weapon states (NWS) recognised by the Treaty **(non-proliferation)**. The possession and acquisition of nuclear weapons is forbidden for all other states, considered to be non-nuclear weapon states (NNWS). This constitutes the fundamental distinction between NWS and NNWS. The treaty requires the NWS to disarm their nuclear arsenals **(disarmament)**. However, the language in which this requirement is enshrined in the treaty suggests that is it is more an aspiration than a commitment. Thirdly, the NPT aims to eventually ensure the transfer of nuclear technology in the context of the **peaceful use of nuclear energy**. It acknowledges that NNWS have the 'inalienable right' to research, develop and use nuclear energy for non-weapons purposes and to offer negative security guarantees. Moreover the NPT not only allows but encourages the exchange of nuclear material and equipment for civilian use.

The full achievement of the NPT objectives is difficult due to their conflicting character. If one of the pillars is strengthened, it can have a detrimental impact on the other two. Civilian use compromises disarmament and non-proliferation objectives. Hence, the 'nuclear triangle' of the NPT needs constant balancing. This balancing is achieved by compromises and tradeoffs between all members of the NPT and the aim to reach a state of affairs in which it is impossible to make one objective or group of actors better off without necessarily making another objective or group of actors worse off.[4]

The success of the grand bargain is influenced by the congruence of NPT members' individual interests related to nuclear issues and the extent to which the NPT represents collective objectives. Improvements relating to one collective objective are likely to be compensated by improvements relating to the other objectives or by serving individual interests. The

4. See Sujeet Samaddar, 'Thinking Proliferation Theoretically', *Nonproliferation Review*, vol. 12, no. 3, 2005, pp. 435-71; Todd Sandler, 'The Economic Theory of Alliances – A Survey', *Journal of Conflict Resolution*, vol. 17, no. 3, 1993, pp. 446-83; Oliver Thränert, 'Rettet die Nukleare Ordnung…und schafft die Atomwaffen ab!', *Internationale Politik*, no. 3-4, March 2010, pp. 10-17.

interests of individual actors are driven especially by security, economy and technology-related considerations.[5]

Security interests are based on the varying perception of a state's own nuclear weapons or those possessed by another state either as a threat or a warrant of security, leading to different, sometimes opposing, responses, policies and military strategies.[6] The range of options for action and interaction include the threat and use of nuclear weapons, arms control, non-proliferation, counter-proliferation and disarmament but also security guarantees, sanctions etc.

A nation's economic interest is mainly linked to the peaceful use of nuclear technology and involves the nuclear power industry.[7] Economically, nuclear energy, services and technology are subject to trade and domestic or foreign production.

From a technological point of view, a state's interest in nuclear energy is driven by the fact that on the way towards mastering nuclear fission it usually acquires a variety of other sophisticated technologies, e.g. in precision and machine engineering. Hence the country in question can use the acquired technological expertise to improve and modernise its industrial base.

Nuclear challenges and their effects on the grand bargain

The key future challenges are twofold.[8] One strand results from the already existing imbalance among the collective NPT objectives, creating an ever-growing gap between individual States Parties' interests. Besides a generally more worrying outlook due to a more unstable security environment, the other strand results from three specific developments that would pose extra nuclear headaches: (i) the rise of further nuclear-armed states, (ii) challenges to the implementation of global disarmament initiatives and (iii) the increasing spread of nuclear technology through the nuclear renaissance in energy production. These will exert extra pressure on the grand bargain as it succumbs to an increasing split into diverging interest groups. The resultant fragmentation of interests will likely undermine the value of the NPT as the expression of an integration of interests.

The corrosive effects of an NPT in chronic crisis

Since the end of the Cold War the NPT has been slipping into an ever deeper crisis. This crisis is foreseen to continue, with inevitable negative repercussions. This derives from the decreasing legitimacy of the current NPT regime due to its continued ineffectiveness. It is increasingly perceived that the balance in the grand bargain between nuclear disarmament (by

5. Generally, reputation or status is an important driver. However, a detailed case-by-case analysis goes beyond the limits of this text. See Lewis A. Dunn, 'The NPT. Asessing the Past, Building the Future', *Nonproliferation Review*. vol. 16, no. 2, 2009, pp. 143-72.

6. Colin Gray, *Modern Strategy* (Oxford: Oxford University Press, 1999), pp. 297-311.

7. However, there is also a black market for nuclear material, as shown by the Khan network.

8. This section synthesises *inter alia* the following forecast studies and literature: International Commission on Nuclear Non-Proliferation and Disarmament, *Eliminating Nuclear Threats: A Practical Agenda for Global Policy Makers* (Canberra/Tokyo: Paragon, November 2009); National Intelligence Council, *Global Trends 2025: A Transformed World* (Washington: US Government Printing Office, November 2008); Ministry of Defence, *Strategic Trends Programme – The Future Character of Conflict* (London: January 2007); NATO Allied Command Transformation, *Future World Scenarios* (Norfolk, VA: April 2006); OECD/NEA, *Nuclear Energy Outlook* (Paris: Nuclear Energy Agency, 2008); Ministère de la Défense: *Geostrategic Prospectives for the Next Thirty Years*, (Paris: Délégation aux affaires stratégiques, Paris, 2007); Peter R. Lavoy (ed.), *Nuclear Weapons Proliferation in the Next Decade*, (London: Routledge, 2008); Colin Gray, *The Second Nuclear Age* (Boulder, CO: Lynne Rienner Publishers, 1999); Kurt M. Campbell, Mitchell Reiss, Robert Einhorn (eds.), *The Nuclear Tipping Point. Why States Reconsider Their Nuclear Choices* (Washington: Brookings Institution Press, 2004).

NWS), and non-acquisition of nuclear weapons (by NNWS), and the peaceful use of nuclear energy for all parties has shifted in favour of the NWS and the interest in non-proliferation, while increasingly limiting NNWS access to civilian nuclear technology. Moreover the NWS are widely accused of not adhering to their disarmament obligations. A number of recent cases highlight the continuing loopholes in the NPT: The ongoing controversy surrounding Iran's attempt to acquire nuclear capability has given rise to questions regarding compliance with the NPT and pointed to inappropriate verification standards as well as the difficulty of deciding on new ones. Moreover, Iran has become a test case for the attempt to limit NPT members' access to enrichment technology. Besides, Pakistan, India and Israel as *de facto* nuclear weapon states show the treaty's inability to prevent the evolution of nuclear powers. The revelations about the Khan network's activities in smuggling nuclear technology highlights the growing threat of proliferation by non-state actors. Furthermore, North Korea's provocative behaviour has meant that the question of withdrawal from the treaty and the subsequent consequences for the right to use the acquired technologies now features prominently on the NPT agenda.

A volatile security landscape and a diversified nuclear environment

The evolving security environment gives little cause for comfort. Nuclear weapons in an overall perspective may be less central, but they remain salient. The nuclear environment is likely to diversify, although until 2020 only the prelude to a more far-reaching transformation in the global nuclear landscape will be observable. However, 'wildcards', i.e. unpredictable trends or major unexpected incidents, cannot be ruled out and these could change actors' policy options significantly. A mass-casualty terrorist attack, one carried out by a state, or a nuclear accident in a civilian facility would have huge repercussions – but this is a subject that goes beyond the scope of this analysis.

The emergence of more and new types of actors, social fragmentation, radicalisation, the increasing importance of regional dynamics and also new threats and risks in the area of climate and health have significantly altered the security environment. The primary practice of international security will remain intervention and stabilisation operations by multinational forces and civilian instruments, in non-classical types of conflict. The superpower status of some will be increasingly challenged as the rise of new powers gives a multipolar dimension to the new global order. This produces new coalitions but also generates more uncertainties, especially during times of transition.

Central Asia and the Middle East represent a crucial arena for the global security environment even beyond 2020. It is in this region that the link between primary security practice and the role of nuclear weapons

in security policy will be most salient over the next decade. Although Iraq and Afghanistan will be in different phases of reconstruction, thus still vulnerable or sources of instability themselves, their future will affect both regional and global security politics as well as the activities of existing or aspiring nuclear-armed states, i.e. Israel, Iran, Pakistan and Syria.

Nuclear weapons are likely to retain their role as a deterrence option. But compared to the Cold War world, major differences are already discernible: a marginal but ongoing proliferation of nuclear weapon states will complicate the nuclear equation. Nuclear stability will depend less exclusively on Russia and the US. Moreover, the familiar nuclear equation between the classical superpowers does not necessarily apply to new nuclear powers. Scenarios are likely to become asymmetric due to differences in numbers and missile ranges. This diversifies the options and increases incentives for first strike capabilities, and adversely affects crisis stability and the survivability of nuclear forces. Missile Defence should become more feasible over the next decade. While this does not affect those with extensive arsenals, those possessing smaller nuclear stockpiles may perceive their arsenal being neutralised, leading to a quest for larger quantities of weapons and more accurate missile systems.

The effects of all this on the grand bargain are rather contradictory. On the one hand, for security reasons non-proliferation will likely gain in importance, thus transfer of civilian technology will be limited, meaning that the economic and technological interests of NNWS will be assigned less priority in the NPT. On the other hand, disarmament becomes more unlikely once new nuclear actors enter the scene. NWS would have to expand their nuclear umbrellas of deterrence to prevent states from acquiring nuclear weapons for individual deterrence, leading to a more diversified nuclear arsenal.

More nuclear Irans tomorrow?

An Iran that has gone nuclear would have two immediate results: first, the world would have to contend with a new nuclear power. Second, the international community would have to deal with a further weakened NPT. A nuclear Iran would underline the fact that the world's non-proliferation efforts cannot effectively prevent the States Parties to the NPT from acquiring nuclear military capability. This would reinforce arguments about the utility of ever-tougher export controls against all other NNWS, especially those needing nuclear technology and thus pledging for a new balance of security versus economic and technology interests. Those NPT members who consider that access to nuclear technology should be subordinated to non-proliferation considerations may then rethink their security concepts. Possibly counter-proliferation but most likely deterrence will become popular again. This may lead some

states to leave the NPT, leading to further erosion of the NPT regime. The Middle East would likely experience a WMD arms race. Eventually, such a renaissance of military ambitions would mean that any serious disarmament commitments would be shelved indefinitely.

However, Iran is in a sense only a harbinger of things to come: the number of nuclear powers is projected to increase between 2020-30. The significance of such a development is related to the idea of a nuclear tipping point, where the number of nuclear powers has reached a critical mass that radically alters the nuclear order.

New global disarmament initiatives

2009 witnessed a revitalisation of nuclear disarmament initiatives: during his visit to Prague in April the US President issued his 'Global Zero' initiative. Moreover, Russia and the US have just signed a new START treaty in Prague. While this is a new development – and assuming that it will last – it sends out important signals for the grand bargain and the relevant actors.

Disarmament in the next decade is likely to be a bilateral issue between the US and Russia. From a security point of view reductions of 1,500-2,000 warheads will not cause any change in existing nuclear planning, neither for the two former Cold War adversaries nor for any other nuclear-armed state. However, it may give some leverage to those insisting on disarmament to rebalance the grand bargain.

Nuclear renaissance

The nuclear renaissance signifies the growing importance of nuclear energy. It is based on a mixture of factors: increasing energy demand, especially in developing economies; growing concern over the carbon emissions associated with electricity production in the context of climate change and the economic competitiveness of new generation nuclear reactors compared to other sources of energy. Hence, more fissile material becomes potentially available for non-peaceful purposes, particularly if the build-up is accompanied by the construction of new facilities for enrichment and reprocessing. Nationally-owned fuel cycles in particular may be extremely difficult to safeguard. Moreover the expertise will proliferate. This generates concerns over new nuclear weapon states and the acquisition of nuclear materials by terrorist groups.

The 'nuclear renaissance' provides a serious test case for the balance in the grand bargain, especially in relation to the non-proliferation and peaceful use pillars. Besides availing of the economic benefits that would result from 'going nuclear', nuclear have-nots would like to increase their acquisition of nuclear expertise. This aspiration points towards

the potential dual role of non-proliferation. The perceived security risks resulting from a rapid increase in the civilian use of nuclear technology and transfer of nuclear materials will increase the need for a robust non-proliferation framework. This may coincide with the economic interests of the small group of existing nuclear suppliers who are likely aiming to maintain their oligopoly on nuclear technology. Moreover, the rise of the civilian use of nuclear technology could undermine disarmament.

Policy implications: towards prevention, preparation and engagement

An anticipative policy approach is needed as the consequences of these challenges are likely to be irreversible from 2020 on. If options for policy preparation and engagement in the run-up to 2020 are not pursued, only reactive policies are possible. Such an approach has to consider the issues that must and can be prevented between now and 2020, as well as identify the issues we should prepare for because it is unlikely that they can be prevented and are therefore quasi-inevitable. How should we engage with those current issues that are likely to generate a future crisis?

The main challenge is the **security environment.** Several sensitive issues are likely to be exacerbated or at least remain unstable, especially the situation in the Middle East and Central Asia. In such a volatile context, prevention has to focus on a smooth and gradual change, and avoid precipitate action and triggering situations that induce difficulties for actors undergoing transformative phases. Nuclear-armed states especially should prepare for a (classical) multilateral arms control process. In such unstable phases it becomes necessary to increase trust and mutual understanding of doctrines and rationales. Such a process could not only build 'political buffers' to guard against states overreacting in phases of high tension. It may also foster the necessary engagement of actors into new and more flexible political coalitions as a reaction to the new multipolar order.

Another Iran: It must be remembered that Iran is not a unique case but that such cases are always liable to reoccur – at any given time, another Iran may be just around the corner. Prevention should therefore especially focus on early detection of potentially illegal nuclear ambitions. This would increase the probability of preventing another Iran-type scenario. This poses challenges especially for the International Atomic Energy Agency (IAEA) and the UN but also for the national intelligence agencies. They would have to enhance sharing of intelligence and information and possibly also find the resources to fund the costs incurred. Moreover export controls have to be reviewed on a regular basis.

Policymakers should prepare for the next NPT crisis precipitated by a nuclear 'escapee'. They should avail of the momentum generated by the discovery of a clandestine programme or an illegal nuclear test to plead for the introduction of tougher rules into the regime.

Engagement has to focus on two things: sanctioning those who violate the NPT through illegal programmes and supporting as much as possible those who want to run civilian programmes. Commitment to this approach has to be clearly articulated and should be underlined by the wholehearted support of those who already have nuclear programmes.

Clearly, countries engaged in clandestine nuclear programmes are in all likelihood working on developing nuclear weapons. Therefore, the political incentives that drive such states to engage in military nuclear programmes have to be targeted. The political price offending states should have to pay for violation has to be as high as possible. However, rewards, especially in the form of security guarantees, are a positive incentive and would send out a signal that could be used to undermine domestic advocates of nuclear programmes.

Those countries operating legal nuclear programmes have to be secured against false concerns over their programmes. Key to this are state-of-the-art verification measures and standards that are geared towards detecting clandestine nuclear activities and the illicit diversion of nuclear materials – for example, the IAEA's 'Additional Protocol'. The perception that these interfere with national sovereignty has to be countered. Moreover, arguments questioning the IAEA's ability to implement these higher verification standards are technical in nature but the background remains political. Thus the IAEA must be backed up in terms not just of policy but also resources in order to ensure that the NPT remains effective. At the same time, projects that increase the use of civilian nuclear technology should be enhanced to give a clear sign that the NPT seeks to maintain a balanced approach towards each pillar.

Global disarmament: Disarmament is key to the rebalancing of the NPT as it has been used as a universal argument to block any progress in other areas of the NPT, like verification. Some initial progress is probable, as this relies on bilateral agreements among Russia and the US, neither of which have an interest in letting the START follow-on process down.

Prevention should focus on avoiding stalemate or the revision of this process. After modest progress on the Fissile Material Cut-Off Treaty (FMCT), the biggest problem remains the US where the Senate has rejected ratification of the Comprehensive Test Ban Treaty (CTBT).

It will probably only be at the end of the next decade that the most intractable issues will arise: verification of the disarmament process, as well as the multilateralisation of that process. Thus, strategies have to be devised to get China, North Korea and India but also Israel engaged. Moreover, nuclear disarmament will be extremely costly and will leave a lot of fissile material that needs to be safely and permanently disposed of.

Engagement is needed to ensure that the appropriate measures and instruments for compliance and verification are set in place. These have to be developed now so that they will be in place when needed. Moreover, these have to become preventive in their detection of outbreak capabilities. On a more general level, NWS have to agree on the limited utility of nuclear weapons. This should be formally expressed in a consensus among them on numbers, doctrines and alert status. For the NWS but also for those NNWS under nuclear umbrellas, global zero raises questions for their defence doctrine and planning. A global downsizing of nuclear weapons may result in an increase of conventional capabilities in the national postures. Their non-nuclear character may stimulate the desire to use them in situations where nuclear weapon use was constrained by the nuclear taboo.

The nuclear renaissance implies the growing importance of economic and technological interests in the civilian use of nuclear technology. These have to be balanced against non-proliferation concerns. The most prominent solutions favour a new framework for the nuclear fuel cycle. A multilateral fuel cycle is currently seen as the best option at hand. Under this scenario, the production and reprocessing of nuclear fuel would be centralised rather than carried out in individual nuclear power plants. No single state would own the full fuel cycle but would share access to nuclear technology. Centralising nuclear enrichment activities in this way would facilitate the monitoring of the (re-)production of fuel. However current proposed solutions are suspected by the nuclear have-nots of being a means of preventing developing nations from acquiring new technological knowledge and of depriving them of their right to full access to nuclear technology.

That perception must be prevented from distorting the whole debate. One step in the right direction would be if the existing fuel cycle owners were to consider multilateralising their fuel cycles as well. Such a solution should have an enabling rather than a constraining character and allow for variation linked to the individual demands. First of all solutions are commercial arrangements. These are to be backed with guarantees on security of supply and access to technology and assistance. The only condition is that participants have signed up to and implemented non-proliferation and disarmament norms – as set forth in the NPT.

Engagement should be sought with the private actors who have a vested interest in selling and operating new nuclear facilities and with those states supervising full fuel cycles with a view to persuading them to give up unilateral control.

The EU in the grand bargain

The EU's external nuclear policies

Although in principle the EU strategy on WMD and other declarations provide solutions to the challenges ahead, the success of the EU in setting the agenda, influencing decisions and supporting or executing their implementation is modest. The EU is often seen more as an enabling structure than a primary actor. This is demonstrated especially by the EU's performance in the NPT review conferences. With regard to future challenges the EU has participated in initiatives and successfully influenced the agenda and also supported implementation. But it has never been able to take up a leadership role in initiating debates or ensuring that NPT decisions reflect vital EU interests. Nor does the EU have a record in high-profile arms control negotiations.

Non-proliferation/Iran: the EU's role in relation to the Iranian nuclear dossier has ultimately been a secondary one. Basically it filled the diplomatic gap until the US was able to take over. However, as far as the achievement of the EU's original goal to operate on a level playing field in the Iran talks and thus be taken as a serious player is concerned, it has only been marginally successful. Primarily, this has been the result of an incoherent definition of goals by the EU itself and its disjointed conduct of policy and diplomacy. For example, while the European Council suspended negotiations with Iran on a Trade and Association Agreement in June 2003, the foreign ministers of France, Germany and the UK travelled to Tehran for direct negotiations.

More generally, a major EU contribution to non-proliferation, and therefore to the effectiveness of the NPT regime, is the vital support it gives to the IAEA through additional funding. Moreover, the EU introduced a conditionality clause to its trade agreements requiring treaty partners to effectively support non-proliferation at their domestic level. However, for important trading partners such clauses have not been introduced, as in the case of India. Moreover the impact of the clause is questionable.[9]

Disarmament: The EU has always fully supported the CTBT and its early entry into force as a measure to support disarmament. However its main area of activity and success is disarmament assistance. The focus here

9. Thomas Sauer 'Struggling on the World Scene: An over-ambitious EU versus a committed Iran', *European Security*, vol. 17, no. 2, 2008, pp. 273-93; Sebastian Harnisch, 'Minilateral Cooperation and Transatlantic Coalition-Building: The E3/EU-3 Iran Initiative', *European Security*, vol. 16, no. 1, 2007, pp. 1-27; Gerrard Quille, 'The EU's approach to tackling the proliferation of Materials and Weapons of Mass Destruction and prospects for cooperation on the eve of a new US Administration'. Working Paper, European Parliament, Policy Department External Policies, November 2008.

has been on the dismantling of nuclear warheads and protecting the large amount of fissile material within the former Soviet Union but also preventing a 'nuclear brain drain'.[10]

Nuclear renaissance: The EU has presented its own ideas on a multilateral fuel cycle.[11] However these are presented in very vague terms, once more reflecting the EU's lack of leadership and the lack of an internal consensus. To what extent these ideas include serious EU commitments beyond the current *status quo*, will be seen after the 2010 review conference.

The EU is hindered from having a leadership position in the grand bargain by its rather cumbersome diplomatic machinery. Its Common Positions for NPT review conferences that build the foundations for EU Conference diplomacy are elaborated in a long and bureaucratic process. Once an agreement is reached it is unfeasible to unpack it in the light of a changing Conference agenda. However, the EU plays an important role in backing up and supporting certain policy decisions as well as building bridges among various interest groups. Hence, the Union has to be understood as an essentially structural power. Moreover, its performance during recent NPT Review Conferences has received mixed evaluations. Especially with regard to the 2005 Review Conference, some view the EU as having played a valuable role in rescuing the Conference from complete disaster, while others regard the EU as not having been a particularly active or even helpful actor at all, accusing it of 'navel gazing'.[12]

However the EU presents one distinct and important advantage for the grand bargain: it represents the NPT-related collective objectives and individual interests within a single body. The composition of its Member States, including NWS, NATO members as well as neutral states with a long-standing disarmament agenda, bears the potential to foster a compromise within the EU context, which can serve as the middle ground for different 'camps' of the NPT members. Moreover EU language has often guided the formulation of passages in NPT communiqués and decisions.[13]

Limiting internal factors: EU concepts, institutions and resources

The EU's rather unsatisfactory performance is directly attributable to its fragmented institutional landscape. The existing concepts, institutions and resources have resulted in a rather incoherent approach to the grand bargain, allowing only for a limited role for the EU in agenda setting, decision-making and implementation of relevant policies. At the heart of the problem are the multiple divisions among the Member States and their sometimes neglected individual agendas.

10. Harald Müller, 'Europe and the Proliferation of Weapons of Mass Destruction', in Paolo Foradori, Paolo Rosa and Riccardo Scartezzini (eds.), *Managing a Multilevel Foreign Policy. The EU in International Affairs* (Lanham: Lexington Books, 2007), pp. 181-99.

11. 'EU non-paper on the Nuclear Fuel Cycle', June 2007.

12. Oliver Meier, 'The EU at the NPT Review Conference: A Modest Success for the EU's Emerging Policy in Nuclear Non-Proliferation', in Hanns W. Maull, Marco Overhaus and Sebastian Harnisch (eds.), 'The EU's Emerging Role in Nuclear Non-Proliferation Policy. Trends and Prospects in the Context of the NPT-Review Conference 2005', *Foreign Policy in Dialogue*, vol. 6, no. 17, October 2005; Oliver Meier, 'New perspectives of the non-proliferation regime on the eve of the NPT review conference', Presentation at the hearing *The Non-Proliferation Regime and the Future of the Non-Proliferation Treaty*, Subcommittee on Security and Defence (SEDE) in the European Parliament, 30 November 2009.

13. Christos Katsioulis and Christian Mölling, *The NPT Review 2010 – What Role for the EU?*, Friedrich Ebert Stiftung, Berlin, April 2010 (forthcoming); See also Meier (2009), op. cit. in note 12.

The EU's conceptual approach

The EU committed itself to engage in the nuclear bargain when it related WMD to its own security in the European Security Strategy (ESS) and the EU Strategy Against Proliferation of Weapons of Mass Destruction in 2003. It affirmed the strength of its commitment in the ESS Implementation Report 2008. These documents identify WMD proliferation as 'potentially the greatest threat to EU security'.[14] Based on this assessment, the EU committed itself to a number of measures, outlined in the EU Strategy Against Proliferation of WMD' and related action plans. Cornerstones of the proposed engagement are 'effective multilateralism', as called for in the ESS, and the proposed support for and strengthening of multilateral treaties and institutions as mentioned in the EU Strategy Against Proliferation of WMD.

However, the strategy's main function was to act as a political symbol of European unity after the serious split among the EU Member States and between the EU and the US over the military intervention in Iraq and the role of the UN. It does not elaborate a European vision of how to engage with the new nuclear risks and provide a forward-looking toolbox for the future handling of non-proliferation. In terms of policy priorities the core function of the EU broadly remains what it has been since the beginning of the 1990s: financing civilian nuclear safety measures, regional disarmament assistance and providing an institutional environment for *ad hoc* policy coordination.[15]

Institutions: a fragmented landscape

Another reason for the fact that its capacities are underused is the EU's fragmented institutional framework. The EU Council, its Secretariat, the EU Commission and, more recently, the European Parliament play different roles in different areas of arms control. Notwithstanding these clear-cut categories, the external dimension of nuclear non-proliferation is subject to overlapping competences. This has led to EU actors pursuing a number of courses of action, sometimes in parallel and often only with very little coordination, if at all.

In principle, competences concerning nuclear issues have been divided until the entry into force of the Lisbon Treaty between the three EU pillars. Despite the Lisbon Treaty,[16] the security dimension was and still is *de facto* the prerogative of the Member States; it is part of the second, intergovernmental pillar, with the EU Council as the highest decision-making body. The Council Secretariat with its desks for the relevant Council working groups, plays a supportive role as regards Member State efforts within the Council. Moreover, since nuclear proliferation is a 'horizontal issue' in terms of the Common Foreign and Security Policy

14. Council of the European Union, *A Secure Europe in a Better World. European Security Strategy*, Brussels, December 2003, p. 3.

15. Christian Mölling, *Europas strategische Kohärenz. Konzeption und Analyse strategischer Kohärenz am Beispiel der EU-Politiken in den Bereichen militärisches Krisenmanagement Rüstungskontrolle und Rüstungskooperation*, Munich, September 2009, pp. 298-363.

16. While this is going to change due to the Lisbon Treaty, effective institutional change can only be expected in 2013-4. Even then it is likely that the security and defence dimension will be further distanced from the soon-to-be established European External Action Service (EEAS). Thus this text will focus on the pre-Lisbon structures for description purposes.

(CFSP), the High Representative is involved. Moreover in 2003 a 'Personal Representative for Non-Proliferation of WMD' was appointed.

The Commission comes into play in relation to economic or industrial issues. These are part of European Community policies related to the first pillar. Moreover the Commission is responsible for implementing EU support projects on nuclear safety, like cooperative threat reduction (CTR) or as part of its European Neighbourhood Policy (ENP). The internal security dimension comes under the third pillar, namely Justice and Home Affairs. Last but not least, as common EU programmes involve decisions over budget lines the European Parliament becomes involved.

Uncoordinated resources

Coinciding with the diversity of actors and institutions involved, numerous but not necessarily coordinated budget lines and funding options exist within the EU. The two major ways of financing arms control and non-proliferation are through the Commission or the CFSP budget of the Council. The CFSP Budget does not have an explicit budget line for non-proliferation. Instead, the Member States decide on an *ad hoc* basis. This leaves non-proliferation dependent on everyday politics and package deals. EU Member States also themselves finance Cooperative Threat Reduction (CTR) projects, either through the Council or the G8, or on an individual basis.

The design, execution and funding of nuclear non-proliferation and disarmament programmes involve several Commission Directorate Generals (DGs) and European Commission bodies (EuropeAid, Joint Research Centre). Even an educated guess at the overall amount spent is almost impossible. Moreover, the Commission is regularly involved financially in the implementation of international treaties adopted by the Member States. Likewise the European Parliament executes budgetary control over the Commission and Council budget.

EU Member States: divisions over security and the economy

The EU plays only a marginal role in the grand bargain, compared to individual Member States. They act not only through the EU as an intermediate institution but also through several other institutions and organisations (G8, IAEA, NSG, NATO etc.). However, the Member States defend very different if not opposite positions when it comes to their nuclear policy interests. These differences result in various intra-EU divisions and ultimately lead individual Member States to engage in various interest coalitions outside the EU.

One of the dividing lines within the EU runs between NWS and NNWS. Whereas the former consider nuclear weapons as a threat to security, the latter regard them as a guarantor of security. This disparity also underlines different positions regarding the importance attributed to disarmament and non-proliferation.[17]

The EU NNWS do not represent a homogeneous group. In particular, those states that are also NATO members play an ambiguous role. They accept to some extent a positive role for nuclear weapons in security, as they support NATO's nuclear doctrine. Other states, such as Ireland and Sweden, represent the 'disarmament faction' within the Union. Not constrained by any alliance membership, they openly point to the perils of maintaining nuclear weapons and criticise NATO's adherence to a nuclear first-use option.

Ultimately, the economic dimension also represents a source of friction between those states that have a significant nuclear industry and those that do not. This is manifest in diverging national positions on NPT Articles III (export regulations) and IV (peaceful use of nuclear technology), or regarding the internationalisation of nuclear fuel cycles and the related industrial and trade questions.[18]

EU Member States' industries are also key players in nuclear industries and the economy. The French company AREVA holds the largest market share in the global nuclear market (25-30 percent), and is active across all areas of the nuclear power industry. While a direct link between economic activity and behaviour in the NPT or Nuclear Suppliers Group has not yet been identified, some incidents indicate an at least ambiguous mix of security and economic interests on the part of several EU Member States. When the export barriers against India were lifted by the US-India deal, several EU-based firms where among the first to supply India with nuclear technology.[19]

A limited external role due to internal divisions

The EU's ability to influence the grand bargain is limited. This also affects its ability to adapt to the new challenges facing the NPT. These deficits reflect the EU's internal lack of concepts, institutions and resources.

Externally, the EU and its Member States certainly have sought to strengthen the NPT regime by engaging in a number of measures and activities. Nevertheless, EU foreign and security policy issues are strongly affected by the EU's intergovernmental character. Progress and the extent of the EU's contribution depend on unanimous decisions. However, the EU is not a 'single-issue coalition' in the NPT context. Instead, efforts to reach common positions are plagued by divisions

17. Müller (2007), op. cit. in note 10.

18. Meier (2009), op. cit. in note 12.

19. Martine Letts andFiona Cunningham, 'The role of the civil nuclear industry in preventing proliferation and in managing the second nuclear age', paper prepared for the Second Meeting of the International Commission on Nuclear Nonproliferation and Disarmament, Washington, 13-15 February 2009. See also Meier (2009), op. cit. in note 12.

over several nuclear issues, which ultimately limit the EU's ability to function as a homogenous actor.

Internally, the EU lacks coherence in terms of concepts, institutions for policy coordination and resources. The EU's strategic approach does not take into account new challenges generated by the nuclear renaissance. Furthermore the EU tends to neglect the economic stakes of some Member States in nuclear technology. Instead it focuses mainly on the long-standing lowest common denominator: mainly civilian programme-related activities and support tasks. The EU's institutional structure reflects this diversity of concepts and competences. The 2003 European Security Strategy has not led to institutional consolidation. Instead, the institutional framework is fragmented along classical lines of division, i.e. the Council, Commission and Member States. This fragmented institutional setting affects political coherence and reduces the effectiveness of resource deployment, thereby undermining the EU's bargaining power.

After the Rev Con: preparing for the next nuclear decade

Given the challenges ahead, the need for a change in EU nuclear policies is no longer a question of just changing normative attitudes. To do its job – securing the freedom and welfare of its citizens – the Union has to transform from a supportive, structural power into a responsible and more self-reliant actor. Thus, the EU needs to consolidate its internal structures before it can define the priorities for its external engagement. Clear concepts and institutional consolidation and coherence backed up by a pool of resources build the basis for more leverage on the grand bargain. The day after the NPT Review conference is the right moment to start changing the EU's approach to the grand bargain.

The EU's internal approach: consolidating concepts, institutions and resources

A successful approach to nuclear policies builds on coherent concepts, institutions and resources. The Lisbon Treaty opens a window of opportunity to introduce changes to the EU institutional setting and move towards the pooling of resources. However the first step would necessarily be formulating a comprehensive European nuclear strategy, as a policy blueprint on how the EU will deal with nuclear issues in the future. This will have to address the greatest point of contention: what role do nuclear weapons play in EU security – are they a threat to security or a guarantee thereof? This debate on the link between the

nuclear issue and European defence is already visible on the horizon with the framing of a Union defence policy and the possibility of a common defence as foreseen in the Lisbon Treaty.

Conceptual innovation: towards a comprehensive nuclear strategy

Above all, the Union needs a coherent conceptual approach – a comprehensive nuclear strategy. This implies taking all three pillars into account, anticipating milestone developments that may take place during the next decade and explaining how the EU envisages balancing the three pillars. Linking the external challenges as well as the internal opportunities, such a strategy would ideally deal with two issues: the military/defence dimension and the civilian dimension.

Military/defence dimension: The divisions in the EU over the role of nuclear weapons in common defence and deterrence explain its inability to generate an EU-wide consolidated approach to nuclear issues. Overcoming these divisions is therefore essential if the EU is to develop a comprehensive strategy.

Nuclear weapons play a vital role in EU security through current defence arrangements. Several EU states are members of NATO. The EU will therefore have to reflect on how it wants to go about organising a future common defence. Moreover, the Lisbon Treaty envisages the option of a common defence policy. As two of the EU Member States own nuclear weapons the question of whether an EU deterrent should be part of the new defence arrangements arises. In this context it should be remembered that the EU split over Iraq was partly due to differing approaches to counter-proliferation.

Regardless of whether the EU nuclear option is a viable one or not, the Union will have to come up with a firm and clear statement on its defence commitments over the next decade, including those addressing nuclear scenarios, possibly through counter-proliferation. In particular, advocates of nuclear disarmament will have to explain to their EU partners how to prepare for military contingencies that up until today have presupposed the option of having recourse to nuclear weapons. A purely conventional force may therefore soon turn out to be a very costly one.

The issue of nuclear deterrence could be tackled in two ways: working further on the idea of a common defence policy as envisaged by the Lisbon Treaty but leaving nuclear deterrence explicitly aside, or starting with the question of an EU nuclear deterrent. Given the tortuous debates that the latter would imply, e.g. concerning the role of NATO in EU Security, Command and Control, the first option seems to be more viable.

A first practical step could be that France and the UK increase their nuclear cooperation on a bilateral basis. This would create new opportunities in terms of a nuclear as well as a purely conventional defence future. A first phase could involve the two countries operating their nuclear weapon submarines in tighter coordination, and concentrating on enhancing nuclear safety. A subsequent phase could include the development of the first elements of a combined nuclear doctrine.

Linking up to the civilian dimension: Energy policy and industrial policy have to be incorporated as part of a comprehensive approach to nuclear issues. This would increase the policy fields subject to EU-wide coordination. Moreover, it would make EU non-security interests in the great bargain visible. To cope with the implications of the civilian use of nuclear technology, the EU should take on board the expertise of private actors from industry as well as from civil society. Moreover practical cooperation with industrial actors should help to define non-proliferation policy positions that are feasible in the context of multilateral fuel cycles. This may include a shift from the non-proliferation of technology to the management of technology transfers, if non-proliferation in terms of effective barriers becomes increasingly unfeasible. Moreover the EU should consider training inspection teams and nuclear administration specialists from other regions of the globe.

Institutional approach: the opportunity after Lisbon

The Lisbon Treaty gives the EU the chance to increase the coherence of its nuclear policies. The overall institutional reform of the EU opens up the opportunity to integrate Council and Commission departments dealing with nuclear issues. The departments and responsibilities shall be hosted within the yet-to-be established European External Action Service (EEAS).[20]

However, the window of opportunity for initiatives favouring the emergence of stronger nuclear policies and institutional consolidation will close in mid-2010. Then, the interim structure of the EEAS will be decided on. This structure will not be fully operational until 2013-4.

It is unlikely that arms control will play a prominent role in this early phase of the EEAS. This is because arms control, unlike other issues like crisis management, did not have a strong lobby during the period when the institutional structure of the EEAS was being planned. Hence no one was pushing for the creation of something like a department for nuclear or arms control issues.

However, a second round of reforms is likely, in which serious shortfalls of the first round are to be revised. This reopening of the window of opportunity should not be missed again. Only setting nuclear policy issues

20. Antonio Missiroli, 'The Impact of the Lisbon Treaty on ESDP', Briefing Paper, European Parliament, Policy Department External Relations, Brussels, January 2008; Meier (2009), op. cit. in note 11.

and arms control issues high on the EEAS agenda during this second round will ensure that nuclear issues are treated as an important question, instead of being treated as part of a category of 'miscellaneous' issues. The relevant actors should prepare for such a second chance. Necessary changes include a department for arms control writ large. It should be established at the same hierarchical level as crisis management.

Moreover, lobbies should push to get the arms control issues that are currently vaguely categorised as horizontal issues transferred to the domain of defence and security issues. Furthermore, the Iranian nuclear dossier should be used to increase the visibility of arms control issues.

A further priority should be the increase of intelligence gathering, sharing and analysis capacity at the EU level. Early intelligence on nuclear activities makes it possible to intervene at the early stages of a nuclear programme. This may make it possible to persuade the state in question to choose alternative security strategies.[21] If the EU were to become a capable actor in such circumstances, spearheading initiatives designed to deter states from acquiring a nuclear capability, this would have positive and empowering repercussions.

Resources: the need for budgetary reform

In order to execute political decisions in a more effective and targeted manner, establishing budgetary control and transparency will be two important steps for the next decade. A second, cumulative option would be the pooling of resources. All activities are funded through one budget line and one authority. The aim is to reduce administrative costs and increase transparency but also the amount that could be spent by one actor and thus the potential leverage that could be exerted by one actor. The pooling should extend to the budgets for non-proliferation from the Council and the Commission but also those funds that EU Member States spend via the EU, like the funds allotted to the G8 Global Partnership.

However, although the entry into force of the Lisbon Treaty should consolidate the complex EU funding structure on arms control and non-proliferation, the European Commission and the EU Council will continue to operate separate budgets. Moreover, the EU is currently simply unaware of the amount of money it spends on NPT-relevant activities. Thus it cannot even be determined whether the amount of resources and the way that this is spent is cost-efficient and serves the EU's political priorities.[22]

Time is already running out to influence the process. The new operating budget for the period 2014-2020 will be agreed in 2012-13. Thus, the

21. Lavoy, op. cit. in note 8, p. 433.

22. Interview, EU Council Secritariat Official, Brussels, 10 February 2010.

opportunity to introduce major changes into the budget lines for the period up until 2020 only occurs once. The advocates of an active EU role in nuclear politics have to plea for a fundamental budgetary reform with transparency, pooling and financial control at its core. This may create a bit of a mess during the transition period. However, this is unlikely to be noticed in the general chaos surrounding the creation of the EEAS.

The EU's external approach: becoming a serious player

Likewise for the EU, its main priority and challenge in terms of external engagement will be to develop a coherent approach to the changes that will inevitably take place over the next decade. Once it has enhanced the coherence of its internal policy foundations, the EU should review the link between its external nuclear policies and instruments. While the EU has already formulated appropriate policy responses to deal with most of the specific challenges currently on its agenda, it lacks a common and comprehensive vision on how to address future challenges. More precisely, the EU lacks a concrete plan on how to deal with multipolarity, new coalitions and a tougher security environment.

Becoming successful in such a decade of change would presumably imply an EU that is taken seriously by potential partners. Currently however there is no reason to take the EU seriously with regard to nuclear issues. Facing up to this fact may imply a firmer stance *vis-à-vis* partners but also those NPT Member States violating the spirit if not the actual rules of the Treaty.

In order to rebuild its image, the EU must ensure that words are followed by deeds: EU sanctions are currently toothless as individual Member States often operate in grey areas to pursue their own economic interests. Moreover, proper sanctions would have to target not only the economic and energy dimension but especially the security dimension of spoilers, exposing them to a less reliable nuclear option in the long run as they would, for example, lose access to up-to-date conventional weapons. This may highlight the security costs of nuclear ambitions for them. However, the EU must resist going for non-UN backed steps as this would undermine legitimacy. [23]

Furthermore, the EU should stop undermining itself by diverging rules on exports limitations related to sanctions. It serves no purpose if one Member State refrains from the export of goods that will then be delivered by another Member State.

Nonetheless the EU should envisage a balanced approach to the grand bargain explicitly including economic and technological cooperation. Bearing in mind the effects of the nuclear renaissance, such an approach

23. Volker Perthes, 'Kluge Sanktionen zielen auf die Führung', *Handelsblatt*, 5 February 2010, p. 9.

is not only desperately needed but it is in the EU's own interest. Moreover, the EU should build on its already existing strength as an important structural power and on its reputation as an honest broker. The ability to integrate political diversity should help the EU to find new partners in a world that is becoming increasingly multipolar and less stable.

Such cooperation and integrative power is needed in the context of a nuclear arms control process among all nuclear powers. Such a confidence-building measure would need a reliable and legitimate host with diplomatic contacts in all the regions of the world. Given the existence of a consolidated EU nuclear deterrent, this could offer the EU not only the necessary entry card into an informal discussion and negotiation process but also demonstrate that nuclear control can go beyond the nation state.

For most of the impending future challenges the EU has already come up with the right policy concepts. It now needs to implement these concepts with a view to underlining a balanced EU approach to nuclear policy. The EU should continue to strengthen its array of supporting instruments such as disarmament assistance and nuclear safety. Moreover, financial support to the IAEA helps to counter attempts to undermine the agency's perceived ability to execute an extended verification mandate. To underline this support the EU should consider increasing its funding of the IAEA and making the provision of this funding a legally binding long-term commitment. Member States should increase cooperation on inspections, training, etc. The existing knowledge on nuclear safety and security is an invaluable asset for the next decade where such capabilities are desperately needed.

On disarmament, the EU will have to do more in order not to be perceived as being under-committed. Apart from clarifying its vision of the role of nuclear weapons,[24] the EU could already declare that parts of it are nuclear weapon-free zones, for example Scandinavia and Southern Europe (this would of course have to be done in consensus with the other EU Member States). Eventually a disarmament fund should be set up to support all activities linked to nuclear disarmament activities.

Conclusion

To sum up, the EU has to engage in the grand bargain more actively over the next decade. This is not a question of the EU merely staking the moral high ground. The fact is that the EU simply cannot ignore or escape the consequences of the major changes that will almost certainly occur in the international nuclear order. The probably growing number of nuclear-armed states, the first steps in an unprecedented nuclear disarmament

24. Meier (2009), op. cit. in note 12, p.1.

process and the nuclear renaissance, in a context of continued security volatility and a diversified nuclear environment, will certainly impact on EU security as well as on the European economy.

However, the EU is currently not sufficiently prepared to address the upcoming challenges. While it often acts as a supportive and integrating structure in the background, the Union seldom takes a leadership role. Hence it fails to shape global policies more proactively and in a way that advances its own interests. It also misses the opportunity to act as an honest broker in upcoming conflicts over the right balance between non-proliferation, disarmament and the civilian use of nuclear energy.

To play an active role in the security and economy-related interests of its citizens, the EU has to start behaving more cohesively – more like a Union, in fact – in its conduct of nuclear policy. Over the next decade it should develop a comprehensive nuclear strategy that integrates both civilian and military aspects, as well as consolidate its institutional structure and resources through the Lisbon Treaty. This will allow the EU to become a serious player able not just to contribute more, but to lead and shape policy in a future environment that will be increasingly complex, volatile and diverse.

Chapter 4

Disarmament in the Anglo-American context

Mark Smith

[The views represented in the chapter are the author's own, and do not represent those of Wilton Park.]

Introduction

Throughout the post-1945 history of transatlantic relations between the US and the UK, nuclear weapons have been a permanent and salient feature. Recently, both countries have embarked on a process of rethinking their commitment to nuclear weapons, including the possibility of disarmament. There is a noticeable shared rationale behind this, driven by practical considerations rather than idealistic ones, although the path that leads to nuclear zero is a different one for each state: they are likely to confront different problems along that path and will need to square different circles on the journey. This chapter will discuss the recent interest in the reduction of nuclear arsenals and nuclear zero, and examine the different trajectories that each country will need to take to reach elimination.

A more conducive climate emerged recently, particularly in the wake of President Obama's April 2009 speech in Prague. A revitalised commitment to the prospect of nuclear elimination appears to be growing, coterminous with rising concerns about the future of the Nuclear Non-Proliferation Treaty (NPT) and the likelihood of further proliferation of nuclear weapons. This apparently more propitious climate, however, should not be overestimated nor its root causes misunderstood. It comes at a time of grave uncertainty about the viability of the global nuclear order. Despite the fact that, forty years after the NPT was signed, there were only nine nuclear-armed states rather than the 15-25 forecast by President John Kennedy, three of those nine – India, Pakistan and North

Korea – emerged during a period of less than a decade. It is possible, though no more than this, that they may be joined by a tenth, Iran, at which point there would be as many nuclear-armed states outside the NPT as inside it, meaning – among other things – that only half the states possessing nuclear weapons would have a treaty commitment to the prospect of disarmament.

Multilateral processes of governance in general often seemed to be suffering a malaise in the first decade of the twenty-first century, and there had also been growing signs of dysfunction in the NPT and the global non-proliferation regime, as the Comprehensive Test Ban Treaty (CTBT) stalled after failed ratification in the US, the Fissile Material Cut-Off Treaty (FMCT) struggled to make any significant headway in negotiation, and the 2005 NPT Review Conference failed. This apparent stagnation in process and structure coincided with difficulties in developing a unified response to the two immediate crises presented by North Korea and Iran. William Walker, one of the most perceptive analysts of nuclear issues, had this partly in mind when he noted that the project on nuclear order ran into difficulties partly because 'it could not satisfy its own expectations'.[1] Along with these expectations that the nuclear order would be able to deal with transgressors, however, were expectations that the nuclear weapon states would eventually abandon their own arsenals: the essential bargain of the Treaty that underpins its legitimacy. Underlying the newly positive climate on disarmament between the US and UK was a painful realisation that frustration at the lack of progress on that bargain was increasingly corrosive of the ability of the NPT members to collectively live up to the Treaty's aspirations. If, as one contributor to this volume has argued, the NPT was 'entering a period of consequences', it was the challenges of how to meet those consequences that drove the new interest in global zero.[2]

The background

The UK currently possesses around 160 nuclear weapons (the exact number has not been officially disclosed), all on a single platform, the Trident system. Under the 2002 Strategic Offensive Reductions Treaty (SORT) agreement, the US will possess 2,200 deployed strategic warheads by 2012 (the total number, when non-deployed warheads are taken into account, is around 10,000. This is expected to drop to nearly 4,500 by 2012).[3] Both the UK and the US are founding signatories to the NPT and are *de jure* nuclear weapon states (NWS). Both are signatories to the Comprehensive Test Ban Treaty (CTBT) but only the UK has ratified this; an attempt at ratification by the Clinton Administration failed, and although President Obama has indicated that he supports ratification, there is little sign of a serious imminent attempt to obtain

1. William Walker, 'Nuclear Enlightenment and Counter-Enlightenment', *International Affairs*, vol. 83 no. 3, May 2007, p. 432.
2. Camille Grand, 'The Non-Proliferation Treaty in an Era of Proliferation Consequences', pp. 13-25 in this volume.
3. See Robert Norris and Hans Kristensen, 'US Nuclear Forces 2008', *Bulletin of the Atomic Scientists*, vol 64, no. 1, March-April 2008, p. 50.

the required Senate approval. The UK has supported negotiation of a Fissile Material Cut-Off Treaty (FMCT) and has observed a cessation of its own production since 1995. The US has acted in a similar vein, but took a noticeably sceptical line on verification of the FMCT during the years of the Bush Administration.[4]

Their nuclear programmes have been closely entwined since the days of the Manhattan Project, with a hiatus following the end of the Second World War, although those wartime days represent the last time that the two dealt with each other on anything approaching an equal footing. In the British case, in particular, it has been impossible to properly understand nuclear weapons outside the Anglo-American relationship (this has never been true in reverse). Reviving the wartime relationship was a major objective of post-1945 British nuclear policy, and it should be noted that this was driven by strategic and political choice rather than technical or financial necessity. A nuclear weapon programme that was entwined with that of the US was regarded as presenting strategic benefits all of its own, that would be a much more distant prospect if Britain were to rely on an entirely individual programme.

This relationship has led to the UK facing issues unique among the other *de jure* nuclear weapon states (NWS). One of these is that the terms of the agreement mean that it requires regular renewal, which in turn means that, at regular intervals, Britain has had to decide whether it wants to remain a NWS or not. These renewals, which have taken place every couple of decades, have generated public controversy, but rarely significant *governmental* controversy, which is to say that there has never been a realistic prospect of a decision against retaining NWS status.

Second, the relationship with the US has occasionally provoked criticism that the UK does not have a truly 'independent' deterrent. This tends to surface in the context of the bouts of public debate that invariably accompany the regular decisions to renew the agreement with Washington. This is not the place for a discussion of these debates; it will suffice to note that the interdependence – to use the preferred official term – of the UK's programme probably has a more limited impact on decisions about disarmament than hitherto, and particularly during the Cold War. During the latter period, British nuclear strategy was so closely bound to that of the US in Europe that disarmament was regarded as sacrificing an important source of influence over how the US implemented its nuclear policy in the NATO Alliance. This perception – that Britain's nuclear status meant that it could exercise influence over NATO and particularly US nuclear strategy – remained very strongly rooted throughout the Cold War.

Since the end of that conflict, the nuclear strategy of the UK (and perhaps the US) has moved from a Cold War Soviet-driven one to something more

4. In July 2004, for example, the then-Permanent Representative to the UN Conference on Disarmament, Jackie Sanders, stated that a policy review in Washington expressed 'serious concerns that realistic, effective verification of an FMCT is not achievable'.

along the lines of what Michael Quinlan has described as 'deterrence to whom it may concern'.[5] The rationale for continued nuclear status is set out in another chapter in this volume[6] but amounts to an open-ended commitment to deter major powers, regional actors and non-state actors. The US is however considerably more widely bound to global security complexes through its system of alliance commitments and security guarantees. This divergence does perhaps offer Britain some scope for elimination that did not exist before: if influencing US nuclear strategy in Europe is less prominent as a benefit of nuclear status, a key reason to maintain that status correspondingly dwindles.

Both states have long resisted any implementation of NPT Article VI in a clearly-defined timeframe, preferring to espouse the idea more as an aspiration than a duty. The startling progress made – and then dashed – during the 1988 Reykjavik Summit alerts us to the sometimes surprising possibilities for progress on disarmament, but also to how swiftly and comprehensively those possibilities could be snuffed out during the Cold War.

The current interest in elimination

The current interest in nuclear disarmament first became visible in 2007 in the US. In January, four senior former policy officials in the US published an article in the *Wall Street Journal* that subsequently became the subject of international comment. This renown was, perhaps, less a consequence of what was said in the article as of who was saying it. Henry Kissinger, William Perry and George Schultz were instantly-familiar names with experience of the very highest levels of politics, but not automatically associated with calls for serious work on the elimination of nuclear weapons (although the fourth author, Sam Nunn, has an extensive background in non-proliferation initiatives). Yet now they made an explicit call for such a programme: 'We endorse setting the goal of a world free of nuclear weapons and working energetically on the actions required to achieve that goal'. They were also keen to strike a balance between the idealism of the eventual goal, and the necessity for practical steps to reach it: 'Without the bold vision, the actions will not be perceived as fair or urgent. Without the actions, the vision will not be perceived as realistic or possible.'[7]

The path advocated was not a revolutionary one, but the status of the authors gave the article presence and weight in debates on nuclear elimination. Much debate since has used the article as the starting point for analysis of the prospects for disarmament, and few discussions on the topic feel complete without mentioning it. Their article was published during the second term of the Bush Administration, a government that

5. Michael Quinlan, 'The Future of United Kingdom Nuclear Weapons', *International Affairs*, vol. 82, no. 4, July 2006.

6. Lukasz Kulesa, 'Global Zero: Implications for Europe', pp. 87-102 in this volume.

7. George P Schultz, William J Perry, Henry A Kissinger and Sam Nunn, 'A World Free of Nuclear Weapons', *Wall Street Journal*, 4 January 2007. Available online at: http://online.wsj.com/public/article_print/SB120036422673589947.html.

had been criticised for its policy on nuclear non-proliferation. That record has, perhaps, some contradictory elements in it: in some respects, the Administration had 'a deeply anti-nuclear streak'. This was evident in its regular criticisms of the concept of deterrence, in the 2002 Nuclear Posture Review's reduction of the role of nuclear weapons in US strategy, and in the efforts to reduce the salience of nuclear weapons in US-Russian relations.[8] On the other hand, the refusal to ratify the CTBT or subscribe to a verified FMCT, and the criticisms of multilateral non-proliferation diplomacy, seemed to indicate an ambivalence towards the NPT and its processes. Was the reduced role for nuclear weapons driven by the eliminationist precepts of the NPT, or by a desire to free the US from the constraints of deterrence to pursue a more expansionist policy?[9] Was the criticism of the NPT a result of frustration at the acknowledged and growing inability of multilateral processes to produce results, or of resentment at the limitations such diplomacy placed upon US freedom of action? It could be, and inevitably was, portrayed as either according to one's view of the Administration itself.

In 2009, there were clear signs that the new Administration in Washington was prepared to respond to the call of the *Wall Street Journal* article's authors. President Obama, in his landmark Prague speech in April 2009, said that 'I state clearly and with conviction America's commitment to seek the peace and security of a world without nuclear weapons.' This aim was explicitly linked to the non-proliferation pillar of the NPT: 'while I know this goal [elimination] won't be met soon, pursuing it provides the legal and moral foundation to prevent the proliferation and eventual use of nuclear weapons.'[10] The Administration was also committed to seeking ratification of the CTBT and to a verifiable FMCT. The President had called in his Prague speech for a treaty that 'verifiably ends the production of fissile materials intended for use in state nuclear weapons.' Moreover, two major commissions, the bipartisan Congressional Commission on the Strategic Posture of the United States and the Council on Foreign Relations Task Force on US Nuclear Weapons Policy, both endorsed the push for a verifiable FMCT. Both the CTBT and the FMCT were easier to commit to than to achieve, as the former was likely to be controversial in the US Senate and the latter quickly ran into difficulties at the Conference on Disarmament in Geneva. But the explicitness of the commitment, coupled with the rhetorical flourishes in the Prague speech, went a long way in rebranding US policy on non-proliferation. The UN Security Council summit that produced Resolution 1887 calling for 'progress on stalled efforts to end nuclear weapons proliferation', a summit chaired by President Obama himself, further enhanced the new Administration's credentials on disarmament.[11]

This was a vital development in the process of generating international movement on reductions; US support is a necessary – although not sufficient – condition for this. William Walker alluded to this when he

8. Brad Roberts, 'All the King's Men?', *International Affairs*, vol 82, no. 3, p. 524.

9. William Walker, 'Nuclear enlightenment and counter-enlightenment', *International Affairs*, vol 82, no. 3, p. 445.

10. Statement by President Barack Obama, The New Economic School, Moscow, 7 July 2009.

11. The text of the Resolution is available online at: www.un.org/Docs/sc/unsc_resolutions09.htm.

pointed out that 'throughout the nuclear age ... most of the ordering ideas and most of the desire to realize those ideas, came from the United States.'[12] The two things that would most demonstrate the desire of the US to make individual progress here were the strategic arms reduction framework with Russia and the Nuclear Posture Review (NPR). The former would show what the US was prepared to offer in reductions and on what terms (verification etc), while the latter would demonstrate how far it was prepared to reduce the salience of nuclear weapons in its strategic policy. Neither made their deadline of the end of 2009, a demonstration of international and domestic bureaucratic difficulties in implementing the vision of the Prague speech and UN Resolution, but in early April 2010 both had reached fruition.

The post-START agreement, signed on 8 April, committed the US and Russia to cut their deployed nuclear warhead numbers to 1,550 each over a 7-year period, a cut of about 30 percent on existing levels. Verification issues and missile defence had continued to cause difficulties in finalising agreement, and these issues are likely to resurface in any follow-on negociations..[13] The NPR had also remained grounded during the first months of 2010 in the inter-agency process, reportedly caught between conflicting constituencies within the Administration.[14] The Administration has also stated that it will not develop new nuclear weapons, including the Reliable Replacement Warhead planned by the preceding Bush Administration. Its request for an additional $5 billion of funding for the nuclear weapons complex was justified in terms of retaining the credibility of the current nuclear arsenal without the need for testing or developing new weapons.[15]

When it was published, the NPR reiterated this commitment not to develop new nuclear weapons. It also pledged that the US would not use nuclear weapons against non-nuclear states in compliance with the NPT, even if the US were attacked with biological or chemical weapons. This was a clear change, since the US had hitherto refused to rule out retaliating to a chemical or biological attack with nuclear weapons.

In Britain, the *Wall Street Journal* article was followed in June 2008 by a groundbreaking speech by the then British Foreign Secretary, Margaret Beckett. In what was her final major address in that capacity, she made an impassioned plea for nuclear disarmament as a historical duty, but also set out a highly detailed plan for serious policy work on what political and technological conditions needed to exist in order for nuclear weapons to be eliminated. Beckett's speech came, of course, hard on the heels of the British decision to retain its nuclear weapon capability until 2050 through the Trident system. This went through Parliament with cross-party support. As in previous episodes, the decision had been publicly controversial, with opinion polls showing public opinion as ambivalent at best and 161 MPs voting against keeping Trident in

12. William Walker, 'Nuclear Order and Disorder,' *International Affairs*, vol. 76, no. 4, October 2000.

13. 'START Stalls; Talks Continue', *Arms Control Today,*

14. 'Why the Nuclear Review is Delayed', *The Atlantic*, 26 February 2010.

15. See the Arms Control Association's report on the announcement at http://www.armscontrol.

the Westminster vote. However, in the intra-government debate, it was hard to discern much of a noticeable shift in the nuclear orthodoxy that had always represented one of British foreign policy's iron convictions. The prospects of Trident and nuclear status being relinquished were always close to zero, and the government's public diplomacy in the UK was more one of explication and damage limitation than of real pondering of options.

It may be tempting therefore to regard Margaret Beckett's speech as a rhetorical nod to the UK's disarmament obligations under Article VI; a device to head off inevitable and difficult criticism from the non-NWS in the NPT who wanted to see firmer progress on disarmament. This is probably unjustified: the speech set out an impressive programme of work as well as defending a record on disarmament that many states might challenge. As President Obama would do in 2009, and as the *Wall Street Journal* authors had done the previous year, Beckett stated clearly that progress would need to be made on disarmament if the capacity of the NPT to fulfil its non-proliferation role was to last: 'efforts on non-proliferation will be dangerously undermined if others believe that the terms of the grand bargain have changed; that the NWS have abandoned any commitment to disarmament.'[16] She elaborated on this, after identifying proliferation threats from North Korea and Iran, by arguing that 'the point of doing more is because the moderate majority of states, our natural and vital allies on non-proliferation, want us to do more. And if we do not, we risk helping Iran and North Korea ... to turn the blame for their own nuclear intransigence onto us. They can undermine our arguments for strong international action in support of the NPT by painting us as doing too little to fulfil our own obligations.' This sense that the NPT's key bargain between nuclear and non-nuclear states was suffering from dwindling credibility that would make multilateral action on proliferation harder to sustain appears regularly in US and UK rhetoric on disarmament. It would be echoed again by Gordon Brown the following year, when he stated during the debate on UNSCR 1887: 'the global bargain underlying the Nuclear Non-Proliferation Treaty – based on the obligations of both categories [non-proliferation and disarmament] – must be strengthened through a renewed commitment to ensuring compliance and seeking solutions to technical and policy problems'.[17]

The Beckett speech was qualitatively different to the standard British government line that disarmament had to wait for international conditions to be both propitious and radically different to those existing now, and was the opening gambit in a programme of work undertaken over the following months. The work undertaken by the UK government did seem to indicate a genuine desire to show willingness to make progress on disarmament, while still maintaining that conditions were not right for it to be put into immediate practice. Beckett promised a study

16. The transcript of the speech is available online at www.carnegieendowment.org/files/keynote.pdf.

17. The Prime Minister made this statement at the UN Summit that produced Resolution 1887. The statements are available online at the UN's website at: http://www.un.org/News/Press/docs/2009/sc9746.doc.htm.

commissioned to look into the political and technological conditions necessary for disarmament, subsequently published as an International Institute for Strategic Studies *Adelphi Paper* written by George Perkovich and James Acton.[18] The following year, the UK began a joint project with the Norwegian government and the renowned think tank VERTIC, which would investigate new technologies to assist verification of multilateral dismantlement of nuclear warheads.[19] The project was designed to run exercises in a mock-up 'nuclear weapon complex', and develop techniques for resolving the perennial difficulty of how to be certain that a warhead being dismantled really *was* a warhead, without revealing sensitive technological characteristics.

This had been announced by the then Defence Secretary Des Browne in a speech to the Conference on Disarmament, which featured similar themes to that of Margaret Beckett but had a subtly but interestingly different point of departure. Rather than citing the requirements of Article VI in referring to disarmament, Browne invoked the NPT's preamble which stipulates the desire of signatories for 'the easing of international tension and the strengthening of trust between States in order to facilitate the cessation of the manufacture of nuclear weapons, the liquidation of all their existing stockpiles, and the elimination from national arsenals of nuclear weapons'.[20] Full disarmament, in other words, would be a product of dramatically changed international conditions rather than an independent British process. This was elaborated further in a policy paper issued by the government in 2009, *Lifting the Nuclear Shadow*, which stipulated the need for a considerably more robust international security architecture as a precondition for disarmament.[21]

Such a step would of course be a dramatic change. Lest this be regarded as a sign that disarmament was close to a purely hypothetical concept at the time the paper was written, the paper also set out three key conditions for elimination: firstly, 'watertight means' to prevent proliferation, through proliferation-resistant nuclear energy and much stronger and more vigorous action against proliferators. Secondly, verifiably-minimum nuclear arsenals had to be the norm among the NWS with no scope for re-development. Thirdly, once these minimum arsenals were in place, a way to make the transition from small numbers to zero without jeopardising security would have to be found.

Further impetus was given to the intellectual and political stimulus provided by Beckett and Browne with a British echo of the *Wall Street Journal* article, again penned by authors not usually associated with calls for nuclear disarmament. The four writers – Douglas Hurd, Malcolm Rifkind, David Owen and George Robertson – had all been Foreign and Defence Secretaries in the past and had therefore been well-versed in, and supportive of, Britain's nuclear weapon capability. They argued that nuclear weapons were no longer exerting 'the perverse effect of

18. George Perkovitch and James M. Acton, 'Abolishing Nuclear Weapons', *Adelphi Paper* no. 396 (London: IISS, 2007).

19. A presentation on this can be viewed online at: http://www.vertic.org/assets/Events/090509%20UK-Norway%20Initiative%20Presentation.pdf.

20. Preamble to the Treaty on the Non-Proliferation of Nuclear Weapons, 5 March 1970.

21. 'Lifting the Nuclear Shadow: Creating the Conditions for Abolishing Nuclear Weapons', FCO Policy Information Paper, February 2009.

making the world a relatively stable place', and urged 'substantial progress towards a dramatic reduction in the world's nuclear weapons', with the 'ultimate aspiration' being nuclear elimination.[22] That this was seen as a multilateral process, rather than a call for Britain to go it alone, was evinced when one of the authors, Sir Malcolm Rifkind, responded to a letter in the *Times* written by three former senior members of the British military, which *did* advocate such a course, by stating clearly that he advocated multilateral disarmament.[23]

The letter to which Rifkind was responding seemed to be evidence of a growing dissatisfaction about Britain's nuclear status among the country's military establishment, and took a noticeably different line of argument to that of the four statesmen. Where the latter had largely supported the case put by the *Wall Street Journal* writers in calling for a revitalised multilateral effort on elimination, Field Marshal Lord Bramall, General Lord Ramsbotham and General Sir Hugh Beach argued forcefully that replacing Trident had been expensive, pointless, and possibly counter-productive. 'Our independent deterrent', they claimed, 'has become virtually irrelevant except in the context of domestic politics'; it would neither deter contemporary military threats nor deliver the political status once accorded states in possession of nuclear weapons. They concluded that the funds required for Trident would be more productively spent on equipping the armed forces with conventional weapons and materiel. Coming as it did in the midst of both a serious recession and strong domestic criticism of the lack of proper equipment for UK forces in Iraq and Afghanistan, this case had a strong utilitarian logic to it. Sir Richard Dannatt, a former Chief of the General Staff and now defence advisor to the Conservative Party, has more recently argued that although replacing Trident was the right decision, this was only 'a very narrow points decision' which might conceivably be redundant five years hence.[24] Speculation – and it was no more than that – continued in the UK over whether the Trident decision might be modified in some way, perhaps by fewer submarines as suggested by the Prime Minister, or by switching to a different launch platform, extending the life of the current system, or simply delaying the final decision for a few more years. Rarely, if ever, was it seriously and openly suggested by either of the main parties that a reversal and unilateral disarmament were imminently under consideration. Margaret Beckett's statement at Carnegie that 'when it will be useful to include in any [multilateral disarmament] negotiations the 1% of the world's nuclear weapons that belong to the UK, we will willingly do so' remained the strong centre ground in government debate.

The British government report issued in the run-up to the NPT Review, *The Road to 2010*, placed great emphasis on strengthening the non-proliferation pillar of the NPT and set out a number of steps by which to revitalise the non-proliferation-disarmament bargain of the

22. 'Start Worrying and Learn to Ditch the Bomb', *The Times*, 30 June 2008.

23. See 'UK Does Not Need a Nuclear Deterrent', *The Times*, 16 January 2009.

24. 'Sir Richard Dannatt Questions Need for Nuclear Deterrent', *The Independent*, 23 February 2010.

Treaty.[25] A reading of the recommendations on disarmament makes clear that the process by which this will happen is a multilateral one and therefore (although this was not stated explicitly) something to prepare the ground for, rather than something likely to happen imminently.

As the 2010 NPT Review conference was approaching, then, the US and Britain had attempted to square a difficult circle: they were intent on remaining NWS for the foreseeable future, but nonetheless were acutely aware that this status was contributing to deadlock in the NPT process, and thereby to growing difficulties in preventing the spread of nuclear weaponry. How then was it possible to show credible evidence of commitment to disarmament when you are not yet prepared to actually do it? Failure to find a way around this problem would probably create serious difficulties in at the NPT process and particularly the 2010 Review, by making it harder to generate international support on non-proliferation and particularly on dealing with recalcitrant proliferators.

Gordon Brown explicitly alluded to this at a major conference in London in March 2009: 'in 2005 the Non-Proliferation Treaty Review Conference failed. We cannot afford to fail [in 2010]'.[26] Referring to failure in 2005 so baldly was an unusually candid step for a head of government, but it only echoed, albeit more strongly, the argument presented by Margaret Beckett in 2007 and President Obama in 2009: the future viability of the NPT might be at stake if credible progress on elimination was not forthcoming, and the consequences for the non-proliferation pillar of the Treaty were potentially profound.

What they have in common, where they differ

Both the UK and the US are founders of the NPT and *de jure* nuclear weapon states, and the policies of the two have generally had much more in common than not. They share a legal, political and rhetorical commitment to all three goals of the NPT, but they show a marked tendency to regard the goal of non-proliferation – the prevention of the spread of nuclear weapons – as the first among equals, the one whose health or lack of same defines how they view the general health of the NPT itself.

Disarmament, in this view, must be precluded for the foreseeable future by prevailing strategic circumstances, and access to nuclear technology for peaceful uses has inevitable implications for latency and potential proliferation that may override the right of states to develop advanced

25. *The Road to 2010: Addressing the nuclear question in the twenty-first century* (London: Cabinet Office, 2009). Available online at: http://www.cabinetoffice.gov.uk/media/224864/roadto2010.pdf.

26. Gordon Brown, Speech on nuclear energy and proliferation, London, 17 March 2009. Available online at: http://www.number10.gov.UK/Page18631.

nuclear energy capabilities. The former is a long-term aim contingent on radically changed circumstances, the latter is a right that must be subordinate to proliferation concerns, and a lack of progress in either area is not *in itself* regarded as presenting serious evidence of systemic failure in the NPT, although their impact on intra-NPT politics is acknowledged. Failure on proliferation, however, renders the other goals meaningless and the regime dysfunctional, if not an outright failure. The Prague speech, the remarks by Margaret Beckett, and the words of Gordon Brown in 2009, all stipulated clearly that proliferation was a growing concern, that the international community needed to take multilateral action to keep pace with the challenges thrown up, and that the NPT, as the principal means for multilateral management of nuclear dynamics, was being increasingly congealed by the declining credibility of the non-proliferation/disarmament bargain. Gaining international commitment to revitalised action on proliferation is regarded as contingent on being able to tell a more convincing story on progress being made on disarmament. This utilitarian view is a key driver behind the current government interest in nuclear elimination.

This is complicated by the fact that both the US and UK are only disarmers strictly in the multilateral sense; neither will give up its nuclear capability outside a multilateral process that is currently conspicuous by its absence. Both have been at pains to point out that while they are prepared to reduce the numbers of nuclear weapons, reductions is as far as they are likely to go.

Within this commonly multilateralist approach to elimination, however, some differences can be teased out, which stem from the security commitments and in particular the security guarantees undertaken by the US. Britain has security commitments and obligations as a NATO member, of course, but it does not underwrite the security of Alliance members, or any other state, in the way that the US does. This means that Britain could, if it so chose, abandon its nuclear programme unilaterally, and still be reasonably confident that no large-scale regional instability would follow in Europe or elsewhere; the perceived negative consequences of unilateral disarmament are more rooted in concern about the impact on Britain's *own* security and its global role. 'Deterring blackmail and acts of aggression against our vital interest' is the stated rationale, rather than extended deterrence for allies.[27] It is potential nuclear adversaries, rather than existing non-nuclear allies, that drive the British to retain their nuclear capability. Thus multilateral disarmament is its preferred option through essentially individual choice: Britain is multilateralist by inclination.

The US, on the other hand, cannot share this confidence that no regional insecurity would result from unilateral disarmament on its part. Something like 30 states – the NATO members plus Australia,

27. Ministry of Defence, *The Future of the United Kingdom's Nuclear Deterrent.* Presented to Parliament by the Secretary of State for Defence and The Secretary of State for Foreign and Commonwealth Affairs, London, December 2006. Available online at: www.official-documents.gov.uk/document/cm69/6994/6994.asp.

Japan and South Korea – currently enjoy a formal US guarantee of their security, and many are geographically close to areas where nuclear weapons and the potential for proliferation loom very large indeed. Many, moreover, remain very wedded indeed to *nuclearised* security, and have made it plain that a retreat or removal of that element in the US guarantee would impact very negatively on their sense of security. Therefore the US has a nuclear arsenal that is directly plugged into the security of other states, via its guarantee. This means that, for the US, nuclear reductions are not a decision taken solely with its own security in mind, which in turn means that the US disarmament process must necessarily be multilateral in more ways than one: it has close allies that will need to 'opt in' to the elimination process, and the US is therefore multilateralist by obligation as well as inclination.

Other important differences apply. Firstly, nuclear policy in the UK is considerably more bipartisan in the UK than in the US. Despite rhetorical differences, shifts between Labour and Conservative governments in Westminster have rarely produced significant differences in nuclear policy. There have, it is true, been occasional bouts of national debate (the 1950s and the 1980s being outstanding examples), as the recent Trident decision showed, and the Labour Party has always had a strongly anti-nuclear wing. Nonetheless, the policy consensus has been, and remains, remarkably consistent. The CTBT was signed and ratified with almost no national debate and certainly no lasting controversy; the support for the moratorium on fissile material production and for a verifiable FMCT has been steady and dependable. This is important in Britain, because the nuclear agreement with the US requires regular decisions on maintaining and updating the nuclear weapon system.

At the time of writing, a General Election is only weeks away in Britain, but a shift in approach in the event of a change in government is unlikely to transpire. The Shadow Minister for Foreign Affairs, David Lidington, indicated as much in late 2009 when he stated that, aside from some 'tweaks', a Conservative government would pursue a similar line as a Labour one at the 2010 NPT Review Conference. The Conservative Party's Green Paper of 2010 promised to 'take a rigorous look' at whether it would be possible to make progress on disarmament, including proposing negotiations between the UK and the other P5 states on how to reduce nuclear stockpiles.[28] It also committed the UK to negotiation on a FMCT and to international control of the nuclear fuel cycle, both policies supported by the Labour government. There was little in the nuclear non-proliferation statements that the incumbent government would object to, and differences between the parties continue to be more about style than substance.

It is important to recognise this when it comes to disarmament, since the Labour Party has long had a constituency favouring unilateral

28. *A Resilient Nation: National Security Green Paper* (Conservative Party, 2010), available online at: http://www.conservatives.com/News/News_stories/2010/01/A_Resilient_Nation.aspx

abandonment of Britain's nuclear programme. This constituency has been highly vocal and passionately committed, particularly during the high-water marks of the anti-nuclear movement in the 1950s and 1980s, but it has rarely been close to exercising decisive influence on a serving Labour government. The Conservatives, by contrast, have traditionally had no such constituency, and are usually highly sceptical about disarmament except as a very long-term goal. Despite this, a significant shift in policy after the election looks unlikely: the pragmatic basis behind the recent work on elimination will remain, as a new government will face the same difficulties in generating international consensus on countering proliferation unless it can show convincing commitment to elimination. Moreover, the Conservatives, like the current and past Labour governments, are multilateral disarmers and thus will have the same caveats about how far to proceed down this path while sharing the pragmatic reasoning behind it.

In contrast, nuclear policy in the US, particularly when it comes to the multilateral management of nuclear weapons, has usually been considerably less bipartisan. In fact, it often seems that Washington goes through a cyclical process of disillusionment and revived interest in arms control and multilateral non-proliferation policy. The CTBT, for example, is controversial in Washington in a way that it has never been in London, and the same can be said of the FMCT; the Obama Administration explicitly committed itself to both, while its predecessor was prominently sceptical. The Bush Administration agreed further nuclear reductions with Russia but did so via the much looser model of the SORT agreement; the Obama Administration appears to have opted for a more traditional model in its negotiations on the post-START treaty. The very fact that the agreement is characterised as post-START, as opposed to post-SORT, tells its own story. The agreement may be chronologically post-SORT, but in all other respects it is far closer to the Strategic Arms Reduction Treaty (START). The difference is not a straight Republican-Democrat one, and should not be over-emphasised, but it remains true that a significant change in policy on the nuclear non-proliferation regime is always a possibility in the US; this cannot realistically be said of the UK.

A further difference is that the UK's work on reductions and particularly disarmament has a necessarily abstract or hypothetical aspect; it is, in many ways, more about preparing for an eventuality than about something that will be soon be put into effect. The government has repeatedly stated that it has reduced its nuclear forces to the smallest number commensurable with its strategic interests and sound security. There have recently been some suggestions that some further small reductions may be feasible; the Prime Minister indicated to the UN that the UK might scrap one of its submarines (which may or may not also mean some its 160-odd nuclear warheads), but this does not look likely

to be a very substantial reduction.[29] This means that, in terms of reducing nuclear numbers, Britain is beginning to 'run out of road' for showing its credentials on Article VI. In a view that is probably quite ingrained in UK strategic thinking, Britain is now at or near the point where any further reductions will have to be part of a multilateral process; the unilateral stopping point is here or very close to it. In the continuing absence of such a multilateral process, and therefore with nowhere else to go on reductions for the time being, the UK has engaged in working on what that process might look like and how it might function. The CTBT is signed and ratified, support for a verifiable FMCT pledged, the irreversibility of reductions and ultimate goal of elimination both claimed, and work progresses on the technological and political shape of a disarmament process.

The US, on the other hand, is engaged in reductions work that *will* be put into immediate practice, via the treaty relationship with Russia. The post-START agreement committed the US and Russia to cut their nuclear arsenals by about 30 percent from existing levels to 1,550 deployed warheads each.[30] President Obama has indicated that he believes there is scope for reductions well beyond these projected levels, and therefore it can be assumed that the current Administration does not necessarily regard the US as being at the point where further reductions will need to be part of a multilateral process. This sets it apart from the UK, as does the fact that further reductions are unlikely to be unilateral ones, but rather bilateral ones negotiated with Russia. Moreover, the irreversibility of reductions has a stronger aspect for the US, as reversal of the downward trend is difficult without endangering a legally-binding treaty relationship. An increase in nuclear weapons numbers on Britain's part would be a breach of political commitments, but only arguably a breach of the NPT, and would certainly not be in breach of a treaty commitment to keep numbers at present levels or below.

A final difference relates to international institutions. The UK is a member of the EU, and as such is subject to the political constraints exerted by the formulation of common positions on issues such as non-proliferation, possibly more so now than before in the wake of the ratification of the Lisbon Treaty with its unified decision-making procedures. This does not, however, appear likely to exert any pressures on UK nuclear weapon policy that do not already exist, and certainly the Lisbon Treaty does not appear to have opened up any institutional influence on how the UK makes decisions about these issues.

29. 'Britain's Nuclear Overture: We Will Cut Trident Fleet', *The Times*, 22 September 2009.

30. The text of the statement can be read online at: http://www.whitehouse.gov/the_press_office/FACT-SHEET-The-Joint-Understanding-for-the-START-Follow-on-Treaty/.

Conclusions

What does the preceding discussion imply for future policy? One conclusion is that US policy on this issue is considerably more subject to changes of Administration than that of the UK. Barring a government in London led by the Liberal Democrats, British policy is likely to follow broadly similar lines whichever party is in power. The Liberal Democrats might hold some political clout in the event of a hung parliament, but the leader Nick Clegg has drawn up a 'shopping list' of demands for that eventuality that does not include Trident.[31]

The UK will therefore retain its nuclear status for the foreseeable future, until the levels of nuclear weapons numbers elsewhere begin to generate pressure for it to join a multilateral process. Having a significant stake in that process, and thereby being able to shape it, will be important. When the US and Russia move into three-figure numbers, this will be the point at which global nuclear numbers begin to look a more level playing field, and which in turn will mean the UK will be less a numerical midget than it is now (when it possesses only 1 percent of the world's nuclear weapons). Having a proportionally larger share of the world's nuclear weapons may also bring a more equal stake, and hence voice, in shaping and driving the process of multilateral elimination. This is likely to be an attractive position for a pragmatically-minded government, and there is, then, a political disincentive for Britain to make any serious further reductions in its nuclear numbers unless and until this position is reached.

At the same time, the spread of nuclear power in the so-called 'nuclear energy renaissance' is potentially going to raise proliferation issues that the UK will look to the NPT to manage. If the NPT is to remain healthy, then the UK in common with other NWS will need to show progress on disarmament; both the US and UK appear to have recognised that this is the price to be paid for an effective NPT. The Conservative Party's Green Paper suggested a strategic dialogue between the NWS on nuclear reductions and disarmament progress, which follows a similar proposal by the current government and suggests a similar recognition of practical realities in the NPT. Any UK government is likely to find itself rather caught between these two priorities: balancing them is unlikely to become easier.

In the US, however, nuclear weapons policy is more contingent upon the nature of the Administration in power. Opposition to the CTBT is strong in some quarters, and it is quite possible that another Administration will take a much more sceptical line on disarmament than the current one. The question here will be the extent to which the ongoing difficulties in the non-proliferation pillar of the NPT, and their link to frustration with

31. See 'Lib Dems Rule Out Coalition Government', *The Guardian*, 14 February 2010.

the disarmament pillar, will create enough pressure to push such an Administration towards following the path of the current incumbent. The difficulty here is that the very same non-proliferation threats create insecurity among some American allies, who consequently take a much dimmer view of further nuclear reductions. This dilemma, an unenviable one, is likely to grow rather than shrink; the US will probably have to negotiate some very difficult ground with allies, as well as with Russia. All this implies that although the US has more *numerical* room to make cuts than the UK, its *political* room for manoeuvre is considerably more circumscribed.

It is, in concluding, important to point out the pragmatic nature of the interest in disarmament; it is less a change of heart than a willingness to look at it in a different way. In their recent work on nuclear elimination, Britain and the US have not been driven by a guilty conscience over Article VI or a sudden conviction that it must be fulfilled soon, but rather are driven by a growing awareness that the perceived lack of progress there is politically corrosive of their efforts to stop proliferation, is causing fights at NPT Preparatory Committees (PrepComs) and Reviews, and is likely to make holding the line on proliferation difficult in future.

Their objections to elimination in the past would have cited existential security threats, the sometimes volatile nature of international politics, the impossibility of the un-invention of nuclear weapons, the problems with policing a disarmed world, and so on, leading to a conclusion that nuclear elimination would not happen in consequence. Now, however, this has been redefined. Those problems are still cited, but the conclusion has been recast: nuclear elimination will not happen until answers are found to these problems. So objections in principle have been recast as challenges to be overcome, and in that light this is not a sudden Damascene conversion to a cause so much as a willingness to take a different approach.

This does mean that a paradox lies at the heart of the rhetorical commitment to elimination, one whose effects have not yet been felt but which have the power to curtail the drive towards disarmament quite quickly. The paradox derives from the simple fact that the momentum behind the work on *eliminating* nuclear weapons comes from concern at the potential *spread* of nuclear weapons and the likely problems in generating multilateral action to fight it. Neither the US nor the UK will countenance elimination unless all other nuclear-armed states are following suit, and if the darkest of recent trends in proliferation continue, then the momentum for elimination may begin to run out of steam. The work on elimination is contingent on progress on non-proliferation, just as the latter is regarded as contingent on the former. This circle has the capacity to be self-reinforcing and thereby to promote both; it also has the capacity to be self-defeating and thereby to diminish both.

Chapter 5

Global zero: implications for Europe

Łukasz Kulesa

Introduction

In April 2009, President Barack Obama headed for Prague, the ancient capital of the Czech Republic, to deliver one of his most important foreign policy addresses. Speaking at Hradcany Square, he pledged 'America's commitment to seek the peace and security of a world without nuclear weapons'.[1] He also invited other states to join in this effort. In Europe, the call for a world free of nuclear weapons met with mixed reactions among the public, media, politicians, military establishments and the strategic community. Even before Obama's statement, many Europeans had embraced the nuclear disarmament agenda, spearheaded in the United States by Kissinger, Nunn, Perry and Schultz.[2] Many of the Europeans, including former senior decision-makers from the United Kingdom, Germany, Italy and Poland, strongly supported a proactive approach in the implementation of the vision of 'global zero'.[3] Others, however, claimed that the first steps in this process should be taken by the US and Russia, with European states and NATO joining at later stages, and that the enthusiasm for nuclear disarmament cannot substitute for a rigorous examination of the security implications of moving towards zero.[4] The context of the forthcoming May 2010 Nuclear Weapons Non-Proliferation Treaty (NPT) Review Conference added a dimension of further urgency to these debates.

This chapter will examine the political and strategic conditions for moving forward with nuclear disarmament in Europe by examining the prospect of change in the nuclear policy of France, Great Britain, and NATO (which has at its disposal US tactical nuclear weapons stationed in Europe). Since Russia's nuclear potential presents a distinctively different set of disarmament challenges, it will be left outside the scope of this study. The role of the European Union as a forum for dialogue

1. 'Remarks by President Obama, Hradcany Square', 5 April 2009. See: http://www.whitehouse.gov/the_press_office/Remarks-By-President-Barack-Obama-In-Prague-As-Delivered.
2. Henry Kissinger, Sam Nunn, William Perry, George Schultz, 'A World Free of Nuclear Weapons', *Wall Street Journal,* 4 January 2007.
3. Douglas Hurd, Malcolm Rifkind, David Owen and George Robertson, 'Start worrying and learn to ditch the bomb', *The Times,* 30 June 2008; Massimo D'Alema, Gianfranco Fini, Giorgio La Malfa, Arturo Parisi, Francesco Calogero, 'Per un mondo senza armi nucleari', *Corriere della Sera,* 24 July 2008; Egon Bahr, Hans-Dietrich Genscher, Helmut Schmidt, Richard von Weizsäcker, 'Toward a nuclear-free world: a German view', *International Herald Tribune*, 9 January 2009; Aleksander Kwaśniewski, Tadeusz Mazowiecki, Lech Wałęsa, 'Świat bez broni jądrowej', *Gazeta Wyborcza,* 3 April 2009.
4. e.g. Olivier Thranert, 'U.S. Nuclear Forces in Europe to Zero? Yes, But Not Yet', *Proliferation Analysis*, 10 December 2008. See, http://www.carnegieendowment.org/publications/index.cfm?fa=view&id=22533.

and initiatives towards nuclear disarmament will be discussed, as well as the most important external factors influencing the decisions of the Europeans, such as the threat perception connected with developments in Russia and in the Middle East. Finally, the most probable options for reducing the number and salience of nuclear weapons in Europe will be examined.

The point of departure

The role of nuclear weapons in assuring the security of Europe has been steadily decreasing over the last 20 years, and can now be claimed to be minimal. No states or organisations pose existential threats to Europe. Most of the contemporary security challenges, such as international terrorism, failing and failed states, piracy, transnational crime, cybercrime, energy resources shortages, migration pressures, epidemics of contagious diseases, natural and man-made disasters, cannot be deterred or fought with nuclear weapons. The utility of these weapons, especially compared with the substantial costs of maintaining the nuclear deterrent, must therefore be called into question.

France

France has been almost universally regarded as a 'hard case' when it comes to nuclear disarmament. The maintenance of the nuclear deterrent has traditionally enjoyed wide support among the French political class and indeed French society at large, and the most fundamental reasons for the possession of a nuclear deterrent (the need to assure independent capabilities for the safeguarding of French sovereignty, protection of its core values and freedom of action) seem to be considered as being as valid now as they were during the period of the Cold War.[5] Even though France is not currently confronted with enemies that can be countered by nuclear weapons, French leaders and strategists emphasise the element of uncertainty inherent in the fast-changing international environment. As President Chirac put it in his 2006 speech delivered at the nuclear submarine base at l'Île Longue, 'we are not safe from the unexpected reversal of the international system, nor from a strategic surprise'.[6] The continued existence of nuclear, chemical and biological arsenals, as well as the proliferation of ballistic missile technology, is considered a validation of the need to maintain the nuclear deterrent.[7] Specifically, the advances in Iran's nuclear and ballistic missile programmes have been cited in recent years as a source of concern for France.

Next to the task of assuring the ultimate protection of French sovereignty, nuclear weapons are considered to guarantee France the freedom to pursue an active international policy, limiting the danger of being subjected to

5. See e.g. Camille Grand, 'France, Nuclear Weapons and Nonproliferation', in *US-European Nonproliferation Perspectives: A Transatlantic Conversation*, CSIS, Washington D.C., April 2009, pp. 11-13.

6. 'Speech by M. Jacques Chirac, President of the Republic, during his visit to the Strategic Forces', l'Île Longue/ Brest, 19 January 2006.

7. Ibid.

blackmail or retaliation if France were to be challenged by a country with weapons of mass destruction (WMD) capabilities. Finally, even though this is not directly avowed in official documents and statements, the French nuclear deterrent can be viewed as underpinning France's position in the international arena as a major power with global interests, capable of acting independently of the United States.

France wants to portray itself as a responsible nuclear weapons power, undertaking substantial and irreversible steps towards nuclear disarmament. Among the measures highlighted by the French government are: significant reduction of the number of warheads and delivery vehicles since the end of the Cold War, including the elimination of the surface-to-surface ballistic missile systems, dismantling of the nuclear test sites and ratification of the Comprehensive Test Ban Treaty (CTBT), cessation of the production of fissile materials for weapon purposes, and the ongoing dismantling of the fissile materials production facilities in Pierrelatte and Marcoule.

The French attitude towards the 'global zero' initiative is a cautious one. France has responded to the renewed interest in nuclear disarmament by promoting its own record and a new set of arms control and disarmament proposals. This agenda was also introduced by France into the EU forum during its EU Presidency in the second half of 2008. The Presidency supported the review of the 2003 EU Security Strategy, which devoted considerable attention to WMD non-proliferation issues, and President Sarkozy raised the issue personally by sending in December 2008 a letter on behalf of the EU to the UN Secretary General Ban Ki Moon with specific proposals on disarmament. On the other hand, France regularly highlights its scepticism regarding the prospects of reaching nuclear disarmament without resolving the problem of states aspiring to nuclear status, as well as major regional and interstate conflicts. France has consistently put the issue of nuclear disarmament in the context of general and complete disarmament, as formulated in Article VI of the NPT. According to this approach, attention should be focused on increasing the level of security for all members of the international community, which cannot be realised if only the nuclear weapons states are expected to bear responsibility for progress in disarmament.

The United Kingdom

Whereas France's position as a nuclear weapon state appears to be built on solid foundations, the United Kingdom has for long been internally divided over its continued reliance on the nuclear deterrent. Moreover, the UK is currently in the middle of the process of reaching a decision on the next generation of the single remaining component of the nuclear arsenal – the Trident system (nuclear submarines equipped with ballistic missiles). In addition to strategic considerations, the British

debate is influenced by the global discourse on nuclear disarmament, the nature and future of the UK's relations with the United States, and, last but not least, the dire situation of the country's economy and its armed forces.

Since the end of the Cold War, the UK strategic rationale for the deployment of nuclear weapons has highlighted the need to maintain credible deterrent capability in the context of the ongoing instability of the international system, continued possession of nuclear weapons by other states, and the emergence of new threats, such as the possibility that weapons of mass destruction might be acquired by additional states or non-state actors. As expressed in the 2006 report *The Future of the United Kingdom's Nuclear Deterrent*, in the perspective of the next 20 to 50 years 'we cannot rule out the risk either that a major direct nuclear threat to the UK's vital interests will re-emerge or that new states will emerge that possess a more limited nuclear capability, but one that could pose a grave threat to our vital interests'.[8]

In March 2007, the Labour government managed to achieve a majority in the House of Commons for its proposal to commence work on the new generation of the submarines, scheduled to enter service in the 2020s, and to participate in the US life extension programme for the Trident missiles, which aims to make their use possible on the next-generation submarines. The decision, however, marked only the beginning of the process. The decisions on signing contracts for design of the submarines have been postponed until 2012-14.

The proponents of reversing the decisions on Trident's successor put forward three major arguments. Firstly, the question of strategic utility. As three former high-level military officers put it in a January 2009 open letter, 'nuclear weapons have shown themselves to be completely useless as a deterrent to the threats and scale of violence we currently, or are likely to, face – particularly international terrorism'.[9] Secondly, the implementation of the decision to seek a replacement to the current system is claimed to be inconsistent with the British efforts in the field of non-proliferation and seeking progress in nuclear disarmament. Thirdly, the costs connected with the replacement programme would incur a significant burden for the UK budget, which is already under pressure, especially since the advent of the global financial crisis. The costs of the Trident renewal programme were officially put at £15-20 billion (for a force of four submarines), to be paid mainly in the period between 2012 and 2027. Other estimates put the figure much higher. A possible compromise between disarmament obligations, fiscal pressures, and the preference for the renewal of the submarine fleet, would be the reduction of the number of commissioned submarines from four to three.

8. Ministry of Defence, *The Future of the United Kingdom's Nuclear Deterrent*. Presented to Parliament by The Secretary of State for Defence and The Secretary of State for Foreign and Commonwealth Affairs, London, December 2006, p. 6.

9. Field Marshal Lord Bramall, General Lord Ramsbotham, General Sir Hugh Beach, 'UK does not need a nuclear deterrent', *The Times*, 16 January 2009.

The United Kingdom's activities in the field of non-proliferation and disarmament have been intensifying in the period leading to the 2010 NPT Review Conference.[10] However, even before the 'global zero' gained momentum, the UK's record has been fairly positive. Apart from the reductions in the number of weapons and delivery systems, it declared a moratorium on the production of fissile material for nuclear weapons purposes, presented information on the history of the production of fissile materials and the present holdings, and ratified the Comprehensive Test Ban Treaty. The UK also took the initiative in identifying methods and procedures for verification of nuclear disarmament (including authentication and dismantlement of warheads). President Obama's emphasis on nuclear disarmament has therefore been welcomed and supported by the UK. Prime Minister Brown emphasised that Great Britain was ready to engage jointly with other nuclear weapon states in reducing the number of weapons and their place in military doctrines. At the same time, he stressed that the non-nuclear states should put more efforts into fulfilling their part of the NPT bargain, and that the UK should not be expected to 'disarm unilaterally'.[11] Such statements seem to be designed to reduce external expectations regarding the possibility of far-reaching UK decisions on the future of its deterrent and link the British actions to progress in resolving the most pressing global non-proliferation crises.

NATO

The third element of the European nuclear puzzle consists of the US sub-strategic weapons assigned for use by the North Atlantic Alliance. The original reason for the deployment of tactical (battlefield) nuclear weapons in Europe during the Cold War was the need to counter the conventional superiority of the Warsaw Pact. NATO developed a system of nuclear sharing, in which the Allies would be involved in nuclear planning and decision-making, and some of the US nuclear weapons in Europe, controlled during peacetime by US military personnel, would be delivered to the targets by other Allied forces in the event of war in Europe.

Since the end of the Cold War, the transformation of the Atlantic Alliance has significantly altered the nuclear dimension of NATO. Nuclear weapons have lost their central role as a deterrent against a Soviet attack on NATO's European members. Still, their importance as instruments of deterrence has been recognised by the 1999 Strategic Concept (currently in force), which states that 'nuclear weapons make a unique contribution in rendering the risks of aggression against the Alliance incalculable and unacceptable'.[12]

In parallel with the process of reducing doctrinal reliance on nuclear weapons, their numbers, delivery systems, and storage sites have been scaled down significantly.[13] According to independent research, the

10. *The Road to 2010: Addressing the nuclear question in the twenty-first century* (London: Cabinet Office, July 2009). Presented to the Parliament by the Prime Minister, London, July 2009.

11. Prime Minister Gordon Brown, 'Speech on nuclear energy and proliferation', 17 March 2009, speech to the International Fuel Cycle Conference at Lancaster House. See: http://www.number10.gov.uk/Page18631.

12. 'The Alliance's Strategic Concept', Washington D.C. NATO Press Release NAC-S(99)65, 24 April 1999, par. 46.

13. Additionally, during the process of NATO enlargement, in order to placate the concerns of Russia, the Alliance formulated in 1996-97 the so-called 'three no-s' policy, which put political limitation on deployment: 'Founding Act on Mutual Relations, Cooperation and Security between NATO and the Russian Federation signed in Paris, France', 27 May, 1997. See: http://www.nato.int/cps/en/natolive/official_texts_25468.htm.

United States deploys between 150 and 240 tactical nuclear weapons (B-61 gravity bombs) at six bases in Belgium, the Netherlands, Germany, Italy (two bases) and Turkey.[14] NATO members Belgium, the Netherlands, Germany and Italy participate in the nuclear-sharing arrangements with the US which involve the deployment of the F-16 and Tornado dual-capable aircraft (DCA) modified and certified to deliver US nuclear gravity bombs.[15]

The retention of the sub-strategic nuclear capabilities in Europe by NATO has been criticised from a number of points of view. They are portrayed as a legacy of the Cold War, maintained without any strategic rationale and under dubious legal justifications.[16] They are also seen as a major impediment in the progress of nuclear disarmament. Especially in the context of the 'global zero' agenda and the NPT Review process, it is claimed that the modification of the NATO posture would be a symbol of changing attitudes by Western states towards the utility of nuclear weapons. It is also claimed that the political value of sub-strategic weapons as guarantors of transatlantic cohesion is overestimated, given the overall state of transatlantic relations and the nature of the challenges facing the Allies.

For these reasons, NATO seems to be well-suited to contribute to the current round of disarmament initiatives by taking far-reaching decisions on its sub-strategic arsenal.[17] Since the ultimate guarantee of the Alliance's security would still be the strategic nuclear forces of the US, UK and France, the 'insurance' role of nuclear weapons would be maintained even in the event of the removal of sub-strategic weapons from Europe and the discontinuation of the nuclear-sharing arrangements. The political and strategic benefits of the European deployment can be debated, but it is beyond doubt that a NATO decision on withdrawal would impact positively on the prospects of reaching progress in multilateral non-proliferation negotiations, such as the NPT review cycle.

NATO's decisions are, however, driven not only by the logic of non-proliferation. The possible future developments of the strategic environment of the Alliance must also be taken into account, specifically the probability of a sudden change of situation requiring the Alliance to develop a credible deterrence strategy against an opponent armed with weapons of mass destruction. Additionally, for a number of Allies the stationing of the nuclear weapons in Europe symbolises an important element of the US extended deterrence pledge.[18]

14. Hans Kristensen, 'Status of U.S. Nuclear Weapons in Europe', Federation of Atomic Scientists, 26 June, 2008. See: http://www.fas.org/programs/ssp/nukes/_images/EuroNukes.pdf.

15. For a detailed description of the state of knowledge about the deployment and DCA capabilities, consult: Ian Anthony, *The Future of Nuclear Weapons in NATO*, Friedrich Ebert Stiftung, 2008, pp. 26-32 (available online at: http://library.fes.de/pdf-files/bueros/stockholm/06123.pdf) and Hans Kristensen's blog entries at http://www.fas.org/blog/ssp/category/hans_kristensen.

16. 'NATO Nuclear Sharing and the NPT - Questions to be Answered', PENN Project on European Nuclear Non-proliferation, PENN Research Note 97.3, June 1997, see: http://www.bits.de/public/researchnote/rn97-3.htm; Bruno Tertrais, 'NATO and the Nuclear Non-Proliferation Regime', in Robert Pilat and David S. Yost, 'NATO and the Future of the Non-Proliferation Treaty', NATO Defence College *Occasional Paper* no. 21, Rome, May 2007, p. 92.

17. See, e.g., Rolleiv Solholm, 'Joint disarmament initiative in NATO', *Norway Post*, 2 March 2010, at: http://www.norwaypost.no/content/view/23267/26/

18. 'America's Strategic Posture', The Final Report of the Congressional Commission on the Strategic Posture of the United States, US Institute for Peace Press, Washington D.C, 2009, p. 20.

Problems on the road to nuclear zero – the European context

The prospects for progress on nuclear disarmament in Europe must be assessed against the arguments in favour of the continued reliance on nuclear weapons by France and the UK, as well as the retention of the sub-strategic component by NATO in Europe. In none of these cases, deterrence against a specific state-originating threat has been cited as a rationale for the possession of nuclear weapons. However, the arguments that nuclear weapons serve as an insurance against the uncertainties of the future should be analysed primarily in the context of the situation pertaining in the vicinity of Europe. Even though the situation in East Asia or on the Indian subcontinent might be of grave concern to the European states, strategic nuclear challenges for Europe lie closer to its borders.

Russia

Historically, the most important reason for the development of nuclear arsenals by France and the UK, as well as the deployment of tactical nuclear weapons by NATO, was the need to have at their disposal a retaliatory option and battlefield weapons that could be used against the Soviet Union. With the demise of the Soviet Union and the stabilisation of the internal situation in Russia, the case for treating Moscow as a strategic adversary lost its rationale. Despite differences of opinion over such issues as the enlargement of NATO, US Missile Defence plans, or the resolution of crises and frozen conflicts in the post-Soviet area, the evolution of their post-Cold War relationship never reached a point where Russia's European partners saw the necessity of re-assessing the basic assumption that their relationship was now essentially non-confrontational in character.

If Russia is highlighted in the context of obstacles to nuclear disarmament in Europe, this has to do with two major issues. Firstly, Russia assigns an important role to nuclear weapons in its military doctrine. Russia continues to rely on nuclear weapons as a strategic deterrence tool against WMDs, but is also prepared to use a nuclear strike to repel a conventional attack. According to the 2000 Military Doctrine, Russia 'reserves the right' to use nuclear weapons also 'in response to large-scale aggression using conventional weapons in situations that are critical to the national security of the Russian Federation'.[19] Nuclear weapons can also be used to 'de-escalate' a conflict, i.e. provide a solution in the event of a defeat of the Russian forces during the first phase of a war.[20] During the process of preparation of the new military doctrine, the use of nuclear weapons had apparently been discussed in detail,

19. 'Military Doctrine of the Russian Federation, 2000', cited in: Alexei Arbatov, Vladimir Dvorkin (eds.), *Nuclear Deterrence and Non-Proliferation* (Moscow: Carnegie Moscow Center, 2006), p. 25.

20. Nikolai Sokov, 'The Evolving Role of Nuclear Weapons in Russia's Security Policy', in: Cristina Hansell, William C. Potter (eds.), 'Engaging China and Russia on Nuclear Disarmament', *Occasional Paper* no. 15, James Martin Center for Nonproliferation Studies, Monterey Institute, April 2009, p. 78.

with some officials contemplating their usage not only in large-scale conflicts, but also in local wars, where the enemies would have limited goals, not threatening the survival or sovereignty of Russia.[21] The final document, presented in February 2010, does not include such a broadened interpretation, and repeats by and large the language of the 2000 doctrine on the use of nuclear weapons to repel WMD attacks and conventional aggression. In the latter case, the use of nuclear weapons would be possible in situations when 'the very existence of the Russian Federation is put under threat'.[22] Taken together with the vast number of non-strategic nuclear weapons (no official data available, but independent estimates of operationally available warheads put their numbers at more than 2,000), part of which can be delivered by tactical aviation and the navy, such a posture may be a source of concern for a number of European states.

Secondly, a degree of uncertainty exists regarding how political developments in Russia will evolve over the long term. Although currently rather improbable, the worst-case scenario with regard to Russia would involve the rejection of closer political and economic ties with Europe and the adoption of a confrontational posture towards it. Such a profound change might be a reaction to a serious internal political or economic crisis, or a perceived rejection of Russia by its partners in Europe. If such negative developments in Russia were to occur, with the return of Cold War-type rhetoric, the case for nuclear disarmament in Europe would be significantly less convincing.

Iran

The Iranian nuclear crisis and the possibility of Iran crossing the nuclear threshold has the greatest impact on the debate on the future of nuclear weapons in Europe. The European countries' engagement in the Middle East, special relations with Israel and economic considerations (mostly connected with the reliance on imported oil and natural gas from the region), create a specific security relationship. European countries, especially France and the United Kingdom, remain interested in maintaining influence over security developments in the Middle East.

In the last few years, the main source of concern in the region in terms of non-proliferation has been Iran's nuclear programme. After the scope of the programme was revealed in 2002, the three main European countries (France, Germany and the UK – the EU-3) attempted direct negotiations with Tehran. Later, they joined other members of the Security Council in the P5+1 group, which made several attempts to bring about a negotiated solution to the confrontation with Iran. The actions of the EU-3 group have been supported by the European Union as a whole, with the presence of the then SG/HR Javier Solana at the negotiating

21. Secretary of the Security Council of the Russian Federation Nikolai Patrushev, 'Меняется Россия, меняется и ее военная доктрина' ['Russia is changing, and so does its military doctrine'], *Izvestia*, 14 October 2009. See: http://www.izvestia.ru/politic/article3134180. In the subsequent interview on the drafting of the new document, Patrushev did not allude to the possibility of using nuclear weapons in local wars, but rather emphasised that nuclear weapons would be used in situations critical for national security. 'Военная доктрина в третьем варианте' ['Third version of the military doctrine'], interview with Nikolai Patrushev, *Rossiyskaya Gazeta*, 20 November 2009. See: http://www.rg.ru/2009/11/20/patrushev.html.

22. 'Военная доктрина Российской Федерации', 5 February 2010. See: http://news.kremlin.ru/ref_notes/461.

table as a symbolic confirmation of its role. The European countries have frequently voiced concerns over the future of the Iranian programme, and pointed to the grave consequences that failure to resolve the crisis by peaceful means would entail for Iran and for the region.

The acquisition of nuclear weapons by Iran, and the possibility that this may prompt other Middle Eastern states (such as Egypt or Saudi Arabia) to reconsider their non-nuclear weapons status, would strengthen the case for the need for nuclear deterrence in Europe. However, the threat would most likely not be one of direct Iranian aggression against a European state (Turkey included). If Iran were indeed to acquire nuclear weapons, its main aim would probably be to establish deterrence against countries it views as the main threats to its security, primarily the United States and Israel.

European countries could however become the objects of nuclear threats if they decide to support or initiate coercive measures against Iran after it crosses the nuclear threshold. In such a scenario, the possession of nuclear weapons by the European countries or NATO could indeed influence the course of a crisis. In the absence of nuclear weapons, Europe would need to rely either on conventional means to counter Iranian threats, or on extended nuclear deterrence provided by the strategic forces of the United States. It is difficult to predict the Iranian decision-making process in such a theoretical scenario, and especially to gauge Iran's potential willingness to act on its nuclear threats if its attempts to block action by European states were to prove unsuccessful. Nevertheless, in the absence of credible, independent means for nuclear deterrence, Europe might be less inclined to get engaged in a major conflict with a nuclear-armed Iran, other than in a scenario where it was defending itself against direct aggression. On a separate track, the possession of nuclear weapons would increase the credibility of any extended deterrence pledges which France, the UK or NATO might be willing to offer to the countries of the region in the aftermath of Iran's violation of the NPT.

Status issues and the phased-approach argument

Two other aspects may prove to pose significant obstacles in advancing the goal of nuclear disarmament in the European context. The first has to do with the status of France and the United Kingdom as global players. Despite frequent claims to the contrary, the possession of nuclear weapons can be interpreted as being connected with an increased global influence, especially when issues of international security, non-proliferation, arms control and disarmament are discussed and decided. Even if the question of whether nuclear weapons grant their owners any sort of prestige is answered negatively, both countries would need to be certain that the renunciation of nuclear weapons would not

adversely affect their status in the international arena. Disarmament might be internationally applauded, but it can also be interpreted as an admission of lowered ambitions in the security sphere or abdication of responsibility for maintaining global stability.

The second problem concerns the incremental approach to nuclear disarmament, preferred by the 'global zero' movement and now endorsed by President Obama. If the process of disarmament is to stretch over a long period of time and start with the most pressing issues, it can be argued that there is no immediate urgency in requiring further progress on disarmament from France or the UK. At the global level, it can be said, the priority should be given to securing the reductions of the nuclear arsenals of Russia and the United States, increasing the transparency of China with regard to its nuclear weapons, de-alerting, securing the entry into force of the CTBT, starting the negotiations on the Fissile Material Cut-Off Treaty (FMCT), or finding new approaches to involve India, Pakistan and Israel in the discussions on disarmament. The progress towards disarmament would also be achieved through resolving the Iranian and North Korean crises, as well as preventing other states from developing nuclear weapons. The existence of the French and British nuclear deterrent either has very little impact on these issues, or would only start to play a more important role at a late stage in the process (when the issue of strategic stability at low numbers and proportional reductions of arsenals would become important).

The case for delaying major decisions on disarmament is significantly weaker for NATO sub-strategic weapons, which are in essence a part of the US arsenal. Because of the controversies that their presence in Europe generates, and lingering questions over their strategic value for the Alliance, they seem to be well-suited to be included early in the process of nuclear disarmament. The argument can be made that instead of allowing the sub-strategic component to be withdrawn quietly or for technical reasons, the Alliance's Member States can use this opportunity to make an unequivocal statement in support of nuclear disarmament. Moreover, the withdrawal of US nuclear weapons from Europe could open up the possibility for the United States to engage Russia and other countries on the subject of sub-strategic weapons in the negotiations on transparency measures and reductions, which would significantly help in advancing the 'global zero' agenda.

The role of the European Union

The extent to which the European Union can serve as an independent actor in the field of nuclear disarmament is limited. The EU has identified the proliferation of weapons of mass destruction as 'potentially the

greatest threat' to its security.[23] Based on the 2003 EU Strategy against the Proliferation of Materials and Weapons of Mass Destruction, the EU has developed a wide range of instruments and capabilities necessary for active engagement in the field of non-proliferation.[24]

On the issue of nuclear disarmament, however, the framing of a coherent EU position is crippled by the fact that among the members of the EU there are two nuclear weapons states, a group of countries which as NATO members take part in the shaping of the nuclear strategy of the Alliance or are actively participating in nuclear-sharing arrangements, and also states which have been actively engaged in the promotion of nuclear disarmament, such as Austria, Ireland or Sweden. Since the area of foreign policy in the EU is still subject, as a rule, to the unanimity principle, the European Union can act as a whole only once it has reached an internal agreement. The result is a relatively weak position on nuclear disarmament.[25] The EU routinely expresses support for the goal established in Article VI of the NPT, highlights the progress made by the two nuclear weapon states which are its members, and calls for renewed efforts towards disarmament by other NPT members (both nuclear and non-nuclear). However, it is careful to note that, under the NPT, a balanced approach is necessary, and the review process is supposed to 'give equal weight to all its three pillars'.[26] Such a cautious approach distinguishes the EU from the Non-Aligned Movement (and also from a number of NGOs), which tend to stress the priority of strengthening the 'disarmament' pillar of the Treaty.

Within the existing legal framework of the European Union, there are no possibilities of adopting a more progressive stance on nuclear disarmament as long as there is no universal support for it. The Member States might even prefer for the EU to state support for nuclear disarmament in general terms, and pursue more ambitious disarmament initiatives through other channels. One such initiative seems to be a joint op-ed devoted to the issue of tactical nuclear weapons, published in February 2010 by the Foreign Ministers of Sweden and Poland Carl Bildt and Radosław Sikorski.[27] The ministers called for wide-reaching reductions, and the ultimate withdrawal by the US and Russia of the sub-strategic nuclear weapons from European territory, labelling them 'dangerous remnants of a dangerous past'. It seems that the Polish-Swedish initiative had not been previously discussed at the EU (or NATO) forum, and it ran against the conventional wisdom regarding the position of Poland on the US sub-strategic weapons. Still, it served as a catalyst for discussion on the European Union's approach to the issue of the sub-strategic weapons in Europe.

At the other end of the EU spectrum, there are no indications that the European Union as a whole might be interested in participating in any form in the control of nuclear weapons. In the past, France had

23. 'A Secure Europe in a Better World: European Security Strategy', Brussels, 12 December 2003, p. 3.

24. For an overview, consult: Gerrard Quille, 'A New Transatlantic Approach? A view from Europe', in: Oliver Meier, Christopher Daase, *Coercive Arms Control* (New York, NY: Routledge, forthcoming, 2010).

25. Alyson Bailes, 'The EU, Arms Control and Armaments', *European Foreign Affairs Review,* vol. 12, no. 1, 2007, p. 2

26. 'Six-monthly Progress Report on the implementation of the EU Strategy against the proliferation of Weapons of Mass Destruction', no. 17387/09, Brussels, 9 December 2009, p. 18. See: http://register.consilium.europa.eu/pdf/en/09/st17/st17387.en09.pdf.

27. Carl Bildt and Radosław Sikorski, 'Next, the Tactical Nukes', *International Herald Tribune / New York Times,* 2 February 2010. See: http://www.nytimes.com/2010/02/02/opinion/02iht-edbildt.html.

been promoting the idea of a 'European deterrent', according to which its nuclear forces, with possible support from the UK, would serve as ultimate guarantees of the security of the European Union. Such an arrangement would not necessarily involve engaging other Member States in the decision-making process (let alone the stationing of nuclear weapons in those states), but would require some sort of recognition that the nuclear forces play such an important EU-wide role, and a basic consultation mechanism. However, since any impression that they might be ready to rely on nuclear deterrence for their protection would be anathema to some of the EU Member States, the issue never appeared on the EU agenda. Nevertheless, it occasionally re-surfaces among the analysts discussing European security.[28]

Realistically, the concept of France and the UK holding nuclear weapons 'in trust for Europe'[29] might come to play a more prominent role only in an unlikely event of the United States negating their extended deterrence obligations to Europe, thus creating a *security deficit* on the continent. The prevailing conceptualisations of the EU as an important security actor in the twenty-first century tend to emphasise not the deterrent capabilities, but rather its ability to conduct multilateral diplomacy, adopt a comprehensive approach to security problems, or use its 'soft power' and economic instruments to influence other actors' behaviour. Even with the changes introduced by the Lisbon Treaty, the EU is not an organisation which provides its Member States with security guarantees that cover the entire spectrum of threats. The value of the Treaty on European Union's common defence clause is diminished by the lack of any joint mechanisms for implementing it.[30] The 'solidarity clause' introduced by the Lisbon Treaty, on the other hand, stipulates that the EU and its Member States 'shall act jointly in a spirit of solidarity if a Member State is the object of a terrorist attack or the victim of a natural or man-made disaster'.[31] Accordingly, it does not cover the contingencies related to the use of nuclear weapons, possibly except for in the unlikely event of a state-sponsored WMD attack for which a nuclear retaliation could be contemplated. It seems that only a scenario whereby the value of nuclear weapons for Europe suddenly increased (e.g. as a consequence of being subjected to nuclear attack or blackmail) could cause the European Union Member States to re-think their current approach, in which the nuclear deterrent of France and the UK does not cover the European Union.

28. Benjamin Schreer and Patrick Keller, 'Getting to Zero. From nuclear sharing to a European deterrence strategy', *IP-Global*, vol. 11, January-February 2010. See: http://www.ip-global.org/archiv/volumes/volume-11-2010/the-afghanistan-conundrum/from-nuclear-sharing-to-a-european-deterrence-strategy.html..

29. A phrase believed to have been coined by the British politician Edward Heath, mentioned in: Sir Michael Quinlan, 'The Future of Deterrent Capability for Medium-Sized Western Powers in the New Environment', IFRI *Proliferation Papers*, Autumn 2001, pp. 9 and 16.

30. 'Consolidated version of the Treaty on European Union', Art. 42 (7), *Official Journal of the European Union*, C 115, 9 May 2008.

31. 'Consolidated version of the Treaty on the Functioning of the European Union', Art. 222, *Official Journal of the European Union*, C 115, 9 May 2008.

Options for the future

The analysis conducted so far indicates that although Europe might be the most promising area where full nuclear disarmament is likely to happen in the future, there are few direct links between the dynamics

of the decision-making on nuclear issues in Paris, London and Brussels. In each of these cases, the reliance on nuclear weapons has its roots in different historical experiences, analyses of the contemporary security environment and expectations about the future. Moreover, it should be highlighted that even with nuclear weapons on its soil Europe can be treated as a positive example for other regions, as an area in which the salience of nuclear weapons in inter-state relations has been reduced to a minimum, while the ban on nuclear tests and support for a fissile material cut-off treaty have become universal standards.

Still, the European Union cannot be expected to act as a catalyst for nuclear disarmament. On the contrary, any attempts by other EU members to apply pressure on France or the UK on the issue would stand no chance of success and be highly divisive. The perspectives of mobilising European public opinion in support of the goal of a nuclear-weapon-free Europe also appears unlikely to succeed. Negative attitudes towards nuclear weapons might predominate in many European states (for example in Germany and Belgium, where US nuclear weapons are most probably stored) and have been picked up by some of the mainstream political parties there, but country-specific demands for removing nuclear weapons have not yet transformed into a pan-European demand for change. Several NGOs have made attempts to generate wider discussion about the role of nuclear weapons in Europe, especially in the NATO context, but have not managed to attract public attention on a European level so far.

France remains wary of some aspects of the 'global zero'. According to Paris, focusing on the NPT nuclear weapon states and their disarmament obligations may create unrealistic expectations, at the same time serving as an excuse to reduce pressure on the countries violating non-proliferation norms. The French authorities seem determined to ensure that the current emphasis on nuclear disarmament would not endanger France's ability to maintain a robust deterrent force. At the same time, France is trying to change the image of itself as being the 'odd country out', when it comes to nuclear disarmament.[32] It is supportive of taking practical steps towards lowering the dangers connected with the maintenance of nuclear arsenals and moving forward the disarmament-related agenda. President Sarkozy proposed in March 2008, and reiterated in a December 2008 letter to UN Secretary General Ban Ki Moon, a set of measures in this regard: universal ratification of the Comprehensive Test Ban Treaty, dismantling of all nuclear testing sites, global moratorium on the production of fissile material for nuclear weapons purposes and the beginning of negotiations on a treaty banning its production, agreeing on transparency measures by the five nuclear weapon states recognised by the NPT, commencement of negotiations on a treaty banning short- and intermediate-range surface-to-surface

32. Bruno Tertrais, 'France and Nuclear Abolition: The Odd Country Out?', *Proliferation Analysis*, 3 September 2009. See: http://www.carnegieendowment.org/publications/index.cfm?fa=view&id=23789.

missiles, and universal accession to the Hague Code of Conduct Against Ballistic Missile Proliferation.[33]

The United Kingdom seems to be more receptive to the arguments of the proponents of 'global zero' than France, and the conditions for moving towards disarmament are more favourable there. The option of reversing the initial decision on the Trident replacement by the next Parliament is open. It could be supported by the argument referring both to the benefits of such a decision for the cause of nuclear disarmament and the non-proliferation regime, and the financial benefits of cancelling the programme (made all the more pressing in the context of the current economic crisis).

The risk connected with reversing the Trident decision might however be considered too high by the main political parties of the UK. The leadership of the Labour party supported the 2007 decision on renewal, despite backbench opposition, and would be disinclined to contradict the case its own government made for the retention of the deterrent. Despite reports that the Conservative Party might be willing to postpone the decision on the funding of the next generation of the submarines, the party officially remains committed to 'replacing Trident and maintaining the UK's independent nuclear deterrent'.[34] Only the Liberal Democrats declare their opposition to the renewal of Trident. Consequently, the window of opportunity for moving decisively towards disarmament might not materialise. Also, popular support for a non-nuclear UK may weaken if the arguments relating to the 'insurance function' of nuclear weapons and Britain's position in the world are invoked in the discussion.

The support of the members of the Alliance for 'global zero' may be crucial in determining the future of NATO's sub-strategic nuclear weapons.. Since the issue of nuclear disarmament has been put firmly on the global agenda, it becomes increasingly difficult to maintain the position that NATO can be isolated from the process. The preparation of the new strategic document to guide NATO's action in the coming decade presents an opportunity to involve all the Allies in discussions on the future of NATO's remaining nuclear weapons. In such a debate, the arguments referring to the need to contribute to the US-led disarmament efforts may occupy an important place.

The initiative of the new German government, which requested consultations in NATO and with the US on the removal of nuclear weapons from its territory, changed the terms of the debate.[35] It put the issue of the withdrawal of nuclear weapons from Europe, discussed so far mainly among experts, government and NATO officials, very much in the public spotlight.[36] The need to reconsider NATO's nuclear doctrine and shape the formulations of the new Strategic Concept accordingly

33. 'Letter from President Nicolas Sarkozy to H. E. Mr. Ban Ki Moon, Secretary General of the United Nations', 5 December 2008. See: https://www.carnegieendowment.org/files/Sarkozy_UN_letter_20081208.pdf.

34. 'Where we stand: Defence', Conservative Party website. See: http://www.conservatives.com/Policy/Where_we_stand/Defence.aspx.

35. The pledge to pursue the withdrawal of the remaining nuclear weapons from Germany in contacts within NATO and with the US was included in the coalition agreement between the FDP and CDU/CDU from 24 October 2009. See: http://www.cdu.de/doc/pdfc/091026-koalitionsvertrag-cducsu-fdp.pdf.

36. Oliver Meier, 'German Nuclear Stance Stirs Debate', *Arms Control Today*, December 2009. The German position was criticised *inter alia* by the former NATO Secretary-General George Robertson in: Franklin Miller, George Robertson, Kori Schake, 'Germany Opens Pandora's Box', Centre for European Reform, Briefing Note, February 2010. See: http://www.cer.org.uk/pdf/bn_pandora_final_8feb10.pdf.

was highlighted *inter alia* by Norway's Foreign Minister Jonas Gahr Støre.[37] In a speech delivered in February 2010, he put emphasis on the need to reach a consensus between reducing the saliency of nuclear weapons in NATO's doctrine and maintaining a credible collective defence posture.

As for now, no European member of NATO has come out openly in support of maintaining the US nuclear weapons, although many reports claim that the Allies in Central and Eastern Europe, as well as Turkey, would oppose the withdrawal on the grounds that it would weaken the value of US extended deterrence and the cohesion of the Alliance.[38] Such views seem to be expressed mainly during informal meetings with experts and officials from the abovementioned countries, and questions remain as to what extent they reflect formally adopted policy guidelines or preferences or concerns over the general state of relations with the US and the condition of the Atlantic Alliance. In the case of Turkey, its anxiety about the diminishing value of the US and NATO's security guarantees has been growing in recent years, and a debate on the removal of NATO's sub-strategic weapons from Europe can be used by a part of the establishment as an argument for the need to conduct a more independent security policy.[39]

For the countries of Central and Eastern Europe admitted to the Alliance after 1999, the relative weight of the sub-strategic nuclear weapons issue depends on their level of concerns *vis-à-vis* Russia, which seems to be at present highest in the Baltic states.[40] However, all countries of the region, including Poland, the Czech Republic, Slovakia and Hungary, view the issue of the credibility of Article 5 deterrence commitments (and the US involvement in Europe) as a comprehensive package, in which the stationing of the nuclear weapons in Europe is not a central element. There is no willingness to increase the operational profile of nuclear weapons in NATO or to change the 'three no-s' policy which prohibits the stationing of nuclear weapons on their territories.[41] Also, many experts and officials in Central Europe have expressed reservations about the possible negative consequences of a debate on NATO's nuclear posture. It is feared in the region that such a discussion would create an additional platform of conflict between the Allies, especially if it is not connected with a wider reflection on the strengthening of the non-nuclear deterrence dimension of NATO. The issue of deterrence-by-denial, for example through the development of a NATO-wide missile defence architecture, may also need to become a part of such a debate.

NATO has some degree of flexibility regarding the possible next steps. The most radical decision would involve the withdrawal of the weapons to the US, discontinuation of nuclear sharing, and the dismantling of infrastructure. Other options might include the consolidation of nuclear weapons in fewer locations in Europe and providing more detailed

37. 'Disarmament – reframing the challenge', speech by the Minister of Foreign Affairs at the 45th Annual Conference of the Norwegian Atlantic Committee, Oslo, 1 February 2010. See: http://www.regjeringen.no/en/dep/ud/Whats-new/Speeches-and-articles/speeches_foreign/2010/disarmament.html?id=592550.

38. Miles A. Pomper, William Potter and Nikolai Sokov, 'Reducing and Regulating Tactical (Nonstrategic) Nuclear Weapons in Europe', James Martin Center for Nonproliferation Studies, Monterey Institute, Prepared for Unit for Policy Planning and Research Finnish Ministry for Foreign Affairs, December 2009, pp. 27-31.

39. Henri J. Barkey, 'Turkey's perspectives on nuclear weapons and disarmament', in Barry Blechman (ed.), *Unblocking the Road to Zero. Perspectives of Advanced Nuclear Nations,* Stimson Center, September 2009, pp. 68-69.

40. This paragraph draws upon the interviews conducted with the representatives of the public administration (MFAs, MoDs) and the strategic community of Poland, the Czech Republic, Slovakia, Hungary, Lithuania and Latvia in August-September 2009 in the framework of the PISM-SIPRI project, 'The attitudes of the Central and Eastern European members of NATO towards the Alliance's nuclear strategy'.

41. Such an attitude was also confirmed by the Polish Foreign Minister Radoslaw Sikorski. See: Carl Bildt, Radoslaw Sikorski, op. cit. in note 27.

information about their numbers and operational status, or withdrawal of weapons to the US without the dismantling of the infrastructure. Another approach to the issue would be to postpone the major decisions until the question of the ageing of the dual-capable aircraft becomes the deciding factor.

The United States plays a pivotal role in deciding the future of the NATO sub-strategic weapons in Europe. If the US decides that its nuclear posture should be brought in line with the emphasis on the reduction of the salience of nuclear weapons in US strategy declared by the Obama administration, the withdrawal of nuclear weapons deployed abroad can serve (together with the reductions of the strategic component) as a confirmation of US resolve. Unequivocal support of some of the major US allies in Europe for the withdrawal could be one of the major factors shaping the final position of the US administration. In a short-term perspective, that seems to be the main area in which Europe can contribute to the 'global zero' agenda.

Annexes

Treaty on the Non-Proliferation of Nuclear Weapons

The NPT opened for signature 1 July 1968, and entered into force on March 5th, 1970.

PREAMBLE

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

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

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

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

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

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

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

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

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

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

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

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

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

Have agreed as follows:

Article I

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

Article II

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

Article III

1. Each non-nuclear-weapon State party to the Treaty undertakes to accept safeguards, as set forth in an agreement to be negotiated and concluded with the International Atomic Energy Agency in accordance with the Statute of the International Atomic Energy Agency and the Agency's safeguards system, for the exclusive purpose of verification of the fulfillment of its obligations assumed under this Treaty with a view to preventing diversion of nuclear energy from peaceful uses to nuclear weapons or other nuclear explosive devices. Procedures for the safeguards required by this Article shall be followed with respect to

source or special fissionable material whether it is being produced, processed or used in any principal nuclear facility or is outside any such facility. The safeguards required by this Article shall be applied on all source or special fissionable material in all peaceful nuclear activities within the territory of such State, under its jurisdiction, or carried out under its control anywhere.

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

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

4. Non-nuclear-weapon States Party to the Treaty shall conclude agreements with the International Atomic Energy Agency to meet the requirements of this Article either individually or together with other States in accordance with the Statute of the International Atomic Energy Agency. Negotiation of such agreements shall commence within 180 days from the original entry into force of this Treaty. For States depositing their instruments of ratification or accession after the 180 day period, negotiation of such agreements shall commence not later than the date of such deposit. Such agreements shall enter into force not later than eighteen months after the date of initiation of negotiations.

Article IV

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

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

Article V

Each Party to the Treaty undertakes to take appropriate measures to ensure that, in accordance with this Treaty, under appropriate international observation and through appropriate

international procedures, potential benefits from any peaceful applications of nuclear explosions will be made available to non-nuclear-weapon States Party to the Treaty on a non-discriminatory basis and that the charge to such Parties for the explosive devices used will be as low as possible and exclude any charge for research and development. Non-nuclear-weapon States Party to the Treaty shall be able to obtain such benefits, pursuant to a special international agreement or agreements, through an appropriate international body with adequate representation of non-nuclear-weapon States. Negotiations on this subject shall commence as soon as possible after the Treaty enters into force. Non-nuclear-weapons States Party to the Treaty so desiring may also obtain such benefits pursuant to bilateral agreements.

Article VI

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

Article VII

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

Article VIII

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

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

3. Five years after the entry into force of this Treaty, a conference of Parties to the Treaty shall be held in Geneva, Switzerland, in order to review the operation of this Treaty with a view to assuring that the purposes of the Preamble and the provisions of the Treaty are being realized. At intervals of five years thereafter, a majority of the Parties to the Treaty may obtain, by submitting a proposal to this effect to the Depository Governments, the

convening of further conferences with the same objective of reviewing the operation of the Treaty.

Article IX

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

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

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

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

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

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

Article X

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

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

Article XI

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

IN WITNESS WHEREOF the undersigned, duly authorized, have signed this Treaty. DONE in triplicate, at the cities of London, Moscow and Washington, the first day of July, one thousand nine hundred and sixty-eight."

About the authors

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Abbreviations

BTWC	Biological and Toxin Weapons Convention
CD	Conference on Disarmament
CFSP	Common Foreign and Security Policy
CTBT	Comprehensive Test Ban Treaty
CTR	Cooperative Threat Reduction
CWC	Chemical Weapons Convention
DG	Directorate General
DPRK	Democratic People's Republic of Korea
EEAS	European External Action Service
ENP	European Neighbourhood Policy
ESS	European Security Strategy
FMCT	Fissile Material Cut-Off Treaty
GNEP	Global Nuclear Energy Partnership
IAEA	International Atomic Energy Agency
IT	Information Technology
MFA	Ministry of Foreign Affairs
MNA	Multilateral Nuclear Approach
MoD	Ministry of Defence
MoU	Memorandum of Understanding
MP	Member of Parliament
NAM	Non-Aligned Movement
NATO	North Atlantic Treaty Organisation
NGO	Non-Governmental Organisation
NNWS	Non-Nuclear Weapon States
NPR	Nuclear Posture Review
NPT	Nuclear Non-Proliferation Treaty
NSG	Nuclear Suppliers Group
NWS	Nuclear Weapon States
PBMR	Pebble Bed Modular Reactor
SORT	Strategic Offensive Reductions Treaty
START	Strategic Arms Reduction Treaty
UAE	United Arab Emirates
UN	United Nations
UNSC	United Nations Security Council
UNSCR	United Nations Security Council Resolution
WMD	Weapons of Mass Destruction
WNA	World Nuclear Association

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This *Chaillot Paper* is published on the eve of the eighth review conference of the Treaty on the Non-Proliferation of Nuclear Weapons (NPT). The NPT remains a central pillar in the global quest to prevent the spread of destabilising armament programmes and a nuclear war. But the 'grand bargain' on which it is based is increasingly under strain.

The 2010 Review Conference takes place amid rising concerns about proliferation, in the light of nuclear tests conducted by North Korea, the ongoing controversy over Iran's nuclear programme, and the threat posed by international clandestine nuclear supply networks.

The perceived weakening of the NPT has in recent years led to a fresh focus on the global elimination of nuclear weapons. However, the new emphasis on disarmament does not erase the profound problems currently besetting the NPT.

This paper, edited by Jean Pascal Zanders and featuring contributions from other experts and academics, explores the prospects for the NPT from a variety of perspectives. Topics examined by the authors in this volume include: how consensus might be achieved among the international community on core issues affecting the treaty; how a new foundation for international nuclear technological cooperation might be built; the prospects for comprehensive nuclear disarmament in Europe; the politics of disarmament in the Anglo-American context; and how the EU might be able to exert a more significant impact on future developments.

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