

Strengthening the global non-proliferation regime is urgently needed, not least because of growing interest in nuclear energy. Difficult though this issue may be, a solution to the conundrums of non-proliferation politics is also within our reach. This publication testifies to the emerging international consensus on how to revitalize the Non-Proliferation Treaty, secure nuclear materials and facilities, and to progress towards nuclear disarmament. A universal regime for the production, use, and reprocessing of nuclear fuel under multilateral control, and a firm reaffirmation of the goal of nuclear disarmament, together constitute the vital basis for a strong and effective non-proliferation regime.

This book contains the contributions by leading experts, politicians and civil society organisations from around the world to the agenda-setting international conference "Peace and Disarmament: a World without Nuclear Weapons?". They explore the challenges and opportunities before us today.

Peace and Disarmament: A World without Nuclear Weapons?

Peace and Disarmament: A World without Nuclear Weapons?

Edited by
Hannes Swoboda and
Jan Marinus Wiersma



Socialist Group in the
European Parliament



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The contributions
in this publication do
not represent the Socialist
Group's official position

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Table of contents

Preface: A Window of Opportunity Martin Schulz	5
Reviving the NPT and Working towards Disarmament: The Contribution of Multilateral Fuel Cycle Arrangements Ana Gomes, Hannes Swoboda and Jan Marinus Wiersma	9
Weblog Conference Peace and Disarmament Toine van de Ven	21
European Proposals for Strengthening Disarmament and the Non-Proliferation Regime Javier Solana	29
Message: Remove the Sword of Damocles Mohamed El Baradei	35
International Fuel Cycle Arrangements Key to a New Non-Proliferation Bargain Ellen Tauscher	39
Setting the Agenda for Nuclear Disarmament Sergio Duarte	45
Our Common Objective: A World Free of Nuclear Weapons Konstantin Kosachev	53
The Continuing Relevance of NATO's Nuclear Deterrence Strategy in an Uncertain World Guy Roberts	57
The New US Policy: Securing the World from Nuclear Threats Joseph Cirincione	67

The Missing Link: Political Decision and Will to Build and Manage Security without Nuclear Weapons Rebecca Johnson	77
A Successful 2010 NPT Review Conference Volodomyr Yelchenko	87
Free the World of Nuclear Weapons by 2020 Dominique Lalanne	95
The Need for Equal Treatment Kate Hudson	97
Assurances of Supply and Non-Proliferation: A New Framework for Nuclear Energy Vilmos Cserveny	101
How to Make MNA Acceptable? Harald Müller	113
Policy Options for Peaceful Nuclear Programmes: Multilateralization of the Nuclear Fuel Cycle Rajesh Rajagopalan	117
Putting the Spotlight Back on Disarmament Alyson Bailes	125
Multilateralisation of the Nuclear Fuel Cycle: A Comparison of Existing Proposals Ian Anthony	129

Preface

A Window of Opportunity

Martin Schulz



The conference “Peace and Disarmament: A World without Nuclear Weapons” organised by the Socialist Group in the European Parliament was a timely event. Formulating an effective answer to the risk of nuclear proliferation is more pressing than ever. Despite the continuing – and possibly growing – threat that dangerous nuclear materials spread into corners of the world that escape effective oversight, progress to strengthen the structures that are to assure nuclear safety has been limited. More optimistically however, there are signs that a new consensus is emerging on how the international community is to tackle nuclear proliferation.

The title of our conference reflects the ambitious objective we think the international community should embrace. We need to rebuild trust in international cooperation as the ultimate means to address common challenges and threats. We need to reconfirm – in words and in deed – the universal applicability of international treaties, the essential source of their strength and legitimacy. And we need to recognize the necessity to establish multilateral control, oversight and even ownership of nuclear facilities if we are to effectively address the risks related with the spread of nuclear technology.

Ultimately, in this same process, we also need a shared vision of a world free of nuclear weapons. Only a firm commitment to eventual total nuclear disarmament provides the firm basis for all the other necessary elements of a truly effective global system of guarantees for the safe use of nuclear technology. I am convinced this is not an illusion, a dream that is beyond our reach. I believe, and the contributions in this collection testify so much, that we will have the opportunity in the coming years to turn that dream into reality.

We can discern the emerging consensus on the intertwined goals of a strong non-proliferation regime and a world without nuclear weapons on the op-ed pages of leading newspapers. Many prominent policy makers and commentators are throwing their weight behind this aim. In the United States a now famous – and bipartisan – article by George Shultz, Henry Kissinger, William Perry and Sam Nunn in the Wall Street Journal in January 2007 unleashed a policy debate that is clearly going in that direction. UK Foreign Secretary David Miliband publicly embraced the idea just a day before our conference, on 8 December 2008. In my own country, Foreign Minister Frank-Walter Steinmeier is a key-player in this debate. And most recently, political heavyweights Helmut Schmidt, Richard von Weizsäcker, Egon Bahr and Hans-Dietrich Genscher set out an ambitious agenda, urging the European Union to answer to the call for a transatlantic non-proliferation partnership. These remarkable contributions, unthinkable only two years ago, now signal there is a window of opportunity to take courageous steps forward.

The process involves a succession of steps and a great number of different elements and questions that are all interconnected. This publication explores many of the issues at stake. It will not be easy to overcome the obstacles on the way. The coming year is going to be crucial in laying the basis for the security guarantees which the world needs to effectively counter nuclear proliferation. In the spring of 2009, the annual preparatory meeting for the 2010 NPT Review Conference offers the opportunity to lay the groundwork to secure a successful outcome the next year. The European Union can play a leading role and will find the Socialist Group and the European Parliament behind them: to support initiatives that bring our common goals closer. But we will also be there to press the member states into action, if needed.

We hope that our conference and this publication will prove helpful in the process. We brought together policy makers and experts from around the world for a public discussion. It does not happen too often that we can hear contributions from Russia, the United States and Europe in one event. We welcomed representatives from the International Atomic Energy Agency, NATO, and the United Nations. In addition, we welcomed civil society organisations in this

field and gave them the opportunity to express their views. The great number of participants – and the many people that watched the conference live on the web – is a strong encouragement to continue our work on this issue with great dedication.

Reviving the NPT and Working Towards Disarmament: The Contribution of Multilateral Fuel Cycle Arrangements

Ana Gomes,
Hannes Swoboda
and Jan Marinus Wiersma



The proliferation of non-conventional weapons and nuclear arms in particular is still one of the greatest threats to global peace. It emanates from the risk of a new – regional or global – arms race, triggered by the development of nuclear weapons outside the recognized nuclear arms states. It also comes from the threat associated with the acquisition of nuclear capabilities, if only rudimentary, by terrorists. Both, neither of which are entirely unrealistic, pose unprecedented risks to European and global security and stability.

The difficulty of countering nuclear proliferation is partly explained by the inherent link between military and civilian nuclear technology. While the latter is generally accepted, development of the former is – for most countries – proscribed by international law. But both essentially depend on the same basic ingredient: fissile material. Consequently, we cannot exclude that advanced civil nuclear facilities are military operations in disguise. And although it is relatively unlikely that terrorist groups acquire the means to deliver a nuclear device over long distances – ballistic missiles – building a primitive nuclear or “dirty” bomb is not so complicated once you get your hands on enough fissile material. With renegade tactics, delivery is easy. The effects could be devastating.

Nuclear energy may well play a growing role in securing the world's future energy needs and could arguably contribute to global efforts

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9 All three are Members of the Committee on Foreign Affairs.

to fight climate change. The risk that nuclear material and technology, if it is inadequately secured, falls into the wrong hands would grow accordingly. To put it simply, every additional nuclear installation is an extra potential security gap.

The revival of interest for nuclear power and the accompanying growth of demand for nuclear fuel, also in parts of the world that have done without so far, create an urgent need for more effective regulation to exclude unauthorized use of nuclear material, while allowing any country that so wishes to benefit from the use of nuclear energy. We do not take position for or against an increase in the use of nuclear energy, which remains the prerogative of individual countries. However, if nuclear energy is to be an acceptable option, related proliferation and security issues will need to be addressed.

But the necessity to review the way the world manages its nuclear activities is also related to the ever more apparent strain on the non-proliferation regime and its cornerstone, the Non-Proliferation Treaty (NPT). The existing monitoring and verification mechanisms can no longer guarantee that all dangerous fissile material is safely stored from terrorist groups. And technological developments have actually made it easier to turn fuel for nuclear reactors into highly enriched uranium for military use. Both Iran and North Korea have evaded their obligations as NPT-signatories. North Korea even withdrew from the NPT in 2003. Although active diplomacy, in which the European Union played a leading role, kept negotiations with Teheran going, the Iranian government continues to defy demands to halt its military nuclear programme and allow international inspections of its nuclear facilities.

In 2005, at the five-yearly review conference for the NPT, the participating countries could not reach agreement on how to move forward and strengthen the treaty, a worrisome sign they may be losing faith in the global non-proliferation regime. We cannot let that happen again. The world needs a new approach to non-proliferation, one that is not based on power – to coerce countries to give up their nuclear ambitions – but on consensus – that nuclear arms need to be banned altogether and fissile material be brought under multilateral control. This will not be easy and might be filed,

as Timothy Garton Ash fears, under “too ambitious, too difficult, not urgent.”¹ But the ingredients for a change in this direction are there. Creative new ideas on a comprehensive solution for nuclear control are being advanced from research centres and think tanks. Increasingly they find their way into policy circles, in Europe as much as in the United States. Now is the time to revive the political debate, take it to a global level, and work towards a universal approach to tackle nuclear proliferation.

Nuclear energy and non-proliferation

Under the Non-Proliferation Treaty, countries are entitled to the peaceful use of nuclear technology, while its signatories – save the recognized nuclear weapon states – voluntarily forfeit the option of developing nuclear weapons. One of the weak spots of the NPT is the ambiguity in the provisions governing the right to develop civilian nuclear programmes. Does this mean any country is allowed to develop an advanced nuclear industry, including those parts of the enrichment process that could readily be put to military use? Or should the right to host full nuclear fuel cycle facilities be a privilege that countries have to earn? This issue lies at the core of the argument with Iran, which, despite denying international inspections full access to its nuclear installations, maintained that its nuclear programme was entirely peaceful – and therefore permitted under the NPT.

The obvious answer is to insist on stringent oversight and inspection rules, such as those already laid down in the additional protocol to the NPT. But this presupposes that those rules – and the legitimacy of the regulatory framework they are part of – are universally accepted. Unless all participants are convinced it suits their interests and collectively agree to submit to its rules and principles, the NPT-regime is in danger of eventually unravelling. The challenge we face is therefore not only to counter the increased risk of nuclear proliferation on a case by case basis, but also to reassert the consensus underlying the non-proliferation regime itself and reconfirm its validity and legitimacy. To that end we need to develop arrange-

¹ Timothy Garton Ash, ‘Obama must show the way to a goal set by Russell, Einstein – and Reagan’, *The Guardian*, November 13, 2008.

ments that persuade all parties of the continuing necessity and value of a strong NPT.

Multilateral Nuclear Approaches (MNAs), which place the nuclear fuel cycle under international control, could provide part of the answer to both challenges. Multilateral management of the production, use, and reprocessing of nuclear material would take away suspicions of partiality and political bias on one side and of deception on the other. International oversight of nuclear facilities enhances security and addresses concerns of unauthorized use and theft. At the same time, this would facilitate agreement on the development of a comprehensive and universally applicable control and verification regime for fissile material. The multilateralisation of the fuel cycle would also serve to guarantee non-discriminatory access to nuclear fuel for all participants. Since it thus raises the stakes for remaining with the Treaty instead of tempting countries to opt out altogether, MNAs could contribute to breaking the political deadlock over the future of the NPT.

MNAs and the NPT review conference

Proposals for multilateral arrangements to manage the nuclear fuel cycle are not new. The essence of the ideas floating around today was first coined in the early days of nuclear technology development, notably in the Acheson-Lilienthal report, submitted by the American Under-Secretary of State Dean Acheson in 1946. Concrete proposals were also made in the 1970s, but did not gain the necessary political momentum at the time. The idea that MNAs could play a central role in maintaining global nuclear security has recently been winning ever broader recognition, however. As Joseph Cirincione notes 'there is again today broad agreement that a comprehensive non-proliferation solution must include the reform of the ownership and control of the means of producing fuel for nuclear reactors.'² Given the current fragility of the non-proliferation regime the need to build on this emerging consensus is more pressing than ever.

² Joseph Cirincione, *Bomb Scare. The History & Future of Nuclear Weapons*, New York 2007, p. 145.

After the lack of progress during the last NPT-review conference in 2005, it has become clear there is an urgent need for ideas that can reinvigorate the non-proliferation regime, rather than patch it up. We believe the multilateralisation of the nuclear fuel cycle might be just that idea. The European Union, which has sponsored some MNA-initiatives, notably in the face of the threat from a nuclear Iran, should embrace the idea more fully and throw its weight behind it at the upcoming NPT-review conference in 2010. As Alyson Bailes states, 'The European Union cannot afford to disagree on non-proliferation,' and should invest the necessary political energy into making the next review of the NPT a genuine success.

A wide variety of ideas has been developed over the last couple of years, ranging from limited schemes for cross border cooperation and regional initiatives to the establishment of an international "fuel cycle system". Some favour bringing existing facilities under multi-lateral control, others propose developing new facilities. Without exception, their main concern is to halt an unrestrained sprawl of nuclear fuel facilities to new countries. In most of the proposals the International Atomic Energy Agency (IAEA) plays a central role as the main control body and international regulator.

Although different approaches need not exclude each other, a number of characteristics of MNAs seem essential if they are to attain broad support and contribute to both enhancing security and strengthening the non-proliferation regime. In the first place, MNAs have greatest added value if they offer a comprehensive solution to the threat of nuclear proliferation. Rather than hopping from nuclear crisis to nuclear crisis, we need to develop a general approach. The disadvantage of the specific solutions proposed for Iran, for example, is that, although they would strengthen security safeguards, they seem to create a new category of countries – those we do not trust to handle advanced civil nuclear installations with care – and therefore intensify the impression that the NPT is discriminatory. Something similar applies to the bilateral deal between the United States and India. Although it arguably increases security, it also undermines the legitimacy of the NPT and reduces the chances India would ever join. These proposals lack the capacity to contribute significantly to re-establishing international political support for the NPT regime.

Secondly, a comprehensive solution would therefore need to be universally applicable. This would unequivocally signal that there is no intention to create an additional division between countries that can and countries that cannot have their own nuclear industries. The provisions of the regime need to be executed by a neutral, objective, international management body. The IAEA is the most suitable organisation to play this role. Its authority and funding would have to be strengthened accordingly.

Thirdly, MNAs need to tackle both the 'front end' of the nuclear fuel cycle, where highly enriched uranium might be fed into military programs and 'back end' where (reprocessed) nuclear fuel could be used in dirty bombs or plutonium applications.

Fourthly, they should make economic sense, both for governments and industry. MNAs need not, therefore, prejudge the ownership of nuclear facilities, which can be decided in each particular case as long as they are subject to the same rules and safeguards. There is a strong argument, also economically, to incorporate the complete fuel cycle, including waste disposal. This would be an 'offer no one can refuse', since it removes the need to replicate costly facilities. A refusal to subscribe to such a scheme would raise immediate suspicion governments have other than peaceful intentions.

Finally, multilateral fuel cycle arrangements need to be equitable and respond to the growing demand for nuclear fuel services around the world. If they include the construction of new facilities, they will have to take into account the current geographical imbalance of nuclear fuel facilities, which are mainly located in North America, Europe and East Asia. All countries that wish to develop nuclear energy need to be able to access nuclear fuel cycle services on fair and objective terms.

The European Union should now start working on the basis of the most promising ideas and bring forward a concrete proposal during the next NPT review conference. That requires not only moving the issue of non-proliferation up the European political agenda but also active external diplomacy to start building a consensus around the idea. It should equally coordinate its preparatory work with its most important global partners, including the United States and Russia.

Solving the nuclear puzzle

MNAs could play a vital role in re-energising the non-proliferation regime. They are not sufficient, however, to achieve this task on their own. MNAs are but one piece of a bigger and complex puzzle that can only be solved if we work on all the pieces at the same time. This challenge necessarily includes fundamentally rethinking the role of nuclear arms in our security policies and reaffirming the ultimate goal of total nuclear disarmament. An extraordinary responsibility to come up with the other crucial pieces rests on the shoulders of the recognized nuclear weapon states.

The NPT and the non-proliferation regime it spawned has arguably been a success. It has largely prevented nuclear weapon technology from spreading beyond the recognized nuclear weapon states. In the 1960s more than twenty countries were believed to have military nuclear programmes. Today the number is down to ten, if we include Iran and North Korea. Brazil and Argentina gave up development of nuclear arms in the 1980s. Soviet Union successor states Belarus, Ukraine and Kazakhstan similarly relinquished their nuclear capabilities in the early 1990s, returned all remaining nuclear weapons on their territory into Russian custody and acceded to the NPT as non-nuclear weapon states. South Africa admitted to owning nuclear weapons after having decided to abandon its military nuclear programme altogether. Russia and the United States, which between them control 95 percent of the world's nuclear arms, considerably cut down their arsenals over the past three decades.

However, while the asymmetry between recognized nuclear weapon states and non-nuclear countries was accepted in a previous era – and may even have contributed to maintaining stability in the Cold War – it might increasingly lead countries to question the legitimacy of the NPT. The impression that the recognized nuclear powers are backtracking on their commitments under the NPT to nuclear disarmament and thus fail to keep their part of the deal has already thwarted attempts to come to a meaningful review of the NPT. It might even cause the non-proliferation regime to unravel.

To understand what is needed to solve the puzzle, we need to acknowledge two essential points. Firstly, the possession of nuclear arms continues to be a powerful symbol of national strength and technological achievement. Furthermore, even though they are of no direct military value, nuclear capabilities are still regarded as the ultimate safety guarantee. Secondly, much of the strength of the NPT lies in peer pressure. Under a truly universal agreement possession of nuclear arms becomes a moral issue that governments cannot evade. Conversely, as long as the world's most powerful countries hold on to their own nuclear arms, ambitious regimes seeking recognition as global actors will want to challenge them on their own terrain.

The model for success here is the Chemical and Biological Weapons Convention. As Joseph Cirincione aptly notes, there is no international prestige to be gained from the possession of chemical or biological weapons. They have basically become taboo.³ Accordingly, the chances of achieving meaningful steps towards disarmament and security from nuclear proliferation, depends in no small measure on the policies of the recognized nuclear states. As Ivo Daalder and Jan Lodal recently argued, 'how can Washington expect to persuade other countries to forgo the very capabilities that the US government itself trumpets as "critical" to national security?'⁴

The recognized nuclear arms states have to take the lead in rebuilding the consensus that nuclear arms do not make our world safer. Symbolic measures could play a crucial role. A formal announcement of a 'no-first use policy' by all nuclear capable states would be a welcome step. The United States, foremost, might make a symbolic move in this respect announcing, as Daalder and Lodal argue, that henceforth, 'the sole purpose of US nuclear weapons will be to prevent the use of nuclear weapons by others,' as a first step towards adopting and promoting a zero nuclear logic.⁵ Already in 2005, the American Congress seemed to get this point when it

³ *ibid.* p. 130

⁴ Ivo Daalder and Jan Lodal, 'The Logic of Zero', *Foreign Affairs*, November/December 2008.

⁵ *ibid.*

blocked funding for the development of bunker busters, 'mini-nukes' that were to be used to drive terrorists from their caves.

The removal of the remaining tactical nuclear weapons from European soil would equally make a tremendous contribution as it would globally enhance trust in a shared commitment to nuclear disarmament. Similarly, conclusion of the ratification process of the Comprehensive Test Ban Treaty, which prohibits nuclear testing, so that it can enter into force, would signal that countries still believe international agreement is the most effective way to counter the nuclear threat. And although the modernisation of nuclear arsenals might be necessary to ensure safety, this should be done in a framework of eventual disarmament.

A final essential piece of the puzzle is regional security. Countries seek to develop nuclear capabilities to gain a strategic edge over rivals in their neighbourhood. This logic was the driving force in the case of India and Pakistan, but also plays an important role for Iran. It prevents the establishment of nuclear free zones in the Middle East and South Asia. Without working towards a solution of underlying political conflicts, countering proliferation is endlessly more difficult. Addressing regional security and developing effective security arrangements should therefore be a structural pillar of our non-proliferation approach.

Aim high

Countering the threat of non-proliferation is one of the central elements of the European Union's external policies. In 2003 the EU adopted a separate Strategy against Proliferation of Weapons of Mass Destruction, which led to numerous initiatives to promote nuclear safety. Europe also took the lead in finding a diplomatic solution for the nuclear ambitions of Iran, in which High Representative Javier Solana's assiduous personal diplomacy played an enormous role.

But more should be done, because the global non-proliferation regime might collapse if we don't move forward. Even though there is a high level of awareness of the risks of nuclear proliferation among member states, there is as yet no emerging European

consensus on how to tackle them. The European Union needs to move its ambition up one level and aim for a new global consensus on nuclear management and disarmament.

Significantly, the debate in the United States is going in the same direction. The January 2007 Wall Street Journal article⁶ by four of the grand old men of American foreign and security policy – Shultz, Perry, Kissinger and Nunn – is an unmistakable indication there is bi-partisan support for a thorough review of the American approach to nuclear issues. President Barack Obama announced he will make disarmament a central element of US nuclear policy. In his inaugural speech he said “with old friends and former foes, we will work tirelessly to lessen the nuclear threat.” America’s change of leadership offers a window of opportunity to develop momentum around a new non-proliferation agenda. The European Union should actively seize this opportunity. Change is in the air and the new administration in Washington needs to know that the European Union is on board to forcefully take the non-proliferation agenda forward.

Recommendations

Building global consensus on a revived and strengthened non-proliferation regime can only be done step by step. With its partners – in particular the United States and Russia – the European Union can play a key role in the process. As outlined above, we believe the combination of establishing multilateral fuel cycle arrangements and a reconfirmation of our common commitment to nuclear disarmament are two essential elements if this process is to be successful.

In concrete terms, the European Union should focus its non-proliferation activities in the coming two years on the following issues:

After its welcome decision of December 2008 to financially support an international low enriched uranium fuel bank under IAEA auspices⁷, the European Union should formulate clear and concrete

⁶ George P. Shultz, William J. Perry, Henry A. Kissinger and Sam Nunn, ‘A World Free of Nuclear Weapons’, *The Wall Street Journal* January 4, 2007.

⁷ Council Decision of 8 December 2008.

proposals to establish a universal regime for the production, use, and reprocessing of nuclear fuel. Building on the most promising approaches and initiatives (including those developed and endorsed by individual EU member states), these proposals should be introduced at the Preparatory Committee Meeting for the NPT Review Conference in May 2009.

To make the 2010 NPT Review Conference a success – significantly strengthening the NPT in terms of safety, inspection, and authorization and of commitment to disarmament – the European Union needs to formulate a strong common position. To attain the maximum possible political weight for this position it should be agreed by heads of government at the December 2009 European Council.

The entry into force of the Comprehensive Test Ban Treaty (CTBT) would significantly enhance confidence in the non-proliferation regime. The European Union should actively support its ratification by the United States as well as other possible confidence building measures as part of its new transatlantic agenda with the Obama administration. In addition, the European Union should initiate negotiations for a fissile material cut off-treaty, prohibiting the production of weapons grade uranium and plutonium.

The European Union should employ active diplomacy, in particular between Russia and the United States, to revive the system of security treaties, which includes the NPT, but also the Anti-Ballistic Missile Treaty (ABM), the Treaty on Conventional Armed Forces in Europe (CFE), the Helsinki Convention (OSCE) and the Strategic Arms Reduction Treaty (START, which expires in December 2009). A moratorium on the deployment of new weapons systems in Europe would greatly facilitate this process.

The European Union should continue its approach of conditional engagement with the Iranian leadership, in tandem with the US and Russia, but within the framework of the envisaged future non-proliferation regime.

Last but not least, we would like to thank those who contributed to this publication. It gives us fresh ideas and inspiration for a renewed disarmament effort. We would also like to express our gratitude to the organising team, who went to great lengths to make the conference a success and to prepare this publication. We specially want to mention Ruth de Cesare and her unit, Kati Piri, Matthias Verhelst, Amber Montgomery, and the technical team.

Weblog

Conference on Peace and Disarmament I

Toine van de Ven



Today I attended the conference on 'Peace and Disarmament: A World without Nuclear Weapons?' in the Anna Lindh Room at the European Parliament in Brussels. It was a very full programme and there were a lot of very interesting speakers. Definitely worth it!

This blog is a general report of my experiences at the conference. There are two other subjects that I cover in two special additional blogs: first, the reactions of countries like Russia and Iran, and second, the striking difference of opinion that was shown to exist between conservative and progressive America.

The general line taken by the conference was that a non-nuclear world is possible and that momentum has been created with the election of Barack Obama. On the other hand, there are also a lot of risks. The Nuclear Non-Proliferation Treaty (NPT) review conference in 2005 was a massive failure, and so the new conference in 2010 will have to succeed. Yet many of the agreements from the more successful 2000 conference have still not been implemented. There are also now three new nuclear states – Israel, Pakistan and India – that have not signed up to the NPT. The US has even signed a treaty with India, so India has recognised nuclear status outside the NPT. This then makes it very difficult to persuade people that countries like Iran and Syria do not have the same rights as other countries, particularly when the nuclear states have shown little appetite in recent decades to get on with implementing the disarmament promised in the NPT. And lastly the anti-missile shield is, of course, a problem. What it all boils down to is a lack of trust. And a lack of understanding of each other's problems and fears. The UN High Representative for Disarmament Affairs, Sergio de Queiroz Duarte, said that at the review conference in 2005 – of which he was President – countries were only interested in their own agendas.

Things need to change... but this will take a lot of hard work, and above all reciprocal trust will have to be created. Multilateralism is how people are hoping to achieve this. The idea is that, following the example of Euratom or the European Coal and Steel Community (ECSC), Multilateral Nuclear Arrangements (MNAs) would be introduced to control the raw materials for and production of nuclear energy. The Director General of the International Atomic Energy Agency (IAEA), Mohamed El Baradei, said that the EU with its 27 Member States could be the spearhead for this new development. MNAs could prevent countries from suddenly crossing the fine line between the civilian and military use of nuclear know-how. The IAEA has launched a plan to set up a 'nuclear fuel bank' through which the IAEA would manage fuel stocks for nuclear reactors. By making the raw materials accessible to everyone for civilian use in this way, there would be no need for each country to construct its own uranium enrichment facilities, and stocks of enriched uranium would be under international supervision. HR/SG Javier Solana said that the EU attached great importance to controlling nuclear technology and nuclear disarmament, which was why the EU had this week decided to contribute EUR 25 million to the nuclear fuel bank.

Reservations were also expressed about multilateral systems, however. Among others, Professor Rajesh Rajagopalan from Jawaharlal Nehru University (New Delhi) raised some very valid concerns. He referred to the agreement that those renouncing the military use of nuclear know-how should have access to and support in its application for civilian purposes (energy). However, because the line between civilian and military know-how was blurred, this was no guarantee that a country would not still, at some point, opt for military applications. It was also dangerous to force countries to choose between civilian or military use. If countries were forced to do so, they would not necessarily choose civilian use, the desired option, but might also want to keep their nuclear options open. Each country was bound to make up its own mind. So any discussion of nuclear disarmament had to be not just technical, but also, and above all, political. What Professor Rajagopalan and other speakers also stressed was that distributing enriched uranium without giving countries the know-how or the means to enrich their

own perpetuated the inequality between the 'haves' and the 'have nots'. This disparity did nothing to promote trust.

Preparations for the 2010 review conference are now well under way, and two 'prepcom' meetings have already been held. The chairman of these 'prepcoms', Volodymyr Yelchenko, the Ukrainian Permanent Representative, spoke in positive terms. The first meeting in 2007 had been taken up with discussions on the agenda, but the meeting in 2008 had been more constructive. Many speakers said that the first step would have to be taken by the states with the largest arsenal of nuclear weapons: the US and Russia. This was the subject of the very positive contribution by Joseph Cirincione, president of the Ploughshares Fund and informal adviser to Barack Obama during the election campaign. His message was that the new American administration had nuclear disarmament high on its political agenda. He also said that the new administration would rely more on diplomacy instead of unilateral action. European opinion in particular would be seen as very important and would be taken into greater account, but President Obama would need support from Europe if he was to achieve this. The chairwoman of the US House of Representatives Strategic Forces Subcommittee, Ellen Tauscher, also felt that a non-nuclear world was possible, because this was now what the majority of the world wanted. She too expressed her support for international supervision by the IAEA and the nuclear fuel bank.

What should we make of all this information, and more, that we heard today? First of all, it is encouraging that many influential academics and spokesmen for NATO, the UN, the IAEA, the EU and NGOs feel that a world without nuclear weapons is possible. The problem still seems to be with implementing the steps that have to be taken. It is striking, however, that no-one suggested scrapping nuclear technology altogether. The fine line between civilian and military applications of nuclear know-how is clearly a problem, but the general view is still that nuclear energy should remain an option for all the countries in the world, under international supervision. This is not the view that I take, however. Nuclear energy is not a sustainable solution to the energy problem. As I see it, the next step after scrapping nuclear weapons is to ban the use of nuclear technology.

Conference on Peace and Disarmament II – The ‘other’ states

The idea still seems odd: why is it safe for the US, the UK and France to have nuclear weapons, yet we are afraid when they are in the hands of Russia, Pakistan or Iran? To what extent do all states have the same rights to own and use nuclear know-how?

Fortunately, at the conference on ‘Peace and Disarmament: A World without Nuclear Weapons?’ there was plenty of scope to hear the views of ‘other’ states, particularly Russia and Iran. Although I was very much looking forward to hearing him, the Iranian chief negotiator Saeed Jalili sadly had to cancel. Fortunately there was a representative of the Iranian Mission to the EU in the room, who was able to put Iran’s point of view via questions and comments. The chairman of the Duma Foreign Affairs Committee, Konstantin Kosachev, and the Deputy Foreign Minister and diplomat Igor Neverov spoke for Russia.

One paragraph from *Social Theory of International Politics* (1999) by the social constructivist political scientist Alexander Wendt that still strikes a chord with me is when he talks about the relativity of fear. Why do we think it normal for a friendly state to have 500 nuclear weapons, but are afraid if an enemy has just one? I think everyone would argue that you can expect an ally not to use the weapons against you, but you cannot expect the same of an enemy. Yet, if we reverse the point of view, would not the ‘enemy’ state think exactly the same, but vice versa: we have only one nuclear weapon and they have 500, so we must be under serious threat!

The Russian speakers at the conference presented their reasonable side: we want to, but the others won’t. They clearly had the US in their sights. The Duma MP Konstantin Kosachev said that the Russian Parliament too would like to abolish nuclear weapons, but that there was still mistrust on this issue left over from the Cold War. This mistrust had been heightened by the anti-missile shield, which was anything but a step towards disarmament, the invasion of Iraq, where no nuclear weapons had been found, and the war between Russia and Georgia in 2008, where NATO’s expansion

eastwards had been at the back of everyone's mind. Mr Kosachev proposed that the review of the Nuclear Non-Proliferation Treaty (NPT) in 2010 should provide for even smaller quantities of nuclear weapons and a ban on nuclear weapons outside the owner's sovereign territory (i.e. American nuclear weapons in European countries). Security safeguards for non-nuclear states should be more firmly enshrined in international law.

Mr Kosachev's view was supported by the Russian diplomat (and Deputy Foreign Affairs Minister) Igor Neverov. He brought up something else that had a negative effect on trust: America's withdrawal from the ABM Treaty in 2002 and the expiry of START-II in December 2009. Mr Neverov also said that Russia wanted the world to become non-nuclear, but the anti-missile shield would first have to go. Although it was officially supposed to protect the US against Iran, it had to be seen as connected with Russia, in Mr Neverov's view. Constructing this shield would increase mistrust and would undermine Russia's strategic capability. To offset this, Russia would – and he emphasised that this would only happen if the shield was actually built – deploy extra missiles. Further negotiations and reductions were possible in the forthcoming review of the NPT, but only if the Americans dropped their anti-missile shield.

Russia's position was fairly clear and also highly predictable, of course. For Iran, there was fortunately a representative of the Iranian Mission in the room. Looking at the list of participants I suspect that it was Safaei Mohammad. In any event, he made the point during the first round of questions that it was not fair to single out Iran when there are actually a number of countries that now have nuclear weapons outside the NPT. He referred in particular, of course, to 'the other Middle Eastern country that has a nuclear weapon and is oppressing the Palestinian people', in other words Israel. He also expressed his indignation that Iran had first helped out in Afghanistan in the fight against the Taliban, only to find itself suddenly cast as one of the main members of the Axis of Evil. Despite what the Iranian representative had to say, Iran and North Korea were still the most popular examples of countries that should definitely not be allowed access to nuclear know-how. Harald Müller, the director of the Peace Research Institute in Frankfurt, was

the most forthright on this point: Iran should not be given any nuclear know-how whatsoever under its current president Mahmoud Ahmedinejad. Not even in a multinational system under international supervision!

I did not hear from any official state representatives from North Korea, India, Israel or Pakistan. However, both the Russians and the Americans sounded positive about the six-party talks with North Korea. The American deal with India, on the other hand, was widely condemned, including by the Member of the US House of Representatives, Ellen Tauscher, who said she had voted against it, but had apparently not been persuasive enough. This brings me back to Wendt's theory: friends can be trusted and apparently even rewarded with an agreement on nuclear know-how. Other countries cannot do this, of course, and they have to keep exactly to what they have agreed in the NPT. Such double standards do not exactly encourage countries to renounce their nuclear ambitions. If we are to make real progress, we cannot argue from a western frame of reference, we also need to take account of other people's frames of reference. We cannot expect other countries to comply with international treaties if those who currently possess nuclear weapons do not keep to their side of the bargain: progressive disarmament.

Conference on Peace and Disarmament III – Two American views

One good moment at the conference on 'Peace and Disarmament: A World without Nuclear Weapons?' was the difference of opinions between two Americans: Guy Roberts, the Deputy Assistant Secretary-General for Weapons of Mass Destruction Policy at NATO, and Joseph Cirincione, the President of the Ploughshares Fund and an informal adviser to Barack Obama during his campaign. Conservative America versus progressive America.

Perhaps the most interesting but also the most damaging contribution of the entire conference was the view presented on behalf of NATO by Mr Roberts, a realist of the old school who still passionately defends the declining theory of mutual deterrence. This was strongly contrasted by the view presented by Mr Cirincione, who clearly regards Mr Roberts as an outdated and increasingly unimportant conservative.

The NATO doctrine of 1999 called for the use of both conventional and nuclear weapons. Mr Roberts referred to this nuclear option as the source of fifty years of peace and prosperity. Nuclear weapons were the pillar on which the Atlantic alliance was built, and the presence of American nuclear weapons on European soil was simply sharing the burden. After this general introductory salvo Mr Roberts explained the thinking behind the flexible response and the rejection of a no-first-use agreement. By using both conventional and nuclear weapons NATO could always have an 'appropriate' response to aggression. Because an enemy would never know whether NATO would use its nuclear weapons, it would be deterred from attacking the alliance or any of its members. This was why nuclear weapons would continue to be crucially important in future for safeguarding the security of the US and Europe. Mr Roberts' contribution was neatly summed up in his Latin quotation: *Si vis pacem, para bellum* (if you want peace, prepare for war). He went even further by saying that it was futile and stupid to seek better guarantees of security in a world riddled with conflict. 'There is not a single country that has become safer by making itself more vulnerable.'

However irksome it might be for Mr Roberts, his new head of state takes a very different view, according to Joseph Cirincione, an informal adviser to Barack Obama during his campaign. According to Mr Cirincione, Mr Roberts is a conservative and therefore in the minority in the US. The progressive view that nuclear weapons can be scrapped fortunately predominates. This means that America's stance within NATO will also change, and that the NATO doctrine of 1999 will be abandoned. But Mr Cirincione also warned that people should not expect too much. In January, President Obama will find a huge pile of issues on his desk needing his attention. Nuclear disarmament would probably not be top of the list. Mr Cirincione predicted that attention in this field would mainly be focused on preventing and combating nuclear terrorism. The new administration would be open to suggestions and ideas, but the question was whether it would act on these quickly of its own accord. It was a field where President Obama would need Europe's support, he felt.

In a discussion later on, Mr Cirincione gave a more detailed view of what opportunities he thought there were. President Obama's election had certainly created an opportunity, but we must not get carried away. One of the reasons for this was the group of people that President Obama was now assembling around him. In Mr Cirincione's view Defense Secretary Robert Gates would want to reduce the number of nuclear weapons, but scrapping them altogether would be a step too far for him. The withdrawal of American nuclear weapons from Europe was also in doubt, though this should not be seen as criticism from Mr Cirincione, because in his view it was a very clever move to get a man like Gates on board as a minister.

Going back to the statement by Mr Roberts, two other very interesting questions were raised. First, he was asked to explain why NATO should be able to rely for its security on nuclear weapons while other countries could not, and second, the Ukrainian representative Volodymyr Yelchenko seriously wondered how there could be such a difference of opinion between NATO and the EU when they both involved more or less the same member countries. I felt that Mr Roberts failed to deal with the first question, which certainly touched a sore point, since there is a case of double standards. According to Mr Roberts it is not allowed because this is what has been agreed in the Nuclear Non-Proliferation Treaty (NPT). But the NPT also includes an agreement that those countries that have nuclear weapons will progressively dismantle them. The second question was not asked until later and so was not answered by Mr Roberts, but it was a very accurate perception of the difference of opinion that exists between NATO and the EU.

The continued reliance on nuclear weapons found in the NATO doctrine shows once again that NATO is an outmoded instrument, a relic of the Cold War. It is an organisation that should be dismantled and replaced as Europe's security organisation by the EU, with its greater emphasis on diplomacy.

Strengthening Disarmament and the Non-Proliferation Regime

Javier Solana



I want to start by thanking the Socialist Group in the European Parliament for organising this conference and for asking me to participate. I am pleased to be here for two reasons. First, I am happy to be among friends. But second, and more important, I think that the topic of this conference is well-chosen.

The question of nuclear disarmament has again moved to the top of the international agenda. This is most welcome. Nuclear disarmament matters. Not only to politicians and diplomats but also to the people. Large nuclear arsenals reflect old and current political tensions. But they also contribute to tensions – and with that, the risk of conflict.

Moreover, the more nuclear weapons there are, the greater the chances of their use or mis-use should they fall into the wrong hands.

Therefore: a world with fewer nuclear weapons is a safer world – for everybody. If you forgive me the phrase: a world without nuclear weapons is a world worth looking for.

This is why I am fully behind the recent initiative of President Sarkozy, which built on earlier work involving the UK and others of the European Union.

Sarkozy has written a letter, on behalf of the EU, to the UN Secretary General with a list of concrete EU priorities and proposals.

This is, to my mind, a major European contribution to push forward the nuclear disarmament and non-proliferation agenda.

I am also pleased that, in the US, fresh thinking has emerged. Both on why and how it can inject new momentum into this topic.

As you well know, a few years ago, a bipartisan group, led by former secretaries of state and of defence, called for gradual disarmament steps, with a view to ultimately reaching the goal of a world free of nuclear weapons, provided robust verification mechanisms could be arranged.

I am happy to see that President-elect Obama for his part has announced that he will be seeking significant changes in US nuclear policy, with respect to the number of nuclear warheads and overall US posture.

Of course, we need to remember that the Russian Federation is a central player in this too.

I am convinced that through constructive engagement with Russia in this area, there is a lot that can be achieved. The Russian Federation too benefits from a world with fewer nuclear weapons. A more predictable world with strong agreements and greater international confidence.

Before getting into some of the more specific elements of what the EU is doing and could do in this area, I want to state why the political context in which we operate is so important. That context is one where the overall, multilateral non-proliferation regime is under growing pressure.

The core problem is a lack of trust. Lack of trust between the nuclear and the non-nuclear states. Lack of trust between the North and the South.

There is a perception that there is an overall imbalance between the three pillars of the regime. That is non-proliferation, access to technology and disarmament. It is in our common interest to address this trust deficit.

We must rebuild trust and confidence and reinforce multilateralism that has been eroding during the past ten years. I am convinced that we need a new pact of confidence and trust between the developed and the developing world

We need to recognize that international agreements will bring more security. We need new agreements between technology holders and those that are dependent on technology transfers. We need new trust that nuclear-weapon states fulfil their obligation to pursue nuclear disarmament. And we need trust that there is access to peaceful uses of nuclear energy, provided countries fully comply with their non-proliferation obligations.

The timeline, in my mind, is clear. That is why we need a balanced and effective outcome at the next NPT Review Conference in 2010. That is why the EU is working hard to make this conference a success, engaging all players in an active dialogue. There are also a few more specific points I would like to raise:

As mentioned by the chairman, just yesterday in the Council, we decided to support the IAEA nuclear fuel bank with a contribution of up to € 25 million for its construction. This will allow the IAEA to finalise the modalities for the bank, so that the IAEA Board can approve it.

The idea of a fuel bank is not new. It has been discussed for many years. I am hopeful that this time we will succeed. We want the bank to be established very soon. In any case before the next NPT Review Conference in spring 2010.

I am convinced that the creation of a fuel bank will have a positive impact on the general climate of the NPT Review Conference. It will facilitate progress on all three pillars of the NPT, namely non-proliferation, disarmament and peaceful uses of nuclear energy.

It is important to note that the fuel bank is not exclusive in its character. There are parallel initiatives and ideas that may prove useful to meet different situations. But the fuel bank would be the first concrete step to make the long-discussed project into a reality.

The EU considers that the development of nuclear energy requires the best possible standards of safety, security and non-proliferation. The multilateral mechanisms should offer a real alternative to countries to forego developing their own national enrichment and reprocessing capabilities – which can constitute a significant risk for nuclear proliferation.

We cannot afford to fail. If we do, we may face new problems. New countries that are tempted to cross the red line and go nuclear. But if we succeed, on the other hand, we will strengthen the multilateral nuclear non-proliferation system which is a core EU objective and strengthen international cooperation.

The EU Strategy against the Proliferation of Weapons of Mass Destruction was adopted in 2003. At the time, we were farsighted. This strategy and its core principles remain valid.

The EU remains committed to the multilateral treaty-based system. To all other relevant disarmament and non-proliferation instruments and international organisations: We want to pursue universalisation of multilateral agreements. We want to reinforce strict implementation of these agreements, and we want to co-cooperate with partners and give assistance to third countries.

Since 2003, the EU has adopted more than 20 Joint Actions to support the work of international organisations in the field of non-proliferation and disarmament. To give you an example, the EU is the biggest donor to the IAEA's Nuclear Security Fund, contributing more than € 20 million as financial support. Our assistance has helped dozens of countries in Africa, the Balkans, Central Asia and South East Asia to prevent nuclear terrorism by strengthening the physical protection, security and control of nuclear and other radioactive materials.

We can be satisfied, to a certain extent, with the implementation of the Strategy. But we can make it even more operational. Yesterday, EU Foreign Ministers endorsed new lines for EU action to combat the proliferation of weapons of mass destruction and their delivery system. The overriding goal of the plan is to achieve greater coordination within the EU – to maximise the impact of our action:

We will intensify efforts to counter proliferation flows and proliferation financing, we will sanction acts of proliferation, we will develop measures, including cooperation on consular vigilance, to prevent intangible transfers of knowledge and know-how, we will raise awareness in undertakings, scientific and academic circles, and financial institutions. We will continue cooperation with international organisations and third countries to help them improve non-proliferation policies and export controls.

To achieve this ambitious agenda, we have to mainstream non-proliferation in our overall policies. Non-proliferation is not just a security and external matter but is a cross-cutting issue that affects visa-issuing, university cooperation, financial supervision and so on.

In the foreign policy field, non-proliferation concerns are taken into account by including WMD clauses into EU agreements with third countries. Negotiations have been concluded successfully with nearly 100 States in the world. We are now going to assess the implementation of the WMD clause and how to react in case of non-compliance.

It has been 40 years since the signature of the Treaty on the Non-proliferation of Nuclear Weapons. The EU remains committed to the NPT and supports all its three pillars. The NPT is not a perfect system. But it is the only one we have. All in all, it has served us well.

Apart from upholding the NPT, the EU is also launching a big campaign to promote the entry into force of the Comprehensive Test Ban Treaty (CTBT). Equally, we should stop the stalemate in the Conference on Disarmament.

We need to start negotiations, without preconditions, on a multi-lateral treaty banning the production of fissile material for nuclear weapons or other nuclear explosive devices. I spoke to the Conference on Disarmament in Geneva last June. Of course, we also hope that the US and Russia will make progress in their negotiations on a post-START agreement.

Let me end where I began. The world badly needs more progress on nuclear disarmament. With new thinking in the major countries and also in the countries which can experience the temptation of nuclear armament, progress is possible. The task of political leaders is to set a sense of direction. And to build trust among the key players. That is a task for many people, including in the European Union.

Remove the Sword of Damocles

Mohamed ElBaradei



If we look around our world today, I do not think that anybody would disagree that the threats to our survival are so obvious and the solutions are equally so doable, and yet not much has been happening in the last few years.

We live in a world that is marked by inequity and insecurity, suffice for me to say that we still accept that one third of our fellow human beings lives on less than two dollars a day. This is the most lethal weapon of mass destruction. We will never have peace and security without making sure that we lift this one third of humanity out of poverty.

Twenty years after the end of the Cold War we still live with 27,000 war heads as if the Cold War has not ended. Rather than try to start building a new security system that does not rely on nuclear weapons, as we were promised twenty years ago, we continue to have more reliance on nuclear weapons. We even continue to see efforts to build nuclear weapons that could be used in certain situations. And there remains a lack of an agreement to ban testing for nuclear weapons. The concept of banning the production of nuclear material for weapon purposes has been stalling for the last ten years. The military policy of the quick launch of nuclear weapons in Russia and the US is still maintained. This is a grim picture indeed.

However, we have luckily seen a glimmer of hope recently caused by people like Henry Kissinger, George Shultz, Sam Nunn, and William Perry, who are at the heart of US national security and have declared that we need to move toward a world free from nuclear

weapons because they have become decreasingly effective and increasingly hazardous. When I see recently a Global Zero Initiative which is signed by the who's who in arms control and foreign policy in Europe and around the world it gives me hope that we are finally coming to our senses.

I think it is so obvious what we need to do. We need to slash drastically the number of nuclear weapons that exist. Everybody agrees that we can easily live with 1,000 nuclear weapons and that will still be enough to destroy ourselves one hundred times over. We have to quickly get a comprehensive test ban treaty, and a treaty that will ban the production of nuclear material for weapon purposes. We also have to deal with the question of assurances of supply, the so-called proliferation of nuclear weapon technology. This is a new phenomenon and if not arrested, if not checked, would lead us to overt weapon states.

Another ten or twenty nuclear weapon capable states is a margin of security that is too close for comfort. I and many others have come with the idea that we have to multi-nationalize the nuclear fuel cycle so no one country could have their hands on any enrichment or processing capability. We need to deal with the threat of nuclear terrorism which is the number one security issue we are facing today. We have done good work but there is still a lot to be done. We need to give the International Atomic Energy Agency the legal authority, the financial resources, and the technologies that will allow us to do our work effectively and efficiently, and we need to have a reliable system of compliance. The Security Council has not been doing that the most effective way and has in many ways been paralyzed on issues that have to do with arms control. These are steps that can be easily done if we can master the political will and change our mind set. We have to move from a mind set that says the power is based on who has the biggest club to one that says we are one human family and that security should be inclusive.

The European Union can do a lot on all these issues. The EU can push for a reduction of nuclear weapons, for the multilateralization of the fuel cycle, for revitalization of the Security Council, for additional resources, and for efforts to curb nuclear terrorism. The European Union and its 27 member states can be the spear head

of these efforts to finally come to a world that is safer and saner. An opportunity will come with the NPT review conference in 2010. However, we should not judge the NPT conference by the paper it produces. To me it is important which concrete measures will be produced and how these measures will be implemented in the short run.

I hope we can move together and finally achieve this hope: that we do not have a Sword of Damocles hanging over our heads; a world that can be eliminated in a span of hours because of miscalculation or unauthorized use of nuclear weapons.

International Fuel Cycle Arrangement Key to a New Non-Proliferation Bargain

Ellen Tauscher



A world without nuclear weapons is no longer the dream of a few, but the ambition of the world. It is the ambition rooted in the reality that people, and a government that represents them, are asking new questions about nuclear weapons. In my role as Chairman of the Strategic Forces Subcommittee of the House Armed Services Committee and as Chairman of the Subcommittee on Future Security and Defence Capabilities of the NATO Parliamentary Assembly, I have long advocated for closer cooperation on both sides of the Atlantic on combating the spread of weapons of mass destruction.

All of us understand that the support of the parliaments of our nations for non-proliferation policies is vital for them to succeed. Recently, both the French and British governments have undertaken fresh reviews of the need for nuclear weapons as part of their defensive capabilities. In the US, we just completed a historical presidential election in which the public made clear that the old way of thinking was no longer adequate to meet the challenges we face. And a new thinking of our country, which our European partners want as well, is what I would like to discuss today.

President elect Obama and I share a common bold agenda on non-proliferation. He wants to work towards the elimination of nuclear weapons. He wants to repair the badly damaged international arms control regime and he wants to ensure that nuclear materials around the world are safe from threat or misuse. I have long worked to implement this agenda and welcome a new partner in the White House who shares my goals. Among the challenges facing our new President, none is quite as daunting as the exploding global demand for energy and the threat this poses to non-proliferation

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efforts. That demand for energy is leading many nations to pursue nuclear power. Regrettably, our current tools and norms are gravely insufficient for channelling the demand for nuclear power into safe and secure outcomes.

I want to reinforce the case today for a new multilateral arrangement that would offer safe and reliable electricity from nuclear power, while keeping the most sensitive parts of fuel cycle under international atomic energy supervision. In fact one of the tenets of the Non-Proliferation Treaty is to promote the peaceful use of nuclear energy. Nuclear energy has a number of advantages: it is carbon free, provides reliable electricity, its price is generally stable and not subject to changing climate conditions, and it could help produce potable water and hydrogen. The IAEA expects global nuclear power capacity to double by 2030. Fifty countries have expressed interest in nuclear power and have asked the IAEA for technical guidance. Currently 439 nuclear power reactors operate in thirty countries, with 36 new plants currently under construction. Of the reactors under construction, seventeen are in developing countries with varying levels of security.

Unfortunately, building new nuclear power plants gives countries access to weapons material. The United Nations warns that of the sixty states currently operating or constructing nuclear power or research reactors, at least forty possess the industrial and scientific infrastructure to build nuclear weapons at relatively short notice. Once countries master uranium enrichment and plutonium separation they have overcome a significant hurdle to developing nuclear weapons. Furthermore the National Academy of Sciences reports that global stocks of plutonium are increasing and that nuclear energy creates disposal and spent fuel management challenges. Most disturbingly, IAEA Director General El Baradei recently reported there had been nearly 250 incidents of theft or loss of nuclear material from June 2007 to June 2008, just a one year period. These are very serious threats to global security.

The instability created by the drive for nuclear energy is a direct threat to non-proliferation efforts. Not coincidentally potentially hostile countries have learned the best way to get the world's attention is to start a nuclear weapons programme. Countries such as North

Korea and Iran realized rather quickly that the legal pursuit of nuclear energy can be a back door means to developing weapons capabilities. Our current efforts are insufficient to halt these illicit developments. In the case of North Korea the six-party talks failed to prevent it from producing enough fissile material for building twelve weapons, up from two in 2003. There is also the risk that North Korea could sell surplus nuclear material to terrorists or other black market buyers. Iran has refused to give up its uranium enrichment activities and to give the IAEA all relevant information about its nuclear programme.

While North Korea and Iran are the most visible actors in this nuclear play, they are by no means the only ones. Solutions to address the proliferation of nuclear capabilities must reach across the globe and beyond our old thinking. Existing arms control regimes are important and should be updated, but it is also time for a new international compact. We need a solution that would guarantee safe and reliable electricity through nuclear power, but keep the most sensitive parts of the fuel cycle under IAEA supervision.

There has been some progress on this issue, most notably from the Director General of the IAEA and the Nuclear Threat Initiative (NTI), which has raised funds to create a low enriched uranium stock pile. Now the world needs to begin a serious pursuit of a multilateral fuel cycle compact and a new non-proliferation bargain. With the new Obama administration, a new opportunity to finally deal with this issue has arrived. We must engage three sets of actors: nuclear weapons states, civilian nuclear powers with the capability to develop nuclear weapons, and non-nuclear powers that are actively pursuing civilian capabilities that could yield nuclear weapons. IAEA chief El Baradei has set out the broad outlines for a multilateral solution. His concept faces many challenges but moves the debate over nuclear energy and proliferation in the right direction.

In his first detailed statement five years ago, El Baradei challenged the world to imagine, and I quote: “A framework of collective security that does not rely on nuclear deterrence.” It is critical that we use the opportunity of greater global goodwill under President-Elect Obama to finally act on this initiative. Director El Baradei proposed a new grand bargain that would guarantee reliable,

affordable nuclear energy supplies to countries that pledge to forego nuclear weapons development. His proposal recognises the political reality that emerging economies will continue to turn toward nuclear energy. The proposal calls the bluff of countries like North Korea and Iran which develop their weapons programmes behind the veil of peaceful energy production.

Director El Baradei offered a mechanism that has three parts. First, he proposed limiting the processing of weapons grade material to facilities under multinational control. Second, he urged that proliferation resistant nuclear energy facilities be deployed. And third, he called for a multinational solution to the management and disposal of spent fuel and radioactive waste. The combination of these proposals would add proliferation controls to the most sensitive aspects of the fuel cycle and broaden the benefits of nuclear technology to more countries. There is absolutely no need for countries to possess their own enrichment or reprocessing facilities, the two most sensitive stages of the fuel cycle. Any new initiative must also involve appropriate incentives and take into account the various circumstances of each country.

Furthermore, according to the IAEA, the commercial market currently satisfies the demand for fuel services, so there is need for additional national capabilities. One of the most interesting ideas being considered is a fuel bank overseen by the IAEA. The IAEA would maintain a regular supply schedule and ensure prompt payment. As a guarantor the IAEA would provide oversight to ensure whether conditions for supply were being met, assess the non-proliferation status of the recipient, oversee suppliers and generally act as a broker between supplier and recipient.

To make this model possible, I will work with president Obama to undertake several steps in the short term. The most immediate is a new commitment by the United States to lead negotiations towards a Fissile Material Cutoff Treaty. This is a must have. We made this commitment at the 2000 NPT review conference. Under the Treaty production of fissile material would end and all enrichment and reprocessing facilities in nuclear weapons states would be subject to international verification. Following through on this agreement would make it easier to manage the fuel cycle and reduce the risk of the spread of nuclear material.

Second, we must establish clear penalties for withdrawal from the Non-Proliferation Treaty (NPT). It took three years for the international community to condemn North Korea after it withdrew from the NPT in 2003. Instead of being allowed to act with impunity, I recommended the Security Council prospectively adopt a resolution under chapter 7 that states that, if any state being found by the IAEA to be in non compliance with its safeguard commitments, withdraws from the NPT such a withdrawal would trigger automatic sanctions.

Third, the US should immediately ratify the Comprehensive Test Ban Treaty. The United States Senate's failure on yet another commitment undertaken under the NPT directly undermines the United States' leadership on non-proliferation.

Next, the United States needs to engage in immediate and unconditional negotiations with North Korea and Iran, the two rogue nations that pose the greatest threat of nuclear proliferation. In both cases the new administration should lay out clear options for normalizing relations. We could offer membership in a new multilateral fuel cycle compact in return for normalized status. If both countries reject an option that gives them the ability to pursue peaceful nuclear energy, then there will be clear and credible grounds for more forceful action.

Finally, the evidence of the existence of a nuclear black market network proves how ineffective current export control regimes are. We will ask to provide assistance to countries outside the nuclear suppliers group to enact, implement, and enforce export control legislation required under UN Security Council resolution 1540. And it is long past due for our Pakistani friends to give us a full account as well as access to their files so the world may gain a complete understanding of the damage they have caused.

Needless to say, this is an exhaustive list of steps and such an enterprise will not be easy. Many questions and challenges remain that require your active participation. For example, can we master the political will at home and abroad for a programme that may assist former bad actors to access nuclear energy? Which of the participating nations will agree to house nuclear fuel facilities and

the waste it produces? Can we come to an agreement on the way to transport such materials safely? And finally, can we promote balanced energy production around the world, avoiding an overreliance on nuclear energy?

Before the next NPT review conference in 2010 we must take a fresh look at our arms control toolkit. The ever present threat around the globe means the clock is ticking. I believe the United States must play a leadership role in making a multilateral fuel cycle compact a reality while reducing the threat of nuclear weapons.

Setting the Agenda for Nuclear Disarmament

Sergio Duarte



Paul-Henri Spaak was the first President of the UN General Assembly. Upon assuming that position in January 1946, he called upon all Member States – as they actively promote their own individual interests – to remember that these interests must, in his words, “take their place in the wider setting of the general interest.”

Anna Lindh, whose life and tragic death have inspired continuing efforts to advance the cause of disarmament, made the following appeal while addressing the General Assembly in 2001: “We must join forces for multilateral disarmament. A world free from weapons of mass destruction would be a much safer world. Multilateral agreements contribute to security for the individual!”

These two quotes from our distinguished predecessors provide a solid foundation for exploring the difficult challenge of “setting the agenda” for nuclear disarmament. We recognize how the advancement of the interests of all states also advances the interest of each state. And we understand the many ways that progress in disarmament serves to strengthen international peace and security.

Speaking at Harvard University on 21 October 2008, Secretary-General Ban Ki-moon spoke of nuclear disarmament as a “global public good,” one of the most important and longstanding goals of the United Nations. At a conference organized three days later by the East-West Institute, he outlined a five-point proposal to advance this aim. His initiative offers a useful starting point for “setting the agenda” for global nuclear disarmament.

He called first for the full implementation of the duty in Article VI of the NPT to enter into good faith negotiations on nuclear disarmament, which could focus upon the negotiation of either a specific convention or a framework of reinforcing instruments. His second proposal aimed at encouraging the Security Council to commence deliberations on the security issues associated with the process of disarmament, as called for in the UN Charter. Third, he called for efforts by the international community to advance the “rule of law” in disarmament, including the entry into force of the Comprehensive Nuclear-Test-Ban Treaty and commencement of negotiations without preconditions of a fissile material treaty. Fourth, he urged the nuclear-weapon-states to take certain actions with respect to accountability and transparency, including the publication of more data on holdings of weapons and relevant materials, as well as further details on concrete steps being taken to implement disarmament commitments. Lastly, he pointed to the need for several complementary measures to address related challenges of WMD terrorism, the elimination of other types of WMD, new progress in conventional arms control, and efforts to pursue new prohibitions in the fields of missiles and space weapons.

These proposals, of course, were in no way intended to be fully comprehensive or exhaustive. Nor did they attempt to synthesize or integrate all the many other worthy proposals that have surfaced in recent years in deliberations in the UN disarmament machinery, in governmental arenas outside the UN, or that have emerged from civil society. Looking over the sheer number and range of these various proposals, I see an *embarras de richesses*. Among the many dangers ahead, one must surely include an ever-growing proliferation of separate disarmament agendas, which all too often reflect the parochial interests of specific countries or groups of countries, rather than the common good or the collective international interest.

Amid this outpouring of recent initiatives, conflicting priorities inevitably emerge. Some states, groups of states, or non-governmental organizations want immediate progress in one particular area – such as nuclear non-proliferation – while others want a greater emphasis on nuclear disarmament. Some say regional or global peace is a prerequisite for real progress in disarmament. Some say that now is the time for an emphasis on progress at the

bilateral level, especially the negotiation of deep reductions in the strategic nuclear stockpiles of the United States and the Russian Federation, which possess well over 90 per cent of the world's nuclear weapons. Still others point to the human and economic development costs of the production, transfer, and use of a wide range of conventional weapons and to the immediate need for greater progress in this area. The international community seems to have lost the sense of "common purpose" which not so long ago permitted the successful negotiation of a number of important agreements in the field of disarmament and non-proliferation.

In the past decade or so, unfortunately, the Conference on Disarmament in Geneva has been unable to commence negotiations on the many important items on its agenda precisely because of the inability of its members to reach a consensus on just such priorities. Some countries want to put nuclear disarmament first; some are demanding immediate negotiations on a fissile material treaty; and some want to pursue a treaty to prevent an arms race in outer space – though some states, of course, have shown more flexibility than others in pursuing such goals. The First Committee of the General Assembly is another multilateral forum that has been the site for similar disagreements over fundamental priorities, as perhaps best illustrated by the chronic pattern of deeply divided votes on resolutions dealing with nuclear disarmament – often, I must note, with NATO states voting en bloc either in opposition or in abstention to such resolutions.

I am not at all convinced that the difficulties encountered in those multilateral arenas are due to some inherent flaw in their own structures or rules, even acknowledging the continuing need for improvements in those areas. The main reason for the lack of progress rests instead with differences among policies of member states, and an apparent unwillingness of some states to compromise on their own perceived interests for the sake of achieving common ground.

Sometimes I fear that the world community is in danger of losing its bearings in this field. As frustrations and impatience continue to grow over the lack of greater progress in eliminating nuclear weapons, proposals beget counter-proposals, and we risk losing

sight of our fundamental purposes. The Spanish philosopher, George Santayana, once wrote, “fanaticism consists in redoubling your effort when you have forgotten your aim.” In terms of disarmament, we are facing the danger of succumbing to a form of fanaticism that involves the determined pursuit of the particular interest over the global interest and shared ideals.

A worthy response to this syndrome is to recall what the world community has already agreed. The UN Charter identified two goals for its Member States to pursue with respect to weapons—disarmament, which the General Assembly later clarified to cover the elimination of all weapons adaptable to mass destruction, and the regulation of armaments, a goal that applied to conventional arms. Next year, the General Assembly will mark the 50th anniversary of the union of these goals in Resolution 1378, which identified the collective aim of “general and complete disarmament under effective international control.” The General Assembly, at its first Special Session on disarmament in 1978, agreed that this would be the “ultimate objective” of the United Nations in this field.

Coupled with other universally-agreed multilateral goals in the Charter – especially the requirements for member states to pursue the peaceful resolution of disputes and to refrain from the threat or use of force – progress in implementing general and complete disarmament was intended to strengthen international peace and security as a whole. In words adopted at that first special session, disarmament was to proceed in such a manner that – at each stage in the reduction process – there would be “undiminished security at the lowest possible level of armaments and military forces.” This is indeed an essential element, which remains valid today. It means that enhanced security should be sought at lower, rather than higher, levels of armaments, and this requires fundamental changes in current defence doctrines.

We have, in short, a rather clear set of multilateral goals to pursue: WMD disarmament and conventional arms control, which are to be pursued simultaneously. It is in the realm of the selection of means to pursue these goals where we have witnessed the greatest proliferation of agendas.

This is, of course, not necessarily a bad development. Consider how far the world has come from the days – not so long ago – when opinion-leading commentators would routinely dismiss nuclear disarmament as a utopian goal or “fantasy”. A recurring point has been the need to couple disarmament and non-proliferation. The respected experts and political authorities who have contributed to this publication – along with countless others across the globe – have not just proven capable of envisioning a world without nuclear weapons. They have also addressed specific measures to help in actually achieving it.

The contributors have resisted the easy temptation to avoid difficult issues, such as the ongoing debate over various methods for dealing with common threats posed by activities in the nuclear fuel cycle. While there is still no international consensus on how the world should address such threats, the world is without doubt making significant progress in at least clarifying the options that are available to achieve common goals. These goals relate to the collective interest in non-proliferation, promoting exclusively the peaceful uses of nuclear energy, enhancing physical security of nuclear facilities and materials, and ensuring that growing fuel cycle activities will not eventually become an obstacle to the achievement of global nuclear disarmament, while also ensuring that there will be no curtailment of scientific progress and technological advancement for legitimate purposes.

We all understand the risks that the dissemination of technical knowledge and the mounting production of weapon-usable fissile materials will pose for disarmament, especially in terms of satisfying the agreed standards of irreversibility, transparency, and verification – all essential in reducing the risk of future strategic surprises. As the Secretary-General stated in his address last October to the East-West Institute, “We should never forget that the nuclear fuel cycle is more than an issue involving energy or non-proliferation; its fate will also shape prospects for disarmament.”

The European Union has in many ways promoted progress in both nuclear disarmament and non-proliferation – a collective regional effort that has much to offer other regions as a model for future collaborative initiatives. There is widespread recognition in this region of the importance of the strictest possible controls over fissile materials, to guard against their acquisition by terrorists, to eliminate the risk of proliferation, and to advance the goal of nuclear disarmament.

While many contributions about disarmament cite the need for greater political will, the burden of inspiring and sustaining that political will – through practical action – is often borne by individuals and groups in civil society. It is very encouraging to see the NGO community working with national governments, regional inter-governmental organizations, and political parties to advance agreed, multilateral disarmament goals. Such work is helpful in bringing new ideas and vitality to deliberations inside governments, and is also vital in promoting deeper involvement and understanding among the general public.

Needless to say, all who care about the future of disarmament and non-proliferation are watching closely the developments leading up to the NPT Review Conference in 2010. We have made some constructive but modest progress so far in the work of the first two sessions of the preparatory committee for that event and all state parties recognize the importance of progress at the third session, which will occur early next May in New York.

I cannot overemphasize the importance of reaching an agreement at that session on an agenda and recommendations for the 2010 Review Conference. After the disappointing outcomes of the 2005 Review Conference and the World Summit that occurred the same year, the world clearly cannot afford another setback in 2010. If the states parties adhere to their commitments to strengthen the review process, and to keep their focus on implementing their commitments made at the 1995 and 2000 Review Conferences, then there will indeed be a basis for new progress over the two years ahead.

There are, to be sure, many specific issues to resolve between now and 2010. These would certainly include questions surrounding the nuclear activities in Iran and progress in negotiations regarding weapons programmes in the Democratic People's Republic of Korea. There are also difficult challenges ahead concerning nuclear cooperation with states that are not parties to the NPT – including the granting of special benefits for non-parties, double standards, and the potential erosion of the global norm of full-scope IAEA safeguards. By 2010, hopefully we will have witnessed substantial progress in bilateral strategic arms reductions between the United States and the Russian Federation, which the entire world would welcome. And as proposed by the Secretary-General, I also hope the world will be witnessing greater cooperation among all the states possessing nuclear weapons, especially in the field of developing effective means of verifying disarmament commitments, in removing weapons from high-alert status, in abandoning first-use nuclear doctrines, and in enhancing the transparency over existing arsenals.

There is in particular the need for some sincere efforts to pursue the goal of establishing a nuclear-weapon-free zone in the Middle East, in accordance with the Middle East resolution adopted at the 1995 NPT Review and Extension Conference. The lack of progress in this area no doubt contributed to the disappointing outcome of the 2005 Review Conference. Given that the goal of creating such a zone has also been endorsed by the General Assembly in over 30 resolutions, typically without a vote, concrete steps toward its achievement would undoubtedly help in creating an auspicious environment for the NPT Review Conference in 2010. Needless to say, continued inaction would surely produce the opposite result.

We are all aware of the difficult challenges before us, but I have a renewed sense that we may indeed be close to a new era in disarmament negotiations. Many of the elements needed to have progress and eventually success in the great enterprise of achieving a world free of nuclear weapons seem to be at hand. Let us make good use of them.

For disarmament to move forward, it is essential for it to have the strongest possible network of support, both inside and outside governments. Serving effectively as bridges from governments and civil society, parliaments will have crucial roles to play in achieving this goal. They serve as forums for debate, for representing the view of local constituents, for holding governments accountable, and for approving funds for governmental activities. Cooperation among national parliaments is already strong and growing, and ultimately may well make the difference in marshalling the political will needed for the next important steps forward in disarmament, including those outlined above.

Our Common Objective: A World Free of Nuclear Weapons

Konstantin Kosachev



When talking about a political response to the challenges related to nuclear proliferation, all political efforts have to be targeted at one specific objective. That objective may be difficult – perhaps even impossible – to achieve but striving for it is a good thing. The ideal would be to have a world that is completely free of nuclear weapons. If you ask the average man on the street in Washington, Beijing, Brussels, Moscow, or in any other city in the world, he would tell you that he is in favour of a nuclear free world – provided you do not meet any one who works in the nuclear industry.

To be honest, we are very far from such a brilliant future and that means we have to be realistic. In the 20th century, we had separate military blocks in the world and nuclear weapons played a crucial role. There was no major conflict between the two super powers. The possibility of mutually ensured destruction in a serious crisis such as in Cuba did not happen, and perhaps nuclear arms prevented it from happening. This logic of mutually assured destruction is no longer valid today.

But it does not mean that the nuclear issues are not highly topical in this new millennium, far from it. This is perhaps down to the fact that there is a continued lack of trust between the nuclear powers, a distrust between the nuclear club and those countries that are candidates to the club and thirdly, the countries that have become nuclear free zones and have gotten rid of their nuclear weapons do not trust the first two groups. So the whole question of nuclear disarmament has to be looked at from this angle. It is on this basis that we can perhaps discuss and develop the measures that we need to take on the world stage.

Today, the members of this rather select club have to be extremely calm and careful so that things do not get out of control. Let me give you two examples of how given this total lack of trust, measures can be adopted by the nuclear powers. The United States wants to protect itself by means of the missile defence shield. This project can hardly be seen as an appeal to nuclear disarmament. Another example is the war in Iraq. We were told that there were weapons of mass destruction in the country. Now we know that was not the case. The conclusion we can draw is that the only reason why the country could be attacked is exactly because it did not have any nuclear weapons; if one does not want to be attacked, one should develop weapons of mass destruction for protection. This is a rather depressive conclusion to draw.

I think there are alternatives for nuclear weapons. Nuclear weapons in a multi-polar world no longer lead to caution or to reticence -as they did in the 20th century- when it comes to acting. A conventional conflict can very easily get out of control, or could in the worst case even become a nuclear war, if nuclear powers are involved.

Under these circumstances, dissuasion has to happen by means of conflict prevention rather than by nuclear threat. This means that nuclear powers have to change their attitudes and their mind set about existing problems and ways to solve them. There is still a lot nuclear powers can do. First of all, they must begin to disarm. This primarily concerns the United States and Russia. Secondly, nuclear powers have to come forward with efficient and realistic projects which will guarantee full access to civil nuclear technologies, provided that countries promise not to use them for military purposes. Furthermore, it has to be made clear to those who wish to denounce their nuclear weapons that they have nothing to fear.

This means that we have to strengthen the existing legal system which we have today; particularly the NPT needs to be updated. We have to renegotiate the treaty and our first opportunity will occur in 2010. The foreseen reform should include the strengthening of the IAEA. The Additional Protocols and the Treaty itself are the main foundations of the international non proliferation system. Equally specific measures have to back this up, particularly related to disarmament. Some time ago, Russia proposed to lower the

amount of nuclear weapons in a new agreement. This is obviously something that goes hand in hand with a clear set of obligations, including the specific refrain from having nuclear weapons outside a country's national territory. However we have not managed to get on the same wavelength with the current US President on this issue. Nevertheless, we hope that Barack Obama will be more cooperative. We also count on our European partners on this issue who will have to send out a clear signal. The message should be that nuclear powers must disarm; Nuclear arsenals should certainly not be boosted, nuclear weapons should not be put out in space, nor should these weapons be exported to other parts of the world.

The initiative taken by Shultz, Kissinger, Nunn and Perry has been in large part supported by the political class in Russia. It is a clear appeal and I think it is an appeal that we should heed. But we also need real agreements with proper legal instruments; that is the way to proceed. This is the first step towards our final objective: A world free of nuclear weapons.

The Continuing Relevance of NATO's Nuclear Deterrence Strategy in an Uncertain World

Guy B. Roberts



NATO's nuclear deterrence strategy has changed significantly since the end of the Cold War as has the Alliance's overall policy and force posture in response to the new security environment and, in that context, its stance towards some challenges on the road to nuclear disarmament. But NATO's fundamental purpose, as set forth in our founding treaty, remains the same: "to safeguard the freedom, common heritage and civilization of our peoples, founded on the principles of democracy, individual liberty and the rule of law." In doing so, we have agreed to unite for collective defence and for the preservation of peace and security. While our paths may be different, we all seek the same goal: a free, stable, prosperous, peaceful and secure world.

NATO continues to believe that the path to that world – one in which the risks of nuclear war remain low- requires a strong military posture that, for the Alliance, includes both conventional and nuclear forces. Let us be clear: As stated in the 1999 Strategic concept and every subsequent Defence Minister Communiqué on the subject, NATO continues to see the need for nuclear deterrence, for the continuing presence of U.S. nuclear weapons in Europe and the critical importance of consultation and burden sharing between Alliance members. Today, NATO employs and deploys a minimum nuclear deterrent force. The current and future role and utility of our conventional and nuclear deterrent posture is the same as it was in the past: "The fundamental purpose of the nuclear forces of the Allies is political: to preserve peace and prevent coercion and any kind of war. In keeping this goal, the Alliance continues to place great value on the nuclear forces based in Europe and committed to NATO, which provide an essential political and military link between the European and North American

members of the Alliance.” One cannot and should not ignore the fact that the presence of these weapons remains a pillar of the Alliance for political as well as military reasons.

This leads to one of many inconvenient truths which I would ask you to consider. We believe it is fundamental to our collective security that we meet the current and future threats and challenges of the future security environment from a position of strength. The Romans said it best: *Sic vis pacem, para bellum*. We entrust our security to our leaders, not to others. As former President Teddy Roosevelt said at the beginning of the last century: “We must always remember that it would be a fatal thing for great, free peoples to reduce themselves to impotence and leave the despots and barbarians armed.” In fact, consider the world in 1908. The Hague Peace conference had concluded, Andrew Carnegie had started building the Peace Palace in The Hague, many were writing that there would be no more wars. Who would have predicted what the next 40 years would bring? There is no case that I know of in history where a nation has been secure by pursuing a policy of vulnerability. The tragic arc of history has demonstrated that it is a sure path to destruction and enslavement.

Why Deterrence?

This leads to the question of why nuclear deterrence and more importantly, why nuclear deterrence for NATO? Nuclear weapons provide something that conventional forces cannot: incalculable risks. It is, of course, exceedingly difficult to prove a negative. So let me right up front make a statement of belief: «nuclear deterrence has prevented a catastrophic war for over 50 years and it will continue to be an effective insurance policy for the unstable and unpredictable world we live in.» Given that much of the worst violence in human history has occurred because of great power wars, we should not dispense with the very weaponry that has rendered such devastating conflicts almost obsolete.

When a potential aggressor thinks about the nuclear capability of NATO and chooses against an attack, nuclear weapons work. They thus serve as a political and psychological tool capable of maintaining the security of the allies. They are the only current weapon

capable of destroying an entire society, raising the cost of aggression to an unacceptably high level. Such is not the case with conventional forces. While you may be outmatched conventionally, the risk of complete annihilation is very low. History is replete with cases of calculated aggression against larger, stronger conventionally armed adversaries, for example the surprise attack on Pearl Harbour.

Many statesmen have decried the grim character of deterrence. Deterrence arises from a logical and a moral necessity – as Kenneth Waltz pointed out in his 1954 classic, “Man, the State, and War.” Because men are not angels, because states can be malevolent, and because the international system of states is itself a jungle, without an all-powerful world government to enforce order, something like deterrence is required. Deterrence can be thought of as reason’s attempt to check the perpetual temptation of evil. As Edmund Burke warned: “There is no safety for honest men but by believing all possible evil of evil men.” This includes assuming they will lie, cheat and betray. The search for perfect security is a fool’s errand in a world inherently beset by conflict. Deterrence thus seeks to build security on the firmer foothold of a realistic view of human nature. This is one that sees that the most reliable human motive is the preservation of things one holds most dear – particularly one’s own life. Our deterrence posture is such that we believe no regime, no matter how aggressive and risk-inclined, would be so foolish as to attack the Alliance, a move that would yield little advantage, and thereby incur an attack’s clear consequence – utter destruction.

Now, it is important to note that deterrence is fundamentally defensive and to be distinguished from its more brazen cousin, coercion, which is the use of threats of violence to accomplish positive ends. Through the threat of overwhelming force it enforces peace, founding it on the firmer ground of respect and fear rather than the shiftier ground of ideology or aspiration. So if President Bush’s effort to diminish international conflict by improving the character of states, by making them democracies, does not work out, deterrence will still be available. Deterrence offers an insurance guarantee against the possible failure of idealists to reduce the likelihood of war by other means.

The Relevance of NATO's Nuclear Deterrence

Recently, sceptics have begun to question "what is the problem for which nuclear weapons is the answer?" There exists a wide spectrum of threats for which we need a wide spectrum of responses. One could just as easily question what purpose an aircraft carrier or a Blackhawk helicopter serves. They do not necessarily deter every threat either, but they do serve a deterrent purpose. It is a matter of strategically building up a spectrum of responses to the spectrum of threats prevalent in the world today. Although nuclear weapons play a far smaller role in Alliance strategy than they did during the Cold War, NATO allies reaffirmed the importance of nuclear deterrence by stating that "to protect peace and to prevent war or any kind of coercion, the Alliance will maintain for the foreseeable future an appropriate mix of nuclear and conventional forces." There are a number of reasons why the Alliance continues to believe this to be so.

Firstly, the Alliance must hedge against resurgent nuclear powers and against the potential for a strategic surprise. The Alliance's conventional forces alone cannot ensure credible deterrence. If NATO's nuclear forces were to disappear, the Alliance would be vulnerable. Reconstitution of NATO forces would take time, be costly, and be politically challenging as it could be perceived as escalatory. As confirmed by recent events, we must be prepared for all threats because the future is an uncertain and unpredictable place. States that do not adhere to international norms or fulfill their treaty obligations are unpredictable and potentially hostile. For example, in addition to testing a nuclear device, the North Koreans also threatened to sell nuclear weapon materials to non-state actors. The South African, Pakistan, Indian nuclear tests and Iraq's nuclear weapons program just prior to the Gulf War are but a few examples.

Secondly, in the evolving and ever changing strategic landscape, NATO's strategy remains one of war prevention. NATO's nuclear forces contribute to peace and stability by underscoring the irrationality of attacking us and fulfilling an essential role by ensuring uncertainty in the mind of any aggressor about the nature of the Allies response to aggression. So rejecting the idea of no first use,

for example, creates uncertainty for any country that might contemplate seeking political or military advantage through the threat or use of WMD. This deterrence -defensive- posture contributes to the Alliance's efforts at preventing the proliferation of these weapons.

Thirdly, NATO's nuclear posture contributes to our non-proliferation goals – NATO's security guarantees are disincentives for further nuclear development. As mentioned earlier, the Strategic Concept refers to the essential political as well as military link nuclear weapons represent within the Alliance. Burden sharing and consultation form the basis of this nuclear pillar. One important rationale for the presence of nuclear weapons is that the nuclear weapon states would consult with the rest of the Alliance before any deployment or employment of such weapons. Further, a palpable demonstration of alliance solidarity will be the visible deployment of this capability demonstrating Alliance resolve with most Alliance members participating. This is consistent with the fundamental guiding principle of common commitment, mutual cooperation and collective security for all Alliance members.

NATO's Reduced Force Posture

It must be stated that NATO has taken drastic steps to reduce its nuclear force levels. Treaties, like the NPT, START and SORT have all been helpful in making our security environment less tense. They, along with the end of the Cold War, have allowed for major reductions, including the removal of over 90% of the European based U.S. sub strategic forces, leaving only a few hundred gravity bombs as the only weapons system on the continent. Readiness levels have been lowered from minutes to months and the number of nuclear storage sites has dropped by 80%. These decisions are part of NATO's commitment to "seek to enhance security and stability at the lowest possible level of forces consistent with the Alliance's ability to provide for collective defence and to fulfill the full range of its missions." But despite these extraordinary reductions and our continued commitment to positive arms control, there is no evidence that such efforts have had a positive impact on non-proliferation. In fact, just the opposite has been the case. Russian cooperation on non-proliferation, for example, has never been tied

to its calculations about the strategic balance between the U.S. and itself. Nor is there evidence that reductions in nuclear weapon stockpiles on the part of Moscow and Washington have had a significant impact on the strategic desires of third countries like North Korea or Iran, to acquire weapons or of countries, such as Libya, Ukraine and South Africa, to reverse course and get out of the nuclear weapon business.

Despite NATO's minimum force posture, there remain a number of arguments made against the Alliance's nuclear deterrence policy. The argument most often heard is that NATO policy is outdated. We are forcing new and old member states to follow a nuclear weapons policy they, and their citizens, do not want. Some even point to public opinion polls to show such sentiment exists. Between 1999 and 2004 NATO membership grew from 16 to 26, soon to be 28. Do not discount the importance these nations placed on nuclear deterrence, especially those new members who all too recently emerged from the oppression of the Soviet Union. A nuclear umbrella was clearly an important factor in their desire to join the Alliance.

Another argument sometimes raised depicts a scenario similar to 1914. Imagine an assassination or some other event occurs triggering hostilities, which could escalate into a nuclear launch. According to some, such a scenario is possible simply because nuclear weapons exist. Nevertheless, the idea of a "nuclear 1914" is not realistic. NATO maintains not only a nuclear advantage over states, but also a conventional advantage. This advantage is at a level that nuclear weapons need not be used except in extremely remote instances. But taking into account the diversity of risks with which we might be faced, we must maintain the forces necessary both to ensure credible deterrence and to provide a wide range of conventional response options. This mix hedges against both WMD threats and conventional threats and recognizes that the Alliance's conventional forces alone cannot ensure credible deterrence. Nuclear deterrence remains the ultimate guarantee of the protection of our vital interests, including the preservation of peace and security.

Recent Russian statements indicate tensions between Russia and the United States are based on America's nuclear commitments to NATO. Supposedly, by removing these weapons it will reduce the tension and provide Russia with an incentive to disarm its nuclear arsenal. It is an interesting proposition but dangerous and wrong since it would not significantly enhance the security of the Alliance. I know of no historical or empirical evidence on which to support the idea that a unilateral move to disarm by one nation has resulted in a similar reciprocal response by an adversary. Russia's military doctrine contemplates reliance on nuclear weapons as a logical response to the glaring inadequacy of her conventional forces premised on the idea that nuclear weapons have greater utility than simply to deter a large-scale nuclear attack. Maintenance of this "non-strategic" nuclear capability is not premised on the fact that NATO has nuclear weapons. Consequently, it is hard to logically postulate that the removal of NATO's nuclear deterrent from Europe would serve as any incentive for Russia to eliminate its non-strategic nuclear arsenal. States make decisions on national security based on the perception of their vulnerability to threats.

Finally, some critics contend that any reliance on nuclear weapons undermines Article VI of the NPT; by NATO maintaining a nuclear capability, it supposedly hinders the non-proliferation movement. NATO's nuclear sharing arrangements are fully consistent with the NPT. NATO member states, all party to the NPT, are in full agreement as to the legality of these arrangements. Nevertheless, we support the aspirational goals of Article VI as reflected by the massive amount of reductions in nuclear weapons and our strong support for a variety of arms control, disarmament and non-proliferation initiatives, as stated in the Foreign Ministers' communiqué of 3 December, 2008.

Conclusion

The Alliance was built on security guarantees, including nuclear assurances. If these are removed our security will be imperiled. Despite NATO's changing role internationally, for the foreseeable future nuclear weapons will have a place. As long as we continue to face a multiplicity of threats in a future unknown security environment, we will continue to need our nuclear deterrent.

The peace and stability which nuclear deterrence provides is immeasurable. In this uncertain and increasingly dangerous world where proliferation is a given fact, it is the best – albeit not perfect – answer to the question of how we continue to ensure the safety and security of our nations, our people, our freedoms. Disarmament yes, but not at the price of all we hold dear. Just as those who lived in 1908 could not predict the future, neither can we. But when an aggressor thinks about NATO's nuclear capability and chooses not to attack, those weapons have worked. This will continue into the future, providing increased strength to our Euro-Atlantic Alliance, and to the millions of citizens living in all of our great nations. So, let us think hard about a world without nuclear weapons. This is one in which the knowledge to build one cannot be wished away, where great nations and a great Alliance would have accepted vulnerability instead of strength as the avenue to peace, and where 20 or 30 or 40 nations would have the wherewithal to quickly and clandestinely develop nuclear weapons in a perceived crisis. Such a world would be infinitely more dangerous and would actually greatly increase the likelihood that these most devastating of weapons would be used. So let me leave you with some additional personal observations for your consideration:

1. WMD proliferation is inevitable. As the recently released U.S. WMD Commission report describes, we can slow and impede it, but it will happen. The reality is that technology, as it becomes cheaper and more abundant, will inevitably flow outwards, to smaller and weaker states and downwards, to sub-state actors. Security is the good and security is best ensured by retaining a strong and credible nuclear force.
2. As the evidence demonstrates, there is no correlation between the Nuclear Weapon States' disarmament record and non-proliferation. Consequently, we should conceptually de-link our maintenance of a credible and modern nuclear force from the goal of preventing the proliferation of nuclear weapons and other WMD.
3. There are major, and in my mind insoluble, obstacles to nuclear disarmament in a world of sovereign nation-states. How can it be verified? How can a nation be sure its enemy has really, fully disarmed? Related, if it could be verified, how can a nation be sure

that its opponent will not re-arm? And in the insecure international environment, in which no one holds the monopoly on legitimate violence, there are no reliable means of recourse for injustice done among nations. The history of secretive programs and the failure to enforce compliance should give anyone pause.

In sum, given the profound dangers of possibly allowing another power to possess nuclear weapons while we do not, thereby opening ourselves to nuclear coercion, would be irresponsible and potentially catastrophic; certainly not a recipe for the peaceful, prosperous, free and secure world we all desire.

Unfortunately, the weapons we've invented cannot be uninvented. We must live with them. It is an inevitable price human beings must pay to live in the age of technology. Living with destructive technologies is our lot, the modest punishment we must bear for progress. The bomb is with us to stay. It is, after all, the ultimate guardian of our safety.

The New US Policy: Securing the World from Nuclear Threats

Joseph Cirincione



The past eight years have seen almost every nuclear proliferation problem grow more dangerous. U.S. policy has not only failed to reduce these dangers, in many cases it has made them worse. This is about to change. Barack Obama will enter the White House with the most promising, comprehensive nuclear program of any president in history. The debate over what US policy should be is over; it is now a question of how to implement it.

President-Elect Obama has posted on his transition website, Change.gov, a twelve-point plan developed during the campaign and his Senate years. It is designed to reduce the danger of nuclear terrorism, prevent the spread of nuclear weapons capabilities, and strengthen the nuclear non-proliferation regime. As a key part of this agenda, he has promised, "We will make the goal of eliminating all nuclear weapons a central element in our nuclear policy."

The Obama-Biden plan is very similar to the proposals advanced by French President Sarkozy in his letter dated 5 December to UN Secretary General Ban Ki Moon on behalf of the 27 EU countries, and to those advanced by UK Foreign Minister David Miliband in his article in the Guardian of 8 December. These proposals, in turn, parallel the recommendations of the new international campaign, Global Zero, launched in Paris on 8 December. Other campaigns, including the Hoover Institution initiative of George Shultz, Henry Kissinger, William Perry and Sam Nunn, also embrace the goal of a world free of nuclear weapons and develop similar practical steps to advance to that goal.

So, how will this all unfold in 2009?

Prevent Nuclear Terrorism

I expect President Obama to begin with the struggle to prevent nuclear terrorism. This is the most serious national security threat facing the United States and most other nations, as recently reaffirmed by the U.S. WMD Commission report. It is logical that the new president would start with a plan to defend Americans from the immediate danger. It is high time we put our money where our threats are.

Though the risks of such an attack are fairly low—the ability to acquire or build a nuclear bomb remains very difficult—the consequences would be enormous. A single, compact nuclear device with the yield of the Hiroshima bomb could instantly devastate a mid-sized city. It would kill hundreds of thousands of citizens, trigger trillions of dollars of economic loss, terrorize the world, and alter the political structure of many countries. This is why nuclear weapons are the most deadly weapons ever invented—the only true weapons of mass destruction. Preventing a nuclear 9/11 is our highest security priority.

Obama's plan is to accelerate and expand the existing programs to secure and eliminate all global supplies of nuclear weapon materials within his first four-years. He will likely appoint a deputy national security advisor to oversee the efforts and ensure that they have constant presidential-level attention. He has also promised to convene a summit on preventing nuclear terrorism in 2009—and regularly thereafter—of leaders of the Permanent Members of the UN Security Council and other key nations.

These steps have long been advocated by international experts. President Obama will finally implement them.

Preventing the Other Threats

This terrorist threat, however, is one of four interrelated nuclear dangers confronting the country and the world.

The second is the danger from existing arsenals. There are 25,000 nuclear weapons held by nine nations in the world, 96 percent by the United States and Russia alone. Thousands are still on a cold war posture, ready to be launched within 15 minutes, greatly increasing the risk of unauthorized or accidental launch. Tensions between nuclear-armed nations risk regional nuclear wars with global impact. The current crisis in South Asia demonstrates the real danger of regional nuclear war.

The third is the danger posed by new states acquiring nuclear weapons. The risk is not primarily that a new nation would use a nuclear weapon, nor that it would transfer the weapon to a group it could not control. The true danger is the regional reaction as neighbouring states seek to match the new, threatening capability. The Middle East could go from one nuclear-weapon state (Israel) to four or five—a potential apocalypse fuelled by the region's unresolved territorial, religious, and political tensions.

The fourth danger – a collapse of the non-proliferation regime – is perhaps the most immediate danger. If global arsenals remain at cold war levels and if new nuclear nations emerge, then many states will conclude that the weapon states' promise to reduce and eventually eliminate these arsenals has been broken. Some of the 183 non-nuclear states may therefore feel released from their pledge not to acquire nuclear arms.

Each of these threats is deadly in its own right. Together they represent an unacceptable security risk. Yet, these dangers are neither inevitable nor innate. Policies which are applied consistently and firmly can reduce and even eliminate many of these dangers. President Obama and the other leaders cited above recognize this.

I believe the set of policies outlined by the new American President, by the French President and the UK Foreign Minister represent a coherent strategy to reduce these nuclear dangers simultaneously. I expect President Obama to pivot quickly from programs focused on preventing nuclear terrorism to those that recognize that nuclear weapons are a danger wherever they are, whoever possesses them.

A Systematic Approach

The Obama-Biden plan advocates tough, direct diplomacy to prevent Iran from acquiring nuclear weapons and to eliminate fully and verifiably North Korea's nuclear weapons program. These two crises will certainly force their way to the top of the new president's agenda. With North Korea, it will be a matter of implementing the existing agreements, but with a new vigor and a new consistency on the American side. With Iran, the question of whether the US will talk with Iran has been decided. We will. The issue is now how to talk, what is the proper sequencing of discussions. In both sets of negotiations, I would expect full coordination with US allies and friends.

These national issues cannot be resolved state-by-state. The days of playing nuclear wack-a-mole are over. The new administration clearly recognizes the importance of multilateral efforts and global solutions. Look for an early start to implement Obama's pledges to:

- work with interested governments to establish a new international nuclear energy architecture, including an international nuclear fuel bank and reliable fuel supply assurance;
- ensure that the International Atomic Energy Agency gets the authority, information, people and technology it needs to fulfill its crucial role; and,
- lead a global effort to negotiate a verifiable treaty ending the production of fissile materials for weapons purposes.

Finally, and perhaps most hopefully, the new administration recognizes that a nuclear-free world begins at home. The program states:

“Barack Obama will show the world that America believes in its existing commitment under the Nuclear Non-proliferation Treaty to work to ultimately eliminate all nuclear weapons. Barack Obama fully supports reaffirming this goal, as called for by George Shultz, Henry Kissinger, William Perry, and Sam Nunn, and the specific steps they propose to move us in that direction. He has made clear that America will not disarm unilaterally.”

The plan is to seek deep, verifiable reductions in all U.S. and Russian nuclear weapons, then work with other nuclear powers to reduce global stockpiles dramatically by the end of the Obama presidency. Part of this effort is a specific pledge to end the dangerous cold war practice of keeping US and Russian weapons on hair-trigger alert, ready to launch within 15 minutes. I expect that nuclear policy will be the first set of issues that the new administration takes up with Russia, as part of its efforts to reset the strained US-Russian relations. It is the logical place to start.

I, like many experts, favour initial reduction in both US and Russian arsenals down to 1000 weapons. Further reductions would follow, with other nuclear-armed states brought into the process. An excellent discussion of this strategy has been detailed by Ivo Daalder and Jan Lodal in “The Logic of Zero” in the November/December 2008 issue of Foreign Affairs.

Prospects for Success

There is more to the strategy, including pledges to open consulates in many troubled regions of the world, to work in an open, bipartisan manner with Congress, to engage the American people in this effort and to begin a bipartisan process to win the ratification of the Comprehensive Nuclear Test Ban Treaty. Incoming Secretary of State Hillary Clinton pledged during the campaign to win ratification of the test ban in 2009—the ten year anniversary of the failure of the US Senate to ratify this vital agreement. I believe this can be done and it should be our goal.

There are many obstacles to the agenda including the enormous press of domestic problems confronting the new president; other international crises, including global warming, the Middle East, Iraq, Afghanistan, and Pakistan. Neither Iran nor North Korea, of course, will be waiting with open arms to embrace the new president. Tough negotiations await him no matter where he turns.

First, however, there is a basic internal tension to resolve. Will the national security team of pragmatists that President-Elect Obama has assembled help or hinder this ambitious agenda? Most are not as

personally committed to these goals as the new president. But I believe Barack Obama when he says, “The change comes from me.”

He will now have to push that change from a dedicated White House staff. The principle resistance will not come from conservatives but from moderates in his own administration fearful of appearing “weak” on national defense. They will want to go slow on any change—including ratification of the CTBT—and will be eager to promote new weapons systems as proof of their toughness, including new nuclear warheads. They will seek to strike deals with conservatives in a new manifestation of the Clinton policy of “triangulation.”

These are all good people, trying to do the right thing. But their approach could doom the Obama-Biden agenda. I expect the new administration will be a struggle between these incrementalists and the transformationalists dedicated to implementing fundamental change in U.S. nuclear policy as detailed in the Obama plan. Thus, the role of civil society becomes critical. It will be vital that non-government organizations and the public at large support the Obama-Biden agenda and help the new team implement this progressive vision.

There is substantial bipartisan support already, demonstrated by the efforts of four veteran cold warriors: George Shultz, Henry Kissinger, William Perry, and Sam Nunn in their Hoover Institute project for “a world free of nuclear weapons.” An overwhelming majority of former top national security officials now support this aim. Almost 70 percent of the men and women who formerly served as secretaries of state, defense, or national security advisors now support the goal, including James Baker, Colin Powell, Madeleine Albright, Frank Carlucci, Warren Christopher, and Melvin Laird.

The public is also in strong support. A public poll released by Global Zero shows 76 percent of the American public does not want any country—including the United States—to have nuclear weapons. Consistent and overwhelming majorities support agreements that negotiate the verifiable reduction and elimination of nuclear weapons.

U.S. allies must also make their views known. Together these “outside” voices can encourage the president and help him allay the fears of those who would delay or deny the new agenda.

How will we know if the transformationalists are winning?

Look for President Obama to articulate in his inaugural address the broad strategic goal of a world free of nuclear weapons. He might elaborate on his vision in a major policy address during his first 100 days, both to engage the American people early in this effort and to detail the practical steps he will take to enhance American security in the near term.

Top experts from both parties could be prominently enlisted to validate the policy vision, involving visits to the White House or a national summit. This should be part of a sustained effort to build and maintain bipartisan support for the new strategy.

The new president should also signal these new national priorities by adjusting the budgets for nuclear weapons and antimissile weapons. He should no longer short-change pressing conventional military needs by lavishing funds on obsolete or untested programs, or on expanding production facilities for nuclear weapons, development of new nuclear weapons, and research on new delivery vehicles for nuclear weapons pending reviews of U.S. nuclear policy and posture. Budgets for antimissile systems should be integrated into the budgets of the military services to empower the appropriate military authorities to make the critical budget trade-offs. In a recent article in *The Boston Globe*, I calculated that the president could save \$28 billion by cutting the U.S. nuclear force to 1000 weapons (down from the current 5400) and refocusing the anti-missile programs to counter to the existing short- and medium-range threats and returning the long-range interceptor programs to research and realistic testing. I expect the president to cut these budgets, though perhaps not as much as he could.

Following the lead of President Reagan with Russia and President George W. Bush with Libya, the 44th president should negotiate

new agreements to limit or eliminate threatening missile programs, including making the U.S.-Russian ban on intermediate- and medium-range missiles a global pact.

Concurrently, the president should have the relevant officials engage in sustained dialogue with allies and friends on nuclear policy. It is essential that other nations deeply affected by U.S. policies have input into the formation of these policies.

No nation should ever have a veto over U.S. national security policy, but consultation with friends and allies is critical to getting the policy right, ensuring broad support, and protecting U.S. security. The new president can expect considerable international enthusiasm for these new policies, demonstrated by the steady stream of proposal from Europe in 2008, including the June 2008 endorsement of a world free of nuclear weapons by three former British foreign secretaries, Douglas Hurd, Malcolm Rifkind, and David Owen, and the former British NATO secretary general, George Robertson.

Finally, President-elect Obama should consider whether some of his non-proliferation initiatives could be implemented unilaterally. He could announce plans to reduce U.S. forces to 1,000 weapons and extending the warning time for the launch of U.S. ballistic missiles, urging Russia to do the same.

Other decisions could be taken unilaterally without any expected or required reciprocal action, such as declaring that the sole purpose of U.S. weapons is to deter and if necessary respond to a nuclear attack. The president could also order a change in U.S. nuclear targeting policy to eliminate preset plans for large scale attacks on other nations, replacing them with the ability to promptly develop and launch a tailored response to any nuclear attack on the United States, its military forces, or allies.

These are some of the developments to look for as signs that President Obama was successfully implementing his declared agenda.

A Chance to Make History

Barack Obama will come into office with the chance to make nuclear history. He will be in a strong position to take advantage of this unique policy moment.

With new leaders in many of the world's major nations, with many nations in agreement on the nature and extent of the nuclear threats, and with new policies already vetted by several high-level, bipartisan organizations, there will be a rare opportunity to make bold, sweeping change.

As British Prime Minister Gordon Brown promised in early 2008:

“Britain is prepared to use our expertise to help determine the requirements for the verifiable elimination of nuclear warheads. And I pledge that in the run-up to the Non-Proliferation Treaty review conference in 2010, we will be at the forefront of the international campaign to accelerate disarmament amongst possessor states, to prevent proliferation to new states, and to ultimately achieve a world that is free from nuclear weapons.”

The new president of the United States should do no less. He can change the nuclear strategy of the United States and, by doing so, change the nuclear policies of the world.

The Missing Link: Political Decision and Will to Build and Manage Security without Nuclear Weapons



Rebecca Johnson

Many of the progressive measures already discussed in the other contributions are variations on the 13 steps agreed by over 180 states parties to the Nuclear Non-Proliferation Treaty at the NPT Review Conference in 2000. We have seen these steps rearranged or reprioritised in the 2006 WMD Commission Report; in the steps identified by George Shultz, Henry Kissinger, Sam Nunn and William Perry – the Four US Horsemen, recently followed by four eminent horsemen from 3 UK parties, including former NATO Secretary General Lord Robertson; the Norwegian government's five principles and ten steps; President Sarkozy's eight-point plan; the UK's vision of a world free of nuclear weapons; and most recently the 5-point proposal made by the UN Secretary-General in October 2008. These lists of measures leading towards nuclear disarmament have many similarities and would, if carried out, help us make significant progress towards reducing nuclear dangers. Yet a critical element is missing, and that is what I now want to address.

What is the missing link between these necessary steps and their implementation? It is the political decision and will to build and manage security without nuclear weapons.

Disarmament is a tough challenge for all of us, but especially for governments. Nuclear non-proliferation and disarmament objectives will be difficult to achieve if certain states consider their national and regional security to be threatened and if people believe that nuclear weapons can deter or deal with such threats. Bringing the numbers of nuclear weapons down is of course necessary and useful, as the fewer weapons that are built, deployed, transported or stored, the fewer opportunities there will be for nuclear accidents

or use. However, as long as some states or alliances cling to nuclear weapons and proclaim their value for security, deterrence or power projection, others will want them, and so the drives towards proliferation will continue. Non-proliferation is only viable – and disarmament made possible – when nuclear weapons are perceived to have lost their military and political value.

To see the way ahead, it can be useful to apply a “reverse engineering” analytical tool often used by NGOs to help identify the best strategies: instead of looking forward to a distant objective, it is illuminating to think back from achieving the objective. Imagine we have achieved the reality of a world free of nuclear weapons. What does it look like, and what steps did we take in order to get there?

Objective: Prohibition of nuclear weapons for a more secure world

In achieving a world free of nuclear weapons, we need to make sure that the world becomes a safer place.

First, there will have to be multilateral negotiations on a treaty or set of treaties – a nuclear weapon convention (NWC) of some kind – that will codify in law and practice both the prohibition of future acquisition and use of nuclear weapons and also the safe and secure elimination of the existing arsenals. Careful attention will be needed to ensure that all the existing warheads and delivery vehicles are verifiably dismantled and eliminated, and how the fissile materials and other components should be stored or destroyed so that they cannot be stolen, reacquired or used for weapons in the future. All this must be done in ways that minimize the hazards for the environment and our health, and provide confidence against cheating or break-out.

The Model Nuclear Weapon Convention developed some years ago by civil society scientists, lawyers and practitioners should not be equated or confused with this objective, but it does offer an excellent overview of the issues that will need to be addressed. Last

year, the Model Convention was updated and republished with explanations of the options and implications in “Securing our Survival”. This formed an important part of the new International Campaign to Abolish Nuclear Weapons (ICAN) which was launched by IPPNW at the NPT PrepCom in Vienna and is spreading to parliaments around the world.¹

What prevents the nuclear genie from being put back into its bottle is not the existence of nuclear knowledge, but the high value still accorded to nuclear weapons, particularly by states that have them. This was recognised in the 2006 Weapons of Mass Destruction Commission, chaired by Dr Hans Blix and comprising 14 high level representatives from key countries. This international Report characterised all WMD as “weapons of terror” and employed the concept of “outlawing” nuclear weapons. It stated: “Weapons of mass destruction cannot be uninvented. But they can be outlawed, as biological and chemical weapons have been, and their use made unthinkable. Compliance, verification and enforcement rules can, with the requisite will, be effectively applied. And with that will, even the eventual elimination of nuclear weapons is not beyond the world’s reach.”²

Second, building on the disarmament-for-security theme: in getting rid of nuclear weapons, we must make sure that deterrence theory is not proved right. In other words, we do not want to see more bloody, conventional wars take the place of nuclear weapons. That would not be a desirable trade-off. Therefore, as nuclear weapons are progressively abolished, it will be important to reduce reliance on other weapons too. That means we have to move defence responses away from old patterns of aggressive, military-dependent national security approaches. In other words, the EU model of regional cooperation rather than the NATO model of military alliance.

¹ Securing our Survival: The Case for a Nuclear Weapons Convention, May 2007. <http://www.icanw.org/securing-our-survival>

² *Weapons of Terror: Freeing the world of nuclear, biological and chemical arms*, Report of the WMD Commission, Stockholm, June 2006, p 17.

Where real security is concerned, war and its weapons are part of the problem. Avoiding nuclear catastrophe will be a pyrrhic victory if the world carries on fighting xenophobic wars and fails to wake up to the need to cooperate to avoid environmental catastrophe.

Before treaty negotiations, there needs to be a “prenegotiations” stepping stone

Before you can have negotiations, there must be a prenegotiations phase to build confidence and lay the groundwork. Often a shock or deep political change provides the stepping stone for prenegotiations, for example:

- a terrible shock, such as the Cuban Missile crisis, shifted perceptions about nuclear arms control and cut through the red tape and bureaucratic objections to bring about a partial test ban treaty and then the nuclear non-proliferation treaty within a few short years; or
- a major political shift, for example, leadership by one or more key countries to renounce or suspend the weapon or policy. The moratoria on nuclear testing declared by Russia, then France and then the United States in the period 1991-92 paved the way for negotiations on a Comprehensive Test Ban Treaty (CTBT) in 1994, for example.

The use of a nuclear weapon somewhere in the world would undoubtedly provide a terrible shock and could lead swiftly to global disarmament – but at what an appalling cost for the victims. Far better to create a responsible political shift, such as inducing one of the nuclear weapon states to declare that it will not keep on renewing and deploying its nuclear forces. Facing an expensive construction programme for new submarines to carry the next generation of Trident, the UK was an obvious candidate for this role, but the decision to begin renewing Trident in 2007 suggested that the present government lacks the courage and foresight to take the lead. However, the recent upsurge in appeals and campaigns for a nuclear weapon free world, from the Shultz-Kissinger ‘Four Horsemen’ op-eds to the new ‘Global Zero’ initiative of world leaders

which was launched in December 2008 in Paris, are providing impetus and rationale for a brave leader to choose not to repeat the nuclear mistakes of the past.

While step by step processes and verified reductions in numbers of weapons are undoubtedly important, the real tipping point will come when the weapon states show that there is no role for nuclear weapons in their doctrines and policies.

The practical steps of verified disablement, dismantlement and irreversible denuclearization will take time, and those countries still possessing nuclear weapons will need to keep them safe pending total elimination. Therefore, as a first step, it is not the possession but the *use* of nuclear weapons that must be outlawed.

The NPT does not address use, but the International Court of Justice in its landmark advisory opinion of July 1996 did find that in almost all situations the use of nuclear weapons would violate international humanitarian law³. However, the ICJ left open a possible loophole. With the post cold war doctrines of the United States and others reintroducing the possibility of nuclear weapons being used for pre-emption or retaliation, it is time to close that loophole by demonstrating international resolve to classify nuclear weapons as inhumane weapons and declare all uses of nuclear weapons to be crimes against humanity.

This would need to go together with an obligation on all states and people to render all possible assistance to a state that is threatened or attacked with nuclear weapons and also to track down and bring to justice those responsible for the threat or use of nuclear weapons, including those responsible for delivery and decision-making and suppliers or facilitators of the bomb-makers, materials and attacks. This approach extends the commitments and responsibilities of negative and positive security assurances to everyone, not just the five NPT-recognised nuclear weapon states. There are also precedents

³ International Court of Justice Reports 1996, p 225. [Reported for July 8, 1996, General List No. 95]. The full decision, documentation and dissenting decisions also formed the Annex to 'Advisory Opinion of the International Court of Justice on the legality of the threat or use of nuclear weapons', Note by the Secretary-General, United Nations General Assembly A/51/218, October 15, 1996 pp 36-37.

for this approach in UN Security Council resolution 1540 on weapons of mass destruction (2004), adopted by the Security Council to extend obligations and penalties to individuals and companies and thereby address non-state terrorists as well as states.

Declaring the use of nuclear weapons a crime against humanity would not eliminate nuclear dangers overnight, but would have major impact in taking nuclear weapons off the lustrous list of objects of political status and desire. They would then truly be treated as weapons of terror that no sane or civilized person would want or be able to use. Those clinging to nuclear deterrence need to wake up to the 21st century. As recognised by US former nuclear negotiator Max Kampelman, an advocate of getting legislation through the Security Council to make the use of nuclear weapons a crime against humanity, this approach would arm the international community more effectively against terrorists and their suppliers. If you want to deter the terrorist or 'rogue' state use (or threat of use) of nuclear weapons, as advocates of nuclear deterrence claim, one of the most effective ways, reflecting post-Nuremberg accountability and the remit of the International Criminal Court, would be to make the use of nuclear weapons a crime against humanity and hold suppliers and traffickers to account as well. Despots and terrorists most fear and hate the risk that they could be held personally accountable and subjected to public trial and punishment. Declaring nuclear weapons use a crime against humanity would take the ICJ advice to its logical conclusion and strengthen the NPT. It would greatly reinforce deterrence, denial and non-proliferation, and provide non-discriminatory positive and negative security assurances to all.

Unlike a nuclear weapon convention, which would have to be negotiated multilaterally and would be likely to be complex and time-consuming, with many political, technical, verification and implementation challenges to be worked out, the process of stigmatising and outlawing the use of nuclear weapons offers opportunities for courageous leaders to take unilateral steps that build towards creating a multilateral norm. This is an important initiative that non-nuclear weapon states – and indeed citizens and public movements – can declare support for, and help to build up a strong ethic norm and create a breathing space for nuclear

disarmament initiatives to take hold. For nuclear weapon holders, there is a perverse logic that they may also find reassuring as they wean themselves away from nuclear reliance. As long as some nuclear weapons exist physically, everyone would know that they might be used, despite any nuclear taboo or declaration. It will take time to reduce and eliminate the existing arsenals, and while this is happening, the existence of physical weapons in the arsenals of the United States and Russia et al will continue to provide existential deterrence (to the extent that such a concept holds at all).

What is the stage leading up to prenegotiations?

Surprising for some, I think that is actually where we are now. Not at the bottom of the mountain a long way from starting negotiations on a world without nuclear weapons, but just a couple of stages away. We are already in the process of the paradigm shift towards devaluing nuclear weapons, essential if disarmament is to take root and flourish. Nuclear weapons are increasingly coming to be viewed as a security problem, not a security asset. Not only by progressives and peace activists, but by military leaders as well.

This pre-negotiations stage is characterised by confusions and inconsistencies, with governments and leaders still attempting to cling to nuclear voodoo even as their hearts and brains are convincing them to turn towards a more effective security medicine. Perhaps the most obvious sign that we are reaching the tipping point is the way in which conservative leaders and former advocates of robust nuclear arsenals are signing up to visions of a nuclear weapon free world. Yet even as architects of nuclear policy are coming round to seeing nuclear disarmament as not only desirable, but feasible and practical (and, in fact, necessary), they or other sections of the same governments are busy signing up to renew, replace or modernize nuclear weapons in their arsenals, such as Trident or the Reliable Replacement Warhead (RRW). And NATO continues to behave as if nuclear weapons are an indispensable glue for Euro-Atlantic cohesion and deterrence, fearfully avoiding the real challenges of deterrence and collective security for the 21st century. (Note: deterrence is not synonymous with nuclear weapons! Deterrence can be robustly asserted with a mixture of other tools.)

The regional as well as global challenges posed by nuclear aspirants such as North Korea and Iran are forcing a rethink by their neighbours. That could either lead to a regional proliferation race or determined efforts to rein in nuclear developments. If we are reaching a possible tipping point we have to make sure that we tip the right way, towards disarmament and not towards proliferation. With 188 states parties, the NPT is remarkably successful – and also worryingly fragile. We cannot keep shoring it up just with words, despite the many papers issued during the NPT review process – it needs to be transformed with concrete disarmament actions.

Regional insecurities may drive key states towards the negotiating table, if not internationally, then on a regional basis. For example, there are renewed initiatives – from the League of Arab States, the European Union and civil society – to start talks aimed at paving the way for negotiations on a nuclear weapon free zone in the Middle East. Such regional initiatives, which will also require greater peace and stability in the region, will only move forwards in the larger context of nuclear weapons being devalued and reduced worldwide.

As we come into the final stretch before the 2010 NPT Review Conference, it is not difficult to identify the elements that need to be worked on to make 2010 a success within NPT terms. The Chair's summary lists them. Demonstrable progress towards entry into force of the CTBT: Ideally President Obama should lay the groundwork in 2009 for the Senate to take a fresh look early in 2010. Reaffirmation of the undertaking to eliminate nuclear arsenals will need to be given practical credibility through commitments to identify and start work on taking implementation of the relevant parts of the 13 steps to the next stage. The US and Russia need to negotiate deeper (and verifiable) cuts in their strategic arsenals to follow on from START and SORT. Creating the conditions to negotiate the fissile materials production ban and get the Conference on Disarmament back to work would be high on most states parties' agendas. The devaluation of nuclear weapons will be essential, and the sponsors of the 1995 Resolution on the Middle East need to be initiating consultations now with all relevant states – including Israel – to work out what are feasible measures to address nuclear insecurity in the Middle East.

Conclusion

The fact that some of the major advocates of nuclear weapons and deterrence are now extolling the virtues – and, more importantly, the practicality – of a world free of nuclear weapons, means that strategies for accomplishing the abolition of nuclear weapons are now being taken more seriously. We may be reaching the tipping point towards disarmament not because of the ideas and policies such letters and speeches are advocating, but because of who is advocating them. As with Nixon going to China, when powerful sceptics or vociferous opponents of an idea come round to realizing that it is the right thing to do, they face less opposition – in large part because they were the opposition (or at the very least, their earlier views had underpinned and sustained the opposition).

If we apply the strategic tool of reverse engineering to track back from achievement of the goal of a world free of nuclear weapons, it becomes startlingly obvious that instead of being a long long way away at the foot of a high mountain, we are actually only two or three stages away from the summit. To get past the obstacles ahead, we need more than reductions. We have to devalue these weapons and make it clear politically – and if possible legally – that nuclear weapons are inhumane weapons, and that any use of these weapons of mass destruction and radiation would be regarded as a crime against humanity. Like with biological and chemical weapons, already stigmatised as abhorrent and banned, and even more than landmines and cluster munitions, declared inhumane as part of recent highly-effective negotiations to have them banned, this is the missing qualitative requirement that underpins the logic of getting to zero and makes sense of all the laudable and necessary steps and measures to reduce arsenals and secure nuclear materials.

Even if we tip correctly to go beyond the tipping point, that doesn't mean a world free of nuclear weapons will be quick or easy to achieve. But it does mean that we could set a timetable for abolishing nuclear weapons and see real progress in capping proliferation in the next two decades. Europe's role could be critical. NATO is coming up to its 60th anniversary and has to review its 1999 Strategic Concept. It is time to take bold steps to show that

NATO understands 21st century security challenges. As part of its Strategic Concept review, NATO members need to agree to remove tactical nuclear weapons from Europe and end the policies of nuclear sharing and deterrence based on the potential first use of nuclear weapons. Tactical nuclear weapons are portable and relatively more vulnerable to theft and inadvertent or unauthorised use. They are potentially destabilising and create additional risks and insecurities. All of Europe must take responsibility and play a role in this, recognising that the development of the EU, building mutual dependencies and shared objectives has provided the greatest deterrent to war between states in the region. The US and European members of NATO need to communicate honestly with each other about our mutual – and different – security needs and constraints. Then we should cooperate to close down the nuclear weapon facilities in Europe, initiate the withdrawal and elimination of US tactical nuclear weapons and use this decision in a leverage strategy to persuade Russia to mothball and eliminate its tactical nuclear forces as well.

A Successful 2010 NPT Review Conference

Volodymyr Yelchenko



As we approach the 2010 Non-Proliferation Treaty (NPT) Review Conference, my contribution will focus on the challenges facing the NPT from my perspective as chair of the recent second session of the Preparatory Committee. I will try to describe some of the main successes, but also the shortcomings of the 2008 meeting of the Preparatory Committee, as well as the strengths and weaknesses of the existing non-proliferation regime as we prepare for the 2010 Review Conference.

2008 PrepCom: a Qualified Success

Historically, each second Preparatory Committee session in the five year cycle of the strengthened NPT review process serves as a forum where the parties can completely devote themselves to considering 'principles, objectives and ways to promote full implementation of the Treaty'. Unlike the first and the third sessions, the second meeting is not usually dominated by a political debate over the agenda or over a consensus report to be submitted to the actual Review Conference. Furthermore, after a major change to the procedures of the review process introduced in 2000, the first two Preparatory Committee meetings of each cycle have been relieved of the need to arrive at consensual conclusions.

Consequently, the agenda for the second Preparatory Committee meeting, which was agreed in 2007, promised to spare the participants the procedural difficulties of the previous meetings, which was beset by almost session-long debates over the agenda. Nevertheless, a number of procedural issues started floating around, which threatened the normal course of the meeting.

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The first and most pressing issue was that of finances. Until the very last week before the session started, there had been a serious risk that we would have to postpone the whole event, because some states had not paid their contribution to the budget of the NPT review cycle. It was the first time this ever happened in the history of the NPT. The most disheartening was the 'black list' of non-payers, which included a number of key countries for the whole process. Unfortunately, I could only conclude that this pointed to a certain lack of support for the NPT review process, and I very much hope we will not see a repetition of this.

As chair of the meeting I tried to have other procedural issues resolved behind the scenes, separating them as much as possible from the substantive debates. This enabled the parties to focus on presenting their positions on the real issues. Although, in the end it proved impossible to formally annex the Chair's conclusions to the report of the meeting, I believe my summary, which was issued under my responsibility as one of the session's working papers, is a comprehensive, fair and balanced reflection of the debate. It underscores the broad agreement on the mutual importance of disarmament and non-proliferation.

In my own assessment, against the backdrop of the lack of progress at the previous Review Conference in 2005 and the first Preparatory session in 2007, the most recent Preparatory Committee meeting has been a qualified success. In my opinion this can be attributed to the fact that the delegations managed to address all aspects of the NPT.

Firstly, as regards the disarmament obligations of the Nuclear Weapon States (NWS) and the related issue of security assurances, disarmament measures undertaken by the NWS were welcomed. But at the same time, concerns were raised about so called 'vertical proliferation', most notably the modernization of nuclear arsenals and the continued reliance on nuclear deterrence. Both were seen to contradict obligations under the NPT. Personally, I feel it is paradoxical that, nearly twenty years after the end of the Cold War, there are still some 25,000 nuclear weapons in the world.

The Committee called on the NWS to provide unconditional and legally binding security assurances that they will refrain from nuclear attacks against any non-NWS. They were also asked to undertake substantive disarmament, within the framework of the 13 step roadmap established at the 2000 NPT Review Conference, which includes reporting standards in line with the principles of transparency, verifiability and irreversibility. A particular call was made to the remaining nine states to ratify the Comprehensive Test Ban Treaty (CTBT) so that it can enter into force. Furthermore, the signatory parties should commence negotiations on a treaty banning the production of weapons grade fissile material.

Secondly, there was much concern about the lack of progress towards achieving universal adherence to the NPT. The Committee appealed to India, Israel and Pakistan to join the NPT as non-nuclear weapon states. In concrete terms, these states would have to reverse clearly and urgently any policies to pursue nuclear weapon development, and bring into force the required comprehensive safeguard agreements. They would also need to refrain from actions that could undermine regional and international peace and security or the international community's efforts to counter nuclear proliferation. The recent terrorist attack in Mumbai clearly highlighted, I believe, the potential risk of destabilization. The possible consequences of escalating tensions in a nuclear armed region are incalculable.

Thirdly, non-proliferation concerns were discussed in the light of Iran's non-compliance with article III of the NPT and its failure to comply with UN Security Council resolutions and IAEA reporting requirements. These concerns were dismissed by Iran, which stressed its full cooperation with the IAEA. The challenge posed by North Korea and, in particular its nuclear test of October 2006, were also discussed. Participants called on North Korea to dismantle its nuclear facilities and to provide full details of its nuclear stockpiles. Concerns were raised too about the alleged nuclear cooperation between North Korea and Syria, which appeared in the press just before the meeting started. Syria denied the allegations.

The establishment of a nuclear free zone in the Middle East was considered part of a bargain struck at the 1995 Review Conference, when the NPT was extended indefinitely. In this regard, Israel was called upon to accede to the NPT as a non-NWS and to place its nuclear facilities under IAEA supervision. At the same time, the NWS were asked to advance prospects for peace in the Middle East.

Fourthly, proposals to place the nuclear fuel cycle under multilateral control in order to reduce the risk of proliferation as well as the financial, ecological, and health costs of generating nuclear energy were perceived by many of the non-aligned countries as being motivated by the commercial or strategic interests of nuclear weapon states. In particular, they feared that these proposals might make non-nuclear weapon states dependent on a limited number of nuclear fuel suppliers, which would restrict their inalienable right to nuclear energy for peaceful purposes.

Finally, the controversy of the withdrawal of North Korea from the NPT triggered a debate about a clarification of the provisions for withdrawal. Recognizing that a withdrawal may have a domino effect – and would thus undermine the NPT as a whole – some parties expressed support of the establishment of the obligation to remedy any breach of the NPT prior to the formal withdrawal. In addition, all facilities and technologies acquired during NPT membership would have to be returned to the supplier state. In the debate these ideas were challenged, in particular because of questions about which body would have to determine violations of the NPT, which emergency measures would be appropriate, when the UN Security Council would have to be involved, and what penalties could be imposed. Some parties referred to the provision in article X of the NPT on the possibility for a state to legally withdraw from the treaty inferring supreme national interest, arguing that doing so without jeopardizing international peace and security should not trigger sanctions.

Summarizing the results, the 2008 Preparatory Committee session was a constructive and, as a result, a substantive exercise. Certainly, much more work is needed to promote consensus around

key measures to strengthen the treaty's three pillars: zero tolerance on proliferation, a clear forward plan for nuclear disarmament, and supporting the right to safe, secure, and peaceful use of nuclear energy.

Measures to support the review process

In the 2010 NPT Review Conference, we will have to overcome the failure of 2005 if we want to revalidate the multilateral regime against nuclear proliferation. The state of the review process reveals that a number of crucial issues need be tackled to achieve the goals of the NPT. Progress is possible, but will depend on the political will of all the signatory states. There are a number of measures they might take.

First, the implementation of further reductions of both strategic and non-strategic nuclear weapons by the two main nuclear powers. This is to be followed by other nuclear weapon states. There is no doubt that irreversible reductions of existing arsenals, coupled with a moratorium on developing new types of nuclear weapons, would diminish the political status of the possession of nuclear weapons. This would be a strong encouragement for non-nuclear weapon states to better honour their non-proliferation commitments. The great unknown in this respect is the development of US-Russia relations.

Second, an agreement to strengthen and clarify verification procedures for reductions of nuclear arsenals and their means of delivery would be enormously helpful. In this connection, the five point proposal UN Secretary General Ban Ki Moon presented in October 2008 could help revitalize the denuclearization process.

Thirdly, the CTBT should enter into force as soon as possible. The importance and urgency of this step was vividly demonstrated by the nuclear test conducted by North Korea in October 2006. I am convinced a finalization of the ratification process is within our reach. Many hope and expect that the new US administration will change the American position towards the CTBT.

Fourthly, the IAEA's capability to verify declared nuclear activities and, in particular, to detect and deter clandestine nuclear activities should be strengthened. This can be accomplished through faithful and universal application of a strong safeguards system, as established by the Additional Protocol to the NPT.

Fifthly, a subsidiary body should be established, which is to elaborate a universal, non-conditional, and legally binding instrument on negative security assurances for non-nuclear weapon states. Such an initiative would greatly contribute to removing one of the key incentives for states to proliferate.

Sixthly, in the light of the heightened risk of nuclear terrorism, further efforts to strengthen the physical protection of nuclear material and facilities are needed. The most important measures in this respect were set out in UN Security Council Resolution 1540, adopted in 2004, which should be implemented in its totality.

Seventhly, in view of, on the one hand, the growing global interest in developing nuclear energy and profound proliferation concerns on the other, there is a strong case to promote the multilateralisation of the nuclear fuel cycle. International cooperation to take the most promising initiatives in this area forward would significantly contribute to confidence in not only the peaceful use of nuclear technology, but also to the overall strength of the non-proliferation regime. In my view, such arrangements, whatever form they may take, should be placed under control of the IAEA.

Eighthly, the work of the Conference on Disarmament should receive a new impetus. Equally, negotiations on a treaty banning the production of fissile material for nuclear weapons should start.

Finally, a standing secretariat should be established to coordinate and manage the meetings and proceedings of the NPT review process. There is a strong argument that the NPT, like other international treaties, would greatly profit from such a decision. In addition, promoting disarmament and non-proliferation education around the world could be instrumental in creating the conditions for a culture of peace.

The Limitations of the Review Process

The 2009 session of the Preparatory Committee will face the challenge of adopting a consensus report with substantive recommendations to the Review Conference. It will also have to finalize the procedural arrangements for 2010, including the adoption of the agenda.

Approaching this critically important session, I want to bring up a number of personal observations, which some might not share. They are drawn from my experiences as chair of the Preparatory Committee meetings and truly reflect, I believe, the sentiment surrounding the process. We may talk a lot about the sensitive political issues which impede the review process. But there is one main problem: the review process and – by definition almost – the Preparatory Committee's sessions can focus our attention on the main issues and controversies, but they cannot take action.

Unfortunately, the very structure of the meetings impedes substantial progress. As an exercise in periodically raising awareness the process functions fine. But it becomes more and more inadequate as a mechanism to address the real problems. As a product of the Cold War, when the US and the Soviet Union assumed responsibility for overseeing compliance and security, the NPT was concluded without any mechanisms or authority for its signatory states to push for the implementation of decisions of the Review Conferences. We need to change this somehow. I think we have chance to achieve that in 2010.

To conclude, as we approach the 2010 Review Conference, many have raised concerns about the fate of the NPT. In response to those voices that claim the NPT is on the verge of collapse, I want to emphasize that, while we should not be deluding ourselves about the real state of affairs, we should retain some form of optimism. After all, the unceasing determination of many governments and private initiatives to effectively address the challenges posed by the risk of nuclear proliferation has led to a number of notable achievements. The time for bolder initiatives has arrived. The next NPT Review Conference offers an opportunity to realise those.

I fully support the views of many NPT experts that instead of focusing on disagreements, we should make an effort towards building bridges between opposing views and on the way we can strengthen the Treaty's core bargains. We should try and identify joint lines of action. And we should boost the NPT's credibility by renewing the sense of common purpose.

The vast majority of states does not want to see the 2010 Conference end in failure or without any significant final result, since that could erode not only the NPT but the multilateral treaty system as a whole. I sincerely believe that if governments, parliaments, and civil society work together to build the necessary political will and momentum, we stand a good chance of making the 2010 NPT Review Conference successful and forward looking.

Free the world of nuclear weapons by 2020



Dominique Lalanne

Thirty eight years after the Non-Proliferation Treaty came into force, a tremendous number of nuclear weapons are still at a high alert status, programmes of modernization are under way and the NPT itself is at risk following the India-US deal agreed by the Nuclear Suppliers Group. New nuclear states are de facto accepted, and the non-proliferation regime is unable to stop several non-nuclear States reaching the threshold within less than 15 years.

At the UN 63rd General Assembly, 2 December, 2008, sixteen resolutions have been adopted and one decision made in the area of nuclear weapons. Analyzing these votes, it is clear that the Nuclear States do not accept a nuclear disarmament process. The only “decision” taken illustrates this: the project for a “United Nations conference to identify appropriate ways of eliminating nuclear dangers in the context of nuclear disarmament”. The result of that vote was 121 in favour to 3 against (France, United Kingdom, United States), with 46 abstentions – among which many EU Member States. Another typical example is the resolution on the “advisory opinion of the International Court of Justice on the legality of Nuclear Weapons” which secured a negative vote from all EU Member States except Austria, Ireland and Sweden. In that resolution there was a “call to an early conclusion of a Nuclear Weapon Convention”.

This is just to emphasize the fact that the project of nuclear disarmament is not yet accepted by political leaders of the West, even if parliamentarians have taken strong positions in favour, as for example the European Parliament has.

So the question remains: what are the tools for making a change? Public opinion, lobbying by NGOs, and pressure from the media have been tried for a long time without success. The NPT

framework is ironically freezing the process because of different interpretations by different actors. I quote the French ambassador at the Preparatory Committee last May at a meeting with the French delegation: “The NPT is a non-proliferation Treaty, not a disarmament Treaty, look at its name: NON PROLIFERATION TREATY”.

So we need “something else” for Nuclear Disarmament. The project of a Convention has been on the table since 1996. A large majority of members voted in favour at the UN General Assembly in December 2007. A Convention is the major demand of NGOs taking part in the current campaign ICAN; this is also supported by the campaign of parliamentarians within the PNND network (Parliamentarians Network for Nuclear Disarmament). Furthermore, mayors from 2536 cities are also involved with the 2020 Vision campaign of Mayors for Peace.

If most Heads of State in Europe are unable to make a decision on this, then local, regional and national representatives at all levels can generate pressure; showing that they represent the will of their population. The “Hiroshima-Nagasaki Protocol”, an additional Protocol to the NPT, offers a new opportunity and a clear time frame to reach a nuclear weapon free world by 2020. This Protocol is aimed for adoption at the NPT Review Conference in 2010, so that negotiations for a Nuclear Weapons Convention could start immediately. We call upon the European Parliament to support this Protocol and the Nuclear Weapons Convention itself and to invite local and national representatives from all countries of the EU to support the Hiroshima-Nagasaki Protocol to free the world of nuclear weapons by 2020.

The need for equal treatment

Kate Hudson



The Campaign for Nuclear Disarmament has been working for fifty years to achieve a nuclear weapon-free world. It is one of Europe's largest single issue peace campaigns, with over 35,000 members. Support for nuclear disarmament has increased amongst the British population since the end of the Cold War. Indeed, opinion polls show that on major issues of war and peace, people in their majority share the goals of the peace movement, even if they are not active campaigners. A majority opposes the replacement of Britain's nuclear weapons and supports a Nuclear Weapons Convention. A majority thinks that Britain's participation in the US missile defence system puts us at greater risk. And a majority favours Britain's withdrawal from Iraq and Afghanistan.

What has been very noticeable over the past few years has been increased popular opposition to what may be described as 'double standards', and this is a widespread perception of the British government's attitudes to nuclear weapons. Why, people legitimately enquire, does our government think that it is all right for us to have nuclear weapons, but that at the same time we are prepared to go to war against other countries on the suspicion that they may possess them, or in the process of acquiring them? The old argument that some countries are 'responsible' possessors of nuclear weapons whereas others cannot be trusted, does not work. This is particularly so, when the possessors have waged illegal pre-emptive war, and have nuclear first use policies.

This question of 'double standards' has relevance to our shared goal of preventing proliferation, and to the multilateralisation of the nuclear fuel cycle.

It is widely accepted that the failure of the nuclear weapons states to disarm is a factor in potential nuclear proliferation. Former Un

Secretary General Kofi Annan made this point in 2006, when he stated: “the more that those states that already have [nuclear weapons] increase their arsenals, or insist that such weapons are essential to their national security, the more other states feel that they too must have them for their security”.

Effective multilateralisation of the nuclear fuel cycle might well help to reduce the dangers inherent in the relationship between nuclear power and nuclear weapons. But the fundamental issue which needs resolving is why some states might seek to develop nuclear weapons. Judging on the basis of proliferation, or potential proliferation, over the past two decades, it appears to result from states feeling under threat either from a regional rival or from a superpower with which it finds itself at odds. North Korea left the NPT because it said it had a ‘deterrent’ need for nuclear weapons, quite probably after being designated a member of the Axis of Evil. Dialogue and diplomacy, equal relations between states and serious progress on the global abolition of nuclear weapons can deal with the tendency towards weapons proliferation.

The point about the multilateralisation of the fuel cycle is that for it to be effective, it has to have universal buy-in. The countries with which one can easily agree a Multilateral Nuclear Agreement are not the problem. There are many ‘easy MNAs’. So how to achieve the difficult ones? That is the challenge, but the basic principles seem clear, and it comes down to my earlier point about ‘double standards’.

NPT signatories have rights under Article IV, so why should they give them up? Any proposal has to be genuinely in the interests of all, not reinforcing the position of the nuclear ‘haves’. For example, the US’s Global Nuclear Energy Partnership. This is easily understood to be a handful of supplier countries keeping the enrichment and reprocessing technologies to themselves and the majority of states are expected to give up their rights. Control of the process will be in the hands of countries that already have nuclear weapons and seem determined to keep them, in spite of their obligation to disarm under the NPT. This increases the division between the nuclear ‘haves’ and ‘have-nots’.

Frankly speaking, such initiatives stand no chance of becoming effective, universal arrangements. If an initiative is to stand a chance of succeeding it must be based on equal access and control. The processes must be put outside national control into genuine international control, and all countries must be treated equally.

Assurances of supply and non-proliferation: a new framework for nuclear energy

Vilmos Cserveny



For the past five decades, the role of nuclear power has been shaped by many factors such as growing energy needs, economic performance, the availability of other energy sources, the quest for energy independence, environmental factors, nuclear safety and proliferation concerns, and advances in nuclear technology. Due to a variety of reasons including climate change, enhanced safety and improved technology, a revival of nuclear energy as a clean fuel seems in the offing – an increasing use of nuclear power is widely expected with the attendant issues of security of supply of technology and fuel, and verification of peaceful use.

Nuclear technology

Nuclear Power

The urgent need for sustained human development will clearly necessitate increases in the supply of energy in the coming decades. In recent years, nuclear power has supplied about 16% of world electricity production, and it remains the only energy source that can provide electricity on a large scale with comparatively minimal impact on the environment.

There are currently 439 nuclear power reactors operating in 30 countries, and they supply about 15 per cent of the world's electricity. To date, the use of nuclear power has been concentrated mostly in industrialized countries. But of the 34 new reactors currently under construction, 16 are in developing countries. And while the highest percentage of existing reactors is in North

America and Western Europe, recent expansion has been primarily in Asia and Eastern Europe. In other regions, the more immediate focus is on power upgrades, restarts of previously shut-down reactors, and license extensions. For example, of the 34 reactors under construction 19 are in Asia; and at the end of 2007, 28 of the last 39 new reactors to have been connected to the grid also were in Asia. In the United States of America, 16 reactors have had their operating licenses extended to 60 years, and many more applications are under review.

The long term prospects for nuclear power, however, will depend on the industry's success in addressing concerns associated with waste disposal, proliferation, safety and security, while also improving economic competitiveness of future reactors. Nearly 20 IAEA Member States are currently involved in projects to develop reactor and fuel cycle designs that would address some of these concerns, and a number of countries are also exploring the nuclear co-generation of hydrogen, to address demands for cleaner energy in the transportation sector.

The current spectrum of proliferation and security issues should provide the impetus for greater innovation in policy as well as technology. One example relates to the operation of sensitive parts of the nuclear fuel cycle. It is time to re-consider the merits of limiting the processing of weapon-usable material (separated plutonium and high enriched uranium) in civilian nuclear programmes — as well as the production of new material through reprocessing and enrichment — by agreeing to keep these operations exclusively to facilities under multinational control and verification. These limitations would need to be accompanied by appropriate rules of transparency and assurance of supply for would-be users, along with a verifiable Fissile Material Cut-Off Treaty (FMCT).

Furthermore, it is also important to consider multinational approaches to the management and disposal of spent fuel and radioactive waste. Over 50 countries currently have spent fuel stored in temporary locations, awaiting reprocessing or disposal. Not all countries have the appropriate geological conditions for such disposal — and, for many countries with small nuclear

programmes for electricity generation or for research, the financial and human resource investments required for the construction and operation of a geological disposal facility are daunting.

Energy for Development and Global Energy Security

Recent developments again confirmed that without energy there can be no development, and without development there is misery that can often lead to violence. The energy shortage in developing countries is a staggering impediment to development. To give some perspective, it is enough to mention that the countries of the OECD, on average, consume electricity at a rate roughly 100 times that of the world's least developed countries.

At the G8 Summit in St. Petersburg in 2006, the IAEA Director General emphasized that global energy security means fulfilling the energy needs of all countries and peoples – including the 1.6 billion people who have no access to electricity, and the 2.4 billion who continue to rely on traditional biomass fuels. He also emphasized that the current global organization of energy resource management and distribution is quite fragmented – in terms of both geographical coverage and the types of energy resources managed. Global structures for setting norms, oversight and management exist in most other key areas of human activity – such as trade, civil aviation, labour relations and health.

However, no similar structure currently exists for energy. In this connection the Director General called for the institution of a global energy organization that would help tackle the crisis underway in the energy field. Amongst other things, the proposed organization, could provide authoritative assessments of global energy demand and supply and bring under one roof key energy data that are now dispersed and incomplete; speed the transfer of appropriate energy technology to poor countries and give them objective advice on an optimal energy mix that is safe, secure and environmentally sound; develop a global mechanism to ensure energy supplies in crises and emergencies; help countries run their energy services and even do it for them temporarily after a war or major natural disaster; and coordinate and fund R&D, both upstream and downstream, especially for energy-poor countries, whose needs too often get

overlooked by commercial R&D oriented to rich countries. Such an organization would not be in conflict with existing institutions and bodies dealing with the energy issue in a fragmented, piecemeal fashion, but would provide a holistic, global approach to the problem.

The projections suggest that nuclear electricity generation may grow by 15–45% by 2020 and between 25 and 95% by 2030, with an increasing number of countries starting a nuclear power programme. Even the high end of the range may be conservative as it is well below the expansion of nuclear power that would be required to limit global warming to 2°C (a widely accepted target).

IAEA's Nuclear Power Projections – World

	End of 2006	2020		2030	
		Low	High	Low	High
Number of countries with operating nuclear power plants	30	30	38	32	53
Number of units in operation	436	476	592	469	711
Nuclear power capacity (GW(e))	370	425	523	447	691
Number of units expected to retire	–	64	13	145	82
Capacity of retiring units	–	45	5	104	51
Number of units expected to be added	–	101	169	178	357
Capacity of new units (GW(e))	–	95	157	181	372

Projections of nuclear electricity generation in TWh.

Projections of the expansion of nuclear power in the 'high nuclear power' and 'low nuclear power' scenarios are shown above. These correspond to the 'high projection' and 'low projection' in the Agency's latest update of Reference Data Series 1 as reported in Energy, Electricity and Nuclear Power Estimates for the Period up to 2030 (RDS-1, IAEA, August 2007).

It is important to note that, as a sophisticated technology, nuclear power requires a correspondingly sophisticated infrastructure. For new countries considering nuclear power, it is essential to ensure that such necessary infrastructure will be available. This infrastructure includes many components – from industrial infrastructure such as manufacturing facilities, to the legal and regulatory framework, to the institutional measures to ensure safety and security, to the necessary human and financial resources. The IAEA recently published guidance on the infrastructure needed for countries to introduce nuclear power, and we are working to define a set of milestones for the development of this infrastructure, to assist us in prioritizing our support for those Member States.

Nuclear energy might not be the choice of all countries; however, for those Member States that choose to use nuclear power as part of their energy mix, there is much the Agency can do to make this option accessible, affordable, safe and secure.

New Framework For The Nuclear Fuel Cycle

The increase in global energy demand is driving a potential expansion in the use of nuclear energy. And concern is mounting regarding the proliferation risks created by the further spread of sensitive nuclear technology, such as uranium enrichment and spent fuel reprocessing.

The convergence of these realities points to the need for the development of a new framework for the nuclear fuel cycle.

The first notion of fuel assurances came in the 1946 Baruch plan. Some thirty years later, the 1976 international nuclear fuel cycle evaluation looked at multilaterally owned-and-operated nuclear frameworks. And, sixty years after the Baruch Plan, a special event at the International Atomic Energy Agency during its general conference in September 2006, focused on several new proposals for multilateral approaches, such as commitments to supply enrichment services, international nuclear fuel centres, and even multilateral control over all fuel cycle facilities..

So, what has changed in the intervening half-century? One of the most important changes that has significant implications is the

spread of dual-use material and technologies, with attendant risks of proliferation and nuclear terrorism. Such nuclear threats have impact on the future of both peaceful uses of nuclear energy and the prospects for nuclear disarmament.

The spread of nuclear fuel cycle facilities and technologies is motivated in part by States' interest in ensuring reliable fuel cycle services through indigenous capability. This then is precisely the challenge: What needs to be added to the existing market fuel-cycle services to provide enough assurance of supply in order to obviate the need for indigenous fuel cycle facilities?

After more than fifty years since the Atoms for Peace initiative, a new framework for the use of nuclear energy that accounts for both the lessons we have learned and the current reality is required. This is an issue the IAEA Director General has been dealing with for the past four years. Starting at the IAEA General Conference in September 2003, he repeatedly pointed to the need for balancing access to nuclear energy for generating power and the associated non-proliferation considerations. In that context, he proposed the possibility of revisiting previous approaches to multilateral solutions to the nuclear fuel cycle and to find a new framework for the utilization of nuclear energy that should include:

- innovative nuclear technology that is inherently safe, proliferation resistant and more economical;
- universal application of comprehensive safeguards and the additional protocol;
- concrete and rapid progress towards nuclear disarmament;
- a robust international security regime; and
- an effective and universal nuclear safety regime.

In the past years, given the multiplicity of proposals, the debate has been considerably enlarged. We are now looking at the fuel cycle in its broadest aspects including its front end – that is uranium enrichment, but also its back end – that is spent fuel reprocessing. And we have to focus on providing assurances not only of fuel but also of reactor technology – an area where we need to do more work.

When we develop our approaches, we need to balance the interests of all States. We need to make sure that the interests and needs of developing countries, the countries that are already relying on nuclear power or those countries that have plans to develop nuclear power are adequately represented while at the same time also ensure that we minimize the possibility of the misuse of sensitive parts of the nuclear fuel cycle, in particular, uranium enrichment and plutonium reprocessing.

In the discussion on energy, as alluded to above, there is now increasing talk about a potential nuclear renaissance. And in order to meet these raising expectations regarding nuclear power, there will be new demands both in terms of reactors, but also in terms of fuel supply. The question then is where will the new fuel supply come from? Will it remain in the hands of the existing suppliers who would then perhaps expand the capacity? Would new countries develop their own national indigenous enrichment capabilities, or would international nuclear fuel cycle facilities emerge to meet the demand for nuclear fuel and services? The vision of the IAEA's Director General is that all enrichment and reprocessing over time should be exclusively under multinational control.

In that context, the task ahead is to look at the existing proposals that have already been formulated to try and find a framework that draws upon the common elements of those proposals and to suggest a possible framework for consideration that will focus on assurances of supply. The second part of the medium term would be to convert existing enrichment and reprocessing facilities to multilateral auspices; and, third, over the longer term to have all enrichment and reprocessing under multilateral control. In this context, one will also need to have a global internationally verifiable treaty on the prohibition of fissile material production for nuclear weapons (FMCT).

Assurance of Supply

In the ongoing discussions it has become clear that different States will choose different policies and solutions in addressing their energy needs. And this will depend on their historic situation; it will

depend on their geography, their technical abilities, and their individual potentials. Thus, it is of the utmost importance that we retain flexibility in this area and not try and suggest solutions that are perceived to be imposed, particularly on the consumer States. This was something that became abundantly clear in September of 2006 at the IAEA special event on the nuclear fuel cycle.

The recent proposals for assuring supplies of uranium-based nuclear fuel can be seen as one stage in a broader longer-term development of a multilateral framework that could encompass assurance-of-supply mechanisms for both natural and low-enriched uranium, as well as nuclear fuel and spent fuel management. And in this context, establishing a fully developed multilateral framework that is equitable and accessible to all users of nuclear energy is a key element for a new framework.

An assurance of supply mechanism would be envisaged solely as a backup mechanism to the operation of the current normally functioning market in nuclear materials, fuels, and technologies. This would not be a substitute for the existing market, nor would it deal with disruption of supply due to commercial, technical or other failures. And in this context, an assurance of supply mechanism would be designed to give supply assurances to States that, based on their sovereign decision, choose to rely on the international market for their nuclear fuel requirements. Thus, no country would be asked or expected to give up or abridge any of their rights under the nuclear Non-Proliferation Treaty.

A summary of various existing proposals is available on the IAEA website – there are, at the moment, 12 proposals that are mutually complimentary. These proposals range from providing backup assurance of supply to establishing an IAEA-controlled fuel reserve to setting up international uranium enrichment centres where the IAEA would have some role in the decision making.

A Possible Framework: Three-Level Approach

Drawing upon the different proposals, a possible new framework could be based on three levels. The first is the existing market, based on existing commercial and other arrangements. The second

would be backup commitments provided by suppliers of enrichment and fuel fabrication services, and the respective governments that would be utilized when predetermined conditions and criteria are met following a political supply disruption. This can be viewed as a combined virtual enrichment and fuel fabrication reserve mechanism. And for those few States that still might not be fully assured by the first two levels, there would be a third level that could comprise a real reserve of low-enriched uranium stored in one or several separate locations, and a set of arrangements and agreements between suppliers of fuel fabrication services in order to provide assurances not only of natural and low-enriched uranium, but also a fuel fabrication.

While the trends clearly point to the need for developing a new multilateral framework for the nuclear fuel cycle, it is clear that an incremental approach with multiple assurances in place is the way to move forward. Such a multilateral framework would best be achieved through establishing mechanisms that would, in the first instance, assure the supply of fuel for nuclear power plants, over time convert enrichment and reprocessing facilities from national to multilateral operations, and third, limit future enrichment and reprocessing to multilateral operations exclusively. Such a framework would be voluntary, and States would be free to choose their fuel options, and no rights of States would be compromised.

This is something that is critical to understand in the debate outside of Vienna, because more often than not, a certain word is used, and the word is “forego” – foregoing of rights. In this day and age, no country is prepared to give up any rights, and one of the undesired outcomes of this discussion is that at least seven countries have popped up saying that while they do not necessarily need enrichment technology today, they might need it in the future, and they are not prepared to compromise, dilute or give up any rights. We need therefore to frame this debate in a way that countries are enabled to make sovereign choices, and that they feel comfortable in relying on a multilayered mechanism that is built upon the market and upon backup assurances, as well as upon a real physical reserve of nuclear material. Similarly, loose talk of “loopholes” or “Achilles heel” or “forfeiting of rights” in connection with the NPT, or

the inalienable right to peaceful uses as recognized under Article IV of that Treaty, or the Statute of the IAEA, is at best unhelpful, at worst counter-productive, from the point of view of advancing the discussion in the context of the NPT review process.

Getting back to reality – the IAEA report released on the 13th of June 2007, and being still restricted, has 90 plus pages, it has a possible framework based on the three levels that I just mentioned, it discusses all of the various existing proposals, it provides some description of the release criteria.

We are naturally aware that working out the details of the different proposals will need time, in part, because some of the proposals are very complex. They require a lot of legal and technical discussion, and therefore, in order to make sure that we do not repeat the mistakes of the past, we do not intend bringing half-baked proposals for consideration before the Board of Governors. It is more appropriate to do so after a full, frank and comprehensive discussion both with consumer States as well as with supplier States so that when States meeting in the framework of the IAEA's Board of Governors decide or meet to consider this issue, they can do so with the full range of information that is available.

Conclusion

The Agency continues to play a key role in ensuring that the benefits of nuclear technology are shared globally for economic and social development, that nuclear activities are conducted safely, that nuclear and radioactive materials and facilities are adequately protected, and that a credible inspection regime exists to verify compliance with non-proliferation commitments.

In his 'Atoms for Peace' speech, US President Eisenhower articulated a vision, shared by many world leaders, that would enable humanity to make full use of the benefit of nuclear energy while minimizing its risk. This vision led to the establishment of the International Atomic Energy Agency.

In the present context of Atoms for Peace, the time has come to think of a new framework for the use of nuclear energy – a framework that accounts both for the lessons learned and the current reality. This new framework should include swift and concrete action to achieve:

- robust technological development and innovation in nuclear power and nuclear applications;
- a new multinational framework for the fuel cycle, both the front and the back end, to assure supply and curb proliferation risks;
- universal application of comprehensive safeguards and the Additional Protocol as the standard for nuclear verification, to enable the Agency to provide assurance about declared material/activities as well as the absence of undeclared material/activities;
- recognition of the linkage between non-proliferation and disarmament and therefore the need for concrete and rapid progress towards nuclear disarmament – through deep cuts in existing arsenals, downgrading of alert levels for deployed nuclear weapons, and the resuscitation of multilateral disarmament efforts – starting with bringing into force the CTBT and beginning negotiations on a verifiable FMCT;
- a robust international nuclear security regime, in light of the diverse threats we face;
- an effective and universal nuclear safety regime, a cornerstone for any expansion in the use of nuclear power;
- sufficient funding for the Agency to meet its increasing responsibilities in an effective and efficient manner;
- the wider spread of nuclear material, technology and know-how, coupled together with the effects of globalization, will only reinforce the importance and value of effective, independent and objective verification; and
- the nuclear renaissance need not significantly add to the verification work load of the IAEA, if States commit to a new verification standard, allowing the IAEA to optimize its safeguards activities.

How to make MNA acceptable?

Harald Müller



Technical and economic parameters are of great importance for the success and failure of new approaches for handling the nuclear fuel cycle. Nevertheless, the success of attempts to de-nationalise fuel cycle activities that open a military option, such as enrichment and reprocessing, and which have been with us since the Baruch Plan in 1946, are contingent on meeting the political interests of the countries concerned. These interests are intimately interwoven with the principles of the Nuclear Non-proliferation Treaty (NPT).

The NPT rests on three pillars of equal weight, the undertaking by non-nuclear weapon states to renounce nuclear weapons, the commitment by all states to cooperate, as far as compatible with non-proliferation, in the peaceful uses of nuclear energy, and the obligation of the nuclear weapon states to work honestly for the abolition of nuclear arms. Non-nuclear weapon states today are concerned about a growing imbalance between these three pillars, that is, a lack of disarmament and attempts to constrain the right of non-nuclear weapon states to the unimpeded peaceful use of nuclear energy while efforts to improve the non-proliferation instruments of the treaty enjoy lavish support by the nuclear weapon states.

Certainly, a growing number of nationally owned and operated sensitive nuclear facilities will enhance the security dilemma and undermine international stability, globally and regionally. Even if Iran's nuclear activities serve peaceful purposes only, as the Iranian government maintains and which I see reason to doubt, the concerned reaction of many states in the region points to its destabilising potential. To prevent the addition of national facilities, and possibly to reduce the number of existing ones, is thus an interest of the international community in principle; however, at the national

level, this common interest may conflict with the national interest of present and future users of nuclear energy in an impeccably secure supply of nuclear fuel.

As is written in the report of the IAEA Expert Group on MNA, there are only two alternatives to tackle this problem: The first is a system of incentives to rely on fuel supply guarantees, to which states may agree or not; that is, on a purely voluntary basis. The second would be a cogent global norm that sensitive nuclear activities can only take place in a multinational context, to which everybody, present technology holders included, would submit in due time. In other words, present sensitive fuel cycle facilities would be brought under a multinational umbrella. This would be a legal and economical challenge, but with enough lawyers it could be done. The time has passed for discriminatory amendments to the present regime. Such amendments would not find the necessary political support. It is thus most unfortunate that President Bush's February 2004 speech framed the MNA project in a concept of technology denial. This false start shaped the perception of these proposals by the majority of non-aligned countries, created considerable distrust and misgivings, and erected barriers to a discussion of the various MNA proposals and their practical merits because of the suspicion that they were part of a ploy to deprive developing countries of advanced technologies.

Proposals for multilateral fuel guarantees must be acceptable. This requires that the guarantee must be as reliable as possible; acceptance would be the greatest for proposals:

- in which decisions to supply were removed from the national political process of supplier states and entrusted to a neutral international body such as the IAEA;
- which minimise the possibility of the physical interference of nation-states into the supply chain;
- which offer recipient states a modicum of participation in decision-making and ownership in the supply mechanism;
- which do not require from participating states renouncing all options for national fuel cycle developments forthwith.

Let me emphasize that more is involved here than mere practicality, functionality and efficiency. These criteria are necessary, but not sufficient. More than half of the countries of the world look at the West as their former colonial and imperial masters. Democracies or not, they long for recognition as equals in an international system characterised by equal sovereignty. The nuclear issue has, since the beginning of the nuclear age, been no level playing field but one in which status and power differences were sealed in the form of treaties such as the NPT, or informal groupings, such as the Nuclear Suppliers Group. Both have been serving beneficial purposes for sure, but they served as well the cementing of unequal relationships. We are at a watershed now. Attempts to create new norms and institutions to prolong, or even to deepen, this system of unequal status will fail.

It is for this reason that I doubt that economic incentives alone, built on gracious offers by present technology holders, will do the job; sensible as they may be. We should recall the early years of the European Community. The initial concept that EURATOM would largely manage a multinational European nuclear industry faded quickly, as each of the founding members wanted to develop its own nuclear facilities, including those of the sensitive fuel cycle. Too much importance was attached to nuclear technology as symbol of national achievement to concede it to internationalism, even in the European Community. The multinational enterprises – EURODIF and URENCO – were later developments and largely based on economic incentives. We should not be surprised that the same symbolism is still attached to nuclear technology by the latecomers of industrial development. If, under these circumstances, we really wish new fuel cycle facilities to be exclusively managed in a multinational framework, we have to subject our own “Northern” fuel cycle assets to the same rule. This is the only formula with a chance of success.

Therefore, proposals which go beyond incentives-based-on-present ownership, probably have a better acceptance chance in the mid-term. Among them range various concepts for regional fuel centres, including German Foreign Minister Steinmeier’s suggestion to build a new plant in a developing country, owned by a

consortium of users of the product, and privately managed: It is envisaged that IAEA supervision is not only meant to verify non-diversion of nuclear material, but also for taking decisions on fuel transfers, that is, to have classical export control authority. The proposal aims at divulging ownership, and to show visibly that a site in the “South” is accepted as fully legitimate. This is not to say that the legal issues are easy to solve, but with enough lawyers, it is possible.

The most striking inequality is, of course, the one between nuclear and non-nuclear weapon states. Discrimination that is suspected in the realm of the peaceful uses of nuclear energy is almost automatically connected with this related problem. For this reason, it is very likely that even proposals which meet the above criteria for MNA will still confront distrust and resistance, as long as they do not come together with credible new initiatives at nuclear disarmament; this connection is also articulated in the IAEA Expert Group Report. Many non-nuclear weapon states will be inclined to believe that MNA is a further attempt at discrimination as long as the nuclear weapon states do not take visible measures to diminish, and eventually abolish, the discrimination inherent in the present regime. A push in the direction of the proposal made by four distinguished elder US statesman would, therefore, enhance the prospects for MNA concepts to find a milder and more interested reception among prospective recipients. I hope that the new US President will step forward with bold disarmament initiatives, and that the two nuclear weapon states in the EU will not stand in the way of the Union joining such an initiative with as much effort as traffic can bear.

People are already speaking of a “second nuclear age”, meaning an era where proliferation is widespread, risks are rising, and present instruments are not sufficient anymore to cope with these risks. It is very unwise to label both the above criteria for MNA and for nuclear disarmament as utopian and unachievable. If we do not try a new and much more daring approach to both disarmament and the sensitive parts of the nuclear fuel cycle soon -because of inertia, complacency, or parochial national interests- we may pay a very high price not much later.

Policy Options for Peaceful Nuclear Programmes: Multilateralization of the Nuclear Fuel Cycle

Rajesh Rajagopalan



Over the last decade, there has been increasing international concern about the state of the global nuclear non-proliferation regime and of the Nuclear Non-Proliferation Treaty (NPT) in particular. A significant part of that concern relates to non-compliance by member states, specifically non-compliance by non-nuclear weapon states (NNWS). North Korea's decision to build nuclear weapons and withdraw from the NPT and Iran's continued intransigence in providing a full accounting of its nuclear activities highlight these difficulties. In response, states with advanced civilian nuclear technology have sought to impose additional restrictions on the transfer of technology to ensure that such technology transfers do not lead to further proliferation concerns. The problem with such restrictions is that they appear to contradict one of the key bargains enshrined in the Nuclear Non-Proliferation Treaty (NPT), the commitment that states which voluntarily give up their right to build nuclear weapons will be provided full access to civilian nuclear technology. As the 2005 report of the expert group set up by the International Atomic Energy Agency to look into Multilateral Nuclear Approaches noted, the 'assurance of non-proliferation' and the 'assurance of supply and services' cannot both be achieved fully on their own. The expert group suggested that "multilateral approaches could be a way to satisfy both objectives." Multilateral nuclear fuel cycles could both satisfy the demand for legitimate exploitation of the benefits of nuclear technology of states that currently do not have these technologies and satisfy the international community's concern about ensuring that civilian nuclear technology, which can be converted to military purposes, is not diverted for such purposes after they are transferred.

There are many interesting proposals regarding the multilateralization of the nuclear fuel cycle. All of them involve international and multilateral ownership of the nuclear fuel cycle. But they also include assured supply of nuclear fuel, technology and services to countries that need them, but without the transfer of full ownership. These proposals suggest many benefits, including economies of scale, greater and easier access to nuclear fuel for many countries, and reducing the risk of proliferation. For example, many countries do not have energy requirements that are large enough to justify setting up a full domestic nuclear fuel cycle. In such cases, a multilateral initiative would offer a credibly cheap alternative by bringing together a number of countries that have similar needs alongside other states that can provide such technology and services. In addition, states that worry about the long-term security of supplier commitments can be reasonably assured that there will be no such threat because they would be part-owners of such ventures. Such multilateral initiatives can also take care of non-proliferation concerns that are inherent in any transfer of nuclear technology and material. Thus, if we could devise a method of permitting easier access to nuclear technology and fuel without the attendant risk that either the technology or the fuel will be diverted, it will go a long way towards solving some of the key non-proliferation challenges that we face today.

Nevertheless, a closer look suggests that we should be cautious about the non-proliferation benefits of these proposals. That is no reason for abandoning these proposals: the other benefits may sufficiently be large enough to provide independent justification for proceeding with efforts at multilateralization of the nuclear fuel cycle. Nevertheless, there are four reasons to be skeptical about the non-proliferation benefits of these proposals. I outline these below.

Negating the Article IV bargain of the NPT

One of the key disputes within the NPT is about the obligation of member states with civilian nuclear technology to share that technology with other member states which do not have the technology. Under the NPT, specifically Article IV, states that wish to share in the peaceful exploitation of nuclear energy can avail of that

technology as long as they join the NPT and abjure the military uses of nuclear power. In other words, if Non-Nuclear Weapon States (NNWS) are willing to give up their right to build nuclear weapons, they will be provided with civilian nuclear technology. This was always a problematic bargain because it assumed that civilian and military nuclear technology was distinct. Obviously, it is not. Civilian nuclear technology can be fairly easily converted to military uses should the recipient state so wish. Some states such as India built civilian nuclear programmes that allowed them the capacity to build nuclear weapons; a number of other states such as Japan have built extensive civilian nuclear infrastructure that gives them the potential to build nuclear weapons in the future should circumstances so dictate. Some states such as Iran today are seeking to follow this path also. It is difficult to come to any judgment about the Iranian nuclear programme and its final objectives because Iran can build a nuclear weapons capacity, if not actual weapons, through its civilian programme.

So the central problem is the Article IV bargain itself. If that bargain were to be accepted, then it entails accepting the risk that states might convert technology that they had received for peaceful exploitation of the atom for building nuclear weapons. But it has become increasingly clear that this risk is a serious one. What multilateral nuclear fuel cycle proposals attempt to do is to resolve this problem by promising non-nuclear weapon states the benefits of civilian nuclear technology but not the technology itself. This is an understandable response considering the risk of the spread of civilian nuclear technology.

The problem, however, is that this sleight of hand is easy enough to see and thus it is unlikely to be accepted by non-nuclear weapon states. Iran has rejected proposals that would not give it full access to technology. Even states such as Japan and Brazil are skeptical about multilateral nuclear fuel cycle proposals because they see it as undermining the Article IV bargain. In essence, such proposals, while addressing nuclear non-proliferation concerns, do not adequately assuage concerns among NNWS that it is yet another attempt by the nuclear weapon states to deny the Article IV commitments.

Forcing States to Make a Choice

Multilateralization of the nuclear fuel cycle forces non-nuclear weapon states to make a clear choice. If such states only want the benefits of civilian nuclear technology, they can access it but without the technology itself being transferred. Thus, non-nuclear weapon states that have no interest in building nuclear weapons should not have any difficulty in using this option. On the other hand, if a state insists on entirely owning the technology, this might suggest an inclination to nuclear mischief. Forcing this choice on non-nuclear weapon states may not be a bad thing. Indeed, some proponents see this as a key benefit of such proposals. They do want states such as Iran, which are clearly developing a military nuclear capability behind the mask of a civilian programme, to make a choice between the two streams. The problem, however, is that forcing states to make such choices is neither easy nor always wise. Many states – and not just Iran – will want to keep their nuclear options open even if they are unlikely to openly state this. Therefore a number of states are likely to oppose such proposals because they do not want to make choices that may close potentially necessary security avenues for all time to come. States like Brazil and Japan are deeply suspicious about these proposals because they do not yet want to completely rule out the possibility that they might never want nuclear weapons. International politics takes place in an unforgiving arena. Therefore, even those states that do not currently plan to build a nuclear arsenal will not want to renounce that option for all time to come. Forcing such states – and many others – to make an absolute choice is unwise because they are unlikely to accept such proposals. These proposals risk driving states that are not currently of proliferation concern into the hands of states that are of proliferation concern and thus undermining the global united front against the latter.

Proliferation Problems Need Political Fixes, Not Technical Ones

As is clear, one of the key purposes behind the proposals for the multilateralization of the nuclear fuel cycle is to prevent further

spread of nuclear weapons. However, in making such proposals, its proponents fail to recognize the intensely political nature of security decision-making. States seek nuclear weapons because they are insecure. Though there may also be other factors, such as prestige and domestic bureaucratic reasons for why states decide to build nuclear weapons, the key reason why many of the current non-proliferation problem states are pursuing nuclear weapons is their perception of insecurity, whether these are justified perceptions or not. Any attempt to resolve the current non-proliferation problems needs to address these security concerns. The reason why many states that have the capability to build nuclear weapons have not done so is because their nuclear security concerns are taken care of by alternate security arrangements. For example, US security commitments to many European states under the North Atlantic Treaty Organization (NATO) ensured that these states did not need to build their own nuclear arsenals. Some US allies such as Taiwan and South Korea that flirted with nuclear weapons development decided that such pursuits were unwise when faced with the prospect of losing US security cover. This does not mean that all states that pursue nuclear weapons need to be given a nuclear security cover. A mix of incentives and coercion might be sufficient to convince many states that they will be more secure without nuclear weapons than they would be with it. The point is that security considerations of states pursuing nuclear weapons need to be taken seriously as political problems and dealt with through appropriate political measures. Using technical measures such as multilateral nuclear fuel cycles ignore this aspect and are therefore unlikely to succeed.

Key Non-proliferation challenge is great power consensus

Much of the current global focus on non-proliferation challenges is on the problems posed by non-compliant states such as Iran and North Korea. Though this is an important challenge, this is not the key problem facing the nuclear non-proliferation regime. The non-proliferation regime has faced such challenges in the past but far from diluting the regime, these challenges have always been

occasions for strengthening and tightening the regime. For example, the Indian nuclear test in 1974 led to the creation of the Nuclear Suppliers Group (NSG) and evidence of Iraqi cheating which came to light after the first Gulf War led to the Additional Protocol and the full-scope safeguards requirements in the 1990s. Thus, evidence of non-compliance actually helped the regime become stronger. Such strengthening was made possible by the consensus between the key great powers about nuclear non-proliferation: all the major powers saw nuclear non-proliferation as a threat that required determined joint response. The problem over the last decade has been the breakdown in this consensus. This breakdown occurred because of at least two reasons. One reason clearly was the ambivalence in Washington about how to deal with nuclear non-proliferation. Under the Bush administration, the US moved away from multilateral efforts to deal with nuclear non-proliferation towards unilateral attempts to deal with the threat. This significantly undermined the great power consensus around nuclear non-proliferation. But the Bush administration is not the only culprit. Both Russia and China have used non-proliferation policy as a tool to counter what they perceived as US hegemony and dominance. Both Moscow and Beijing have sought to frustrate and undermine American efforts to counter North Korea and Iran. Such short-sightedness has given greater room for maneuver to Iran and North Korea. The solution lies in rebuilding the failed consensus around non-proliferation between the major powers. Such a consensus did exist in the first three decades of the non-proliferation regime. It was this consensus that made the non-proliferation regime a strong one which was difficult for weaker powers to resist. That consensus has today broken down and it needs fixing.

Conclusion

There are many benefits to multilateral nuclear fuel supply arrangements. It promises economies of scale and therefore could permit larger number of states to benefit from nuclear energy. But as a non-proliferation measure, it has serious drawbacks. The problems facing the global non-proliferation regime are unlikely to be resolved by this measure because the states of concern, as well as other

NNWS will recognize this as yet another attempt by the nuclear weapon powers to wriggle out of their Article IV commitments. It also diverts attention from the key task of rebuilding the non-proliferation consensus between the great powers without which the non-proliferation regime will continue to be at risk.

Putting the Spotlight Back on Disarmament

Alyson JK Bailes



It is important to put the nuclear issue where it belongs: in the front line of the debate on 21st -century security, as a key test-case of Europe's own interests and responsibilities for preserving the peace.

As someone who lived through the whole Cold War, I found it strange that nuclear risks almost disappeared from most people's agendas in the 1990s and then came back onto the screen – after 9/11 – almost entirely in terms of proliferation.

The fact is that our own, Western nuclear weapons are just as destructive as any others – and that means, infinitely more destructive than any other means of war yet invented. They are part of a fragile local balance with the weapons held by Russia, looking more fragile now that the unsolved security differences between Moscow and the West are so fully out in the open. And they are part of a global imbalance whereby they are considered evil and taboo for anyone else, while the five original nuclear states still plainly find them both strategically and politically useful, and three other states are allowed to keep them as a *fait accompli*.

It is a great relief to me – and it reflects hard work and argument by experts from several political camps – that the President elect of the United States has promised to put the spotlight back on disarmament as soon as he takes office. We can expect strategic nuclear talks with Russia, hopefully a new approach to short range weapons in Europe, progress on a treaty to stop accumulating any more fissile material, and perhaps more.

But we Europeans should not behave, as Martin Luther put it, like a drunken peasant –climbing on one side of the horse only to fall off the other. We should not get so carried away by the new disarmament discourse that we forget the real and continuing challenges that proliferation does create: including the specific challenge for us in Europe, as a continent that gets a significant proportion of its civilian power needs from nuclear sources and may get even more in the future.

Despite this nuclear addiction, Europe is a continent overwhelmingly (if not entirely) at peace and the development of the unique fabric of European integration has a lot to do with that. The danger that peaceful nuclear technology could tempt and allow more local states to develop weapons was effectively blocked by the open and cooperative approach of the Euratom Treaty in the 1950s; plus the establishment of the multilateral consortia Urenco and Eurodif for sharing the benefits of high nuclear technology without spreading the most dangerous knowledge; and later, one of the world's most advanced systems of controls on the export of dual use materials and technologies. Europe's governance system keeps the national implementation of vital rules under close watch by multinational networks of experts. Under the EU Strategy on Weapons of Mass Destruction adopted in 2003, the EU now goes out into the world to practise and teach these and other elements of nuclear good housekeeping, as well as working actively for peaceful answers to individual challenges like that of Iran.

The study drafted by experts at SIPRI, which is included in this publication, contains a wealth of detailed technical material but the basic question it asks is simple. Could our European method of taming the nuclear beast work elsewhere in the world, and if so, shouldn't the EU as such be trying to encourage this?

What we are talking about are schemes for other regions, groups or even pairs of states to cooperate in the production, supply, use and disposal of nuclear fuels so that the most dangerous parts of the fuel cycle – enrichment and reprocessing – are kept in a few more experienced hands. Many independent proposals have in fact been put forward by several states in recent years, including EU

members and some of our closest partners: ranging from fully global management of the nuclear fuel economy, down to arrangements that would hold back dangerous operations in specific places like Iran.

Common to all ideas for what we have called Multinational Nuclear Arrangements – MNAs for short – are a set of features that try to combine fairness and practicality with good security, better than those things are generally combined under the present nuclear system! The starting point is to recognize all states' need and right to ensure reliable energy supplies, by the peaceful technologies of their choice: this means that any new solutions must make fuel supplies more, not less, reliable and reduce the scope for purely political manipulation. Secondly, such schemes must make business and economic sense: they should encourage the world power industry to offer the world the alternatives it needs at a time of climate change, at a price that works in a setting of economic hardship.

The security rationale is absolutely fundamental and MNAs try to guarantee it at three levels: by keeping the most dangerous parts of the fuel cycle in as few hands as possible, by building in the maximum of openness and monitoring especially by the IAEA, but finally and most simply by the multilateral nature of the schemes. The EU's proclamation of belief in 'effective multilateralism' has attracted some critical and cynical commentaries; but in the present setting it makes the hardest kind of common sense. A country that is contractually bound to others for making its nuclear power sector work will not only find it harder to stage a unilateral weapons break-out, but will learn many general lessons about mutual advantage, coexistence and transparency along the way. And this peaceful culture is far more likely to be built when civilian control of the technology is emphasized and strengthened both at international and national level, rather than militarizing and mystifying it as many non-European states are tempted to do.

This is why one should also look at some ideas for establishing nuclear fuel clubs even in parts of the world where little nuclear power is used at present. If this energy source has to expand, then

open, civilian-minded and commercially viable multilateral approaches would be a good deal less worrying than the kind of strategically driven bargains we now see China offering to countries like Pakistan and Venezuela. And personally I would rather see smaller countries work with their neighbours for responsible nuclear management, supervised by global institutions, than see them become the proxies and puppets of any global superpower.

The one thing we can rely on in case of the European Union is that when it takes on a world role to handle any major security question, it does not set out to force and exploit people. It looks for fair and sustainable solutions, wherever possible, trying to heal local divisions in the process. It is willing to pay from its own resources for success and to remain engaged as long as need be.

Applying that approach to the promotion of multilateral nuclear arrangements beyond the Union's own frontiers would make a difference – perhaps with a new President in the White House, a very great difference. The study conducted by SIPRI offers rather modest ideas for studying and selecting the most viable options from the wide range of MNAs, and then looking for frameworks to float and test the ideas firstly in the Union's own neighbour regions. The EU may want to be more ambitious than that and probably people from outside Europe will ask it to be.

The countries of the European Union have agreed to disagree on their own use of nuclear power. They cannot afford to disagree on non-proliferation.

Multilateralisation of the Nuclear Fuel Cycle: A Comparison of Existing Proposals

Ian Anthony



1. Introduction

The main body of rules and mechanisms that regulate nuclear matters (civilian as well as military) were developed in the 1950s and 1960s. Mohamed ElBaradei, the Director General of the International Atomic Energy Agency (IAEA), has regularly referred to the need to modernize the nuclear acquis to reflect current and future political, technical, economic and environmental tendencies. Recently ElBaradei has reiterated his conviction that 'a multilateral approach to the nuclear fuel cycle has great potential to ensure safe and secure use of nuclear energy for peaceful purposes, while minimizing the risk of proliferation'.¹ For several years now two separate discussions have been taking place about the extent of the benefits to be gained from emphasising multilateral nuclear approaches (MNA).

The first debate has been going on within the relatively small community of experts on nuclear non-proliferation. This discussion has reflected recent concerns about nuclear weapon proliferation. As a result, the various proposals put forward have been fairly narrowly targeted on specific parts of the nuclear fuel cycle that are considered particularly sensitive. Chief among these are the technologies used for the enrichment of uranium and for reprocessing irradiated nuclear fuel since control over these could provide states with materials that are directly usable in a nuclear weapon.

¹ Mohamed ElBaradei, 'Nuclear Energy: The Need for a new Framework', International Conference on *Nuclear Fuel Supply: Challenges and Opportunities*, Berlin, 17 April 2008.

Interest in multilateral nuclear approaches has grown sharply since 2003, when Iran announced plans to develop a complete and autonomous nuclear fuel cycle, and described the significant progress that had already been made to construct facilities for uranium enrichment and spent fuel reprocessing. This national programme had been underway for almost 20 years without external oversight of the kind that the international community would normally expect the International Atomic Energy Agency (IAEA) to provide.

The sudden announcement contributed to an environment of great mistrust and suspicion about future Iranian intentions, and when Director General ElBaradei proposed a new examination of multilateral approaches to controlling nuclear fuel cycle in 2003, the intention was to design a measure that could rebuild confidence by having transparency and predictability among its integral features. In May 2008 the Iranian Minister for Foreign Affairs presented a package of proposals to the UN Secretary General to address current Iranian security concerns. One element in the package was 'establishing enrichment and nuclear fuel production consortiums in different parts of the world—including in Iran', a proposal that has further stimulated interest in the idea of multinational nuclear approaches.²

In parallel there has been a much broader set of discussions about multilateralisation of the nuclear industry, stimulated by the fact that many governments around the world have been reconsidering the role of nuclear energy as an integral part of their future energy policy.

The two debates have had few points of contact, but this paper will argue that their success is connected. The nuclear industry has worked to de-couple energy and proliferation issues in their statements and in their 'public diplomacy': and it is true that clandestine programmes to develop specific technologies, equipment and materials are a greater proliferation risk than the civilian nuclear fuel

² The text of the Iranian letter, including the annex containing the *Proposed Package for Constructive Negotiations* is accessible at the website of the Institute for Science and International Security, URL <http://www.isis-online.org/publications/iran/IranProposal20May2008.pdf>.

cycle. Nevertheless, it is an open question whether the putative 'nuclear renaissance' could survive the effect of a succession of nuclear non-proliferation failures on public opinion.

Equally, it is questionable whether narrowly conceived proposals targeted on a small group of 'countries of concern' can succeed if isolated from wider trends. A SIPRI study carried out in 2005 in cooperation with partners from Iran concluded that this narrow focus was very unlikely to produce the desired outcome from a European perspective because the nuclear programme has come to be seen as an intimate part of Iran's national identity and sovereignty. In essence, there is no package deal that would be acceptable to countries like Iran or North Korea as long as the discussion remains within the relative confinement of nuclear non-proliferation, because of the high domestic cost for such regimes of conceding what have come to be seen as critical matters of national security.

A successful strategy might shift the emphasis from changing or taking away what are seen by states as their legal rights, towards trying to win the argument about what choices are most sensible based on a balance of economic, environmental and security self-interest. To create this mindset it will probably be necessary to persuade the 'countries of concern' that there is a fruitful international project underway and that they can genuinely have a place in it.

2. Current proposals for multilateral nuclear approaches

In June 2004, the IAEA Director General appointed an international group of experts to consider possible multilateral approaches to the nuclear fuel cycle. The group submitted its report in February 2005.³

The basic approaches put forward in the report were not new and similar arrangements have been identified in the past. An International Nuclear Fuel Cycle Evaluation (INFCE) was undertaken

³ *Multilateral Approaches to the Nuclear Fuel Cycle: Expert Group Report* submitted to the Director General of the International Atomic Energy Agency, INF-CIRC/640, 22 Feb. 2005.

between 1977–79 to examine the implications of the technological capabilities emerging in a range of countries for the spread of nuclear weapons. The evaluation concluded that effective measures could and should be taken to minimize the danger of the proliferation of nuclear weapons without jeopardizing energy supplies or the development of nuclear energy for peaceful purposes.⁴ While INFCE rested on the premise that nuclear energy would increase its role in meeting the global energy needs, including growing demand for nuclear energy in developing countries, the international nuclear industry collapsed shortly after the report was completed. While the proposals that were developed out of the INFCE did not fall on fertile ground, there are many who believe that a combination of factors have removed the main reasons for the failure of previous initiatives, and that international consensus in support of multilateral approaches to the nuclear fuel cycle might now be in reach.

The options in the latest IAEA expert group report can be sorted into 3 basic approaches. The first approach focuses on ways of providing assured access to nuclear fuel services that do not require the multilateral ownership and/or control of facilities. A second approach is the conversion of existing facilities from national to multinational ownership and/or control. Finally a third approach consists of creating multilateral consortia to construct new facilities.⁵ It is possible to identify at least 17 specific proposals put forward recently that can be sorted into one or another of these categories.

A. Assured access to services

One of the main arguments put forward by countries seeking to develop autonomous capacities has been the need to reduce their vulnerability to being cut off by fuel suppliers. The reactors installed

⁴ Frank Barnaby, Jozef Goldblat, Bhupendra Jasani, Macha Levinson and Joseph Rotblat, eds. *Internationalization to Prevent the Spread of Nuclear Weapons*, SIPRI, (Taylor & Francis: Stockholm 1980).

⁵ Chairman of the expert group, Bruno Pellaud, in 'Nuclear Fuel Cycle: Which Way Forward For Multilateral Approaches? An International Expert Group Examines Options', *IAEA Bulletin*, March 2005.

in a nuclear power plant will need a specific type of fuel and if the suppliers of that type of fuel refuse to provide it, the operation of the power plant is jeopardized. A number of countries have experienced this type of problem in the past. One possible solution is to stockpile a national strategic fuel reserve in the country to provide a buffer against the effects of a cut-off. However, another approach is to build facilities in the country that provide national control over all aspects of nuclear fuel production. The drawback with this preference, which is the one followed by Iran, is that the same plants provide a country with the technical capability to make the primary constituent of a nuclear weapon, enriched uranium.

Recent proposals to provide assurances of supply are:

National reserves of nuclear fuel earmarked for international customers. In 2005 the United States informed the IAEA of its intention to blend-down 17 metric tons of highly enriched uranium owned by the US government into low enriched uranium that could be made available to a country that volunteers to forego uranium enrichment and spent fuel reprocessing capacity. The US proposal was intended to be one component of a broader effort in which the IAEA would act as an intermediary, to secure the supply of nuclear materials and services to the partner country (something that is envisaged in the Statute of the Agency).⁶ In 2007 Russia made a similar proposal but offered to create a reserve of 120 metric tons. To avoid disruption to the existing commercial market for nuclear fuel the Russian proposal was to supply LEU in return for payment at the average market price (calculated over an agreed period preceding the delivery), plus the actual costs arising incurred in connection with storage and delivery.⁷

An international partnership to provide 'cradle-to-grave' nuclear fuel services. In January 2006 President Vladimir Putin suggested

⁶ The US proposal was published as *Communication dated 28 September 2005 from the Permanent Mission of the United States of America to the Agency*, IN-FCIRC/659, 29 Sept. 2005.

⁷ Presentation of Alexey Grigoryev, General Director, International Uranium Enrichment Center, Angarsk, at International Working Group Meeting *Expanding Nuclear Power to New States: Defining Needs and Exploring Means to Facilitate Success*, Como, Italy, 10–14 June 2008.

the creation of a global nuclear power infrastructure open to all countries and based on a network of international centres supervised by the IAEA.⁸ In 2006 the United States outlined a Global Nuclear Energy Partnership (GNEP) to encourage the expansion of domestic and international nuclear energy production while reducing proliferation risks. One element of the GNEP is to establish arrangements among nations to provide reliable fuel services by supplying nuclear fuel and taking back spent fuel for recycling, without spreading enrichment and reprocessing technologies. By mid-2008 the GNEP included 21 partner countries, 17 candidate countries and observers and 3 other observers (the IAEA, the Generation IV International Forum and Euratom).⁹ One part of the GNEP is a Reliable Nuclear Fuel Services Working Group which is expected to recommend practical measures to move towards comprehensive reliable fuel service arrangements, including both fuel supply and spent fuel management.¹⁰ While it is a multinational cooperation arrangement, the GNEP concept would rest heavily on existing suppliers of enrichment and reprocessing services as part of its rationale is exactly to stop these capacities from spreading to additional countries.

An international "fuel-cycle system". The Weapons of Mass Destruction Commission (WMDC) established on an initiative by the late Foreign Minister of Sweden, Anna Lindh, and chaired by Dr. Hans Blix proposed in June 2006 the creation of a fuel-cycle system built on the concept that a few designated states will lease nuclear fuel to states that agree to abstain from enrichment and reprocessing activities.¹¹

⁸ S. V. Ruchkin and V. Y. Loginov, 'Securing the Nuclear Fuel Cycle: What Next?', *IAEA Bulletin*, vol. 48 no. 1, 2006.

⁹ An additional 25 countries that are evaluating their national civilian nuclear energy programmes are apparently to be invited to GNEP meetings as observers from late 2008. Ann MacLachlan, '25 nuclear newcomers invited to next ministerial meeting of GNEP', *Nuclear Fuel*, 25 August 2008, pp. 10–11.

¹⁰ *GNEP Working Group on Reliable Nuclear Fuel Services*, Terms of Reference, adopted 12 December 2007. This and other documents related to GNEP are available at URL <http://www.gneppartnership.org>.

¹¹ The text of the WMD Commission report, titled *Weapons of Terror*, is available in several languages at URL <http://www.wmdcommission.org>.

An IAEA owned and controlled nuclear fuel stockpile. In 2006 the non-governmental Nuclear Threat Initiative (NTI) pledged to provide \$50 million to help create 'a low-enriched uranium stockpile to support nations that make the sovereign choice not to build indigenous nuclear fuel cycle capabilities'.¹² The approach favoured by NTI was for the IAEA to play the central role in managing the stockpile. Launching the initiative, NTI spokesman Senator Sam Nunn pointed to the need to 'help make fuel supplies from the international market more secure by offering customer states, that are in full compliance with their non-proliferation obligations, reliable access to a nuclear fuel reserve under impartial IAEA control should their supply arrangements be disrupted. In so doing, we hope to make a state's voluntary choice to rely on this market more secure'.¹³ The NTI offer was conditional on governments pledging \$100 million to the same end. As of September 2008, government pledges to the project totalled \$65 million.

Six-party proposal for a Multilateral Mechanism for Reliable Access to Nuclear Fuel. In May 2006 six countries laid out the concept for such a mechanism in a letter to the IAEA Board of Governors. Under the concept the IAEA Board of Governors would endorse certain basic assurances, formally supported by states that are suppliers of enrichment services. A state which felt it was unfairly being denied access to nuclear fuel could approach the IAEA, which would determine whether the receiving state met the conditions for access to the mechanism. The mechanism would include a reserve stockpile of low enriched uranium that the IAEA could authorise for release for fuel fabrication. The reserve stockpile could either be held nationally or transferred to the authority of the IAEA.¹⁴

²² *NTI In Action: Creating An International Nuclear Fuel Bank*, available at URL http://www.nti.org/b_aboutnti/b7_fuel_bank.html.

¹³ *Nuclear Threat Initiative Commits \$50 Million to Create IAEA Nuclear Fuel Bank*, NTI Press Release, 19 Sept. 2006.

¹⁴ *Concept for a Multilateral Mechanism for Reliable Access to Nuclear Fuel*, Communication dated 31 May 2006 received from the Permanent Missions of France, Germany, the Netherlands, the Russian Federation, the United Kingdom of Great Britain and Northern Ireland and the United States of America, GOV/INF/2006/10, 1 June 2006.

A joint commitment of existing uranium enrichment companies in an IAEA supported mechanism. In 2006 a Working Group convened by the World Nuclear Association proposed a three-tier approach to ensure security of supply in the international nuclear fuel cycle. The first tier would rely on the existing world market since any customer denied access by one supplier could turn to others. A second tier would include collective guarantees provided by private companies but supported by governmental and IAEA commitments codified in multilateral agreements. A third tier would allow a customer to turn to government stockpiles of enriched uranium.¹⁵

Enrichment bonds. In 2007 the United Kingdom produced a 'food for thought' paper describing a voluntary scheme to provide reliable access to nuclear fuel. The enrichment bond would be a trilateral agreement between the supplier state, the recipient state and the IAEA stating that national enrichment providers 'would not be prevented from supplying the recipient state with enrichment services in the event that the guarantee is invoked'. Under the terms of the bond the supplier state would give an assurance that an enrichment provider would be granted permission to export if the IAEA determined that certain specified conditions had been met by the recipient. However, the bond could only be invoked if the recipient was unable to secure enrichment services 'for reasons other than commercial or non-proliferation issues'.¹⁶

Enhanced market information for fuel services. In 2006 the Japanese government proposed that states facing difficulty in accessing nuclear fuel or fuel services might benefit from better information about alternative sources of supply.¹⁷ According to the proposal the IAEA could manage an information system that would help customers identify where surplus capacity in different fuel supply services is available at the time it is needed. The information in the data bank would be provided by states and updated on a voluntary

¹⁵ *Ensuring Security of Supply in the International Nuclear Fuel Cycle*, World Nuclear Association, 12 May 2006.

¹⁶ *Enrichment Bonds: A Voluntary Scheme for Reliable Access to Nuclear Fuel*, INFCIRC/707, 4 June 2007.

¹⁷ Communication received on 12 September 2006 from the Permanent Mission of Japan to the Agency concerning *Arrangements for the Assurance of Nuclear Fuel Supply*, INFCIRC/683, 15 September 2006.

basis. The IAEA would effectively provide a consultancy service to states finding it difficult to access commercial markets.

Multilateral fuel management service for Iran. During 2005 and 2006 Russia and Iran discussed an arrangement by which Iran would be provided access to Russian enrichment services in return for a suspension of national enrichment activities. Although the details of the proposal are not public, it is believed to have been based on joint participation in the management and financing of services provided to Iran, and would not have included Iranian participation in production processes.¹⁸ The idea thus shared many features with, but pre-dated, the International Uranium Enrichment Centre (IUEC) in Angarsk, Russia described below. On a similar track, in 2008 Bruno Pellaud, a former Deputy Director General of the IAEA and now President of the Swiss Nuclear Forum, put forward what he called 'a technical offer with low proliferation risk'. Pellaud proposed the physical removal of the output from an Iranian enrichment facility for storage in Europe until needed for fuel fabrication.¹⁹ This would mean that Iran kept its enrichment facilities and infrastructure but would not have access to material enriched beyond the low levels needed for fuel.

B. Place existing facilities under multilateral control

In Europe there are two examples of transforming national facilities into multilateral nuclear arrangements that date from the 1970s. Both examples involve uranium enrichment. The Eurodif consortium is an example of joint ownership of a facility operated by a single country (Eurodif is a subsidiary of the French corporation Areva). The URENCO Group, has a more integrated company structure, owns and operates enrichment plants in the UK, Germany and The Netherlands. The following proposals imply similar transformations of ownership:

- i) *An international Nuclear Fuel Bank.* In April 2007 Austria distributed a 'food for thought' paper which addressed full

¹⁸ Kaveh L Afrasiabi, 'Iran plays Russian roulette', *Asia Times Online*, 14 February 2006.

¹⁹ Bruno Pellaud, *Storing Iranian enriched uranium in Europe*, 28 March 2008 available at URL <http://www.sipri.org/contents/expcon/mccprolresistance.html>.

multilateralisation of the nuclear fuel cycle. The paper suggested that equal access to and control of the most sensitive technologies could be achieved by bringing all enrichment and reprocessing services under the exclusive control of an international Nuclear Fuel Bank in which all interested states held an equal stake.²⁰

- ii) *International Uranium Enrichment Centre (IUEC), Angarsk*. In 2006 President Putin proposed the creation of a system of international centres providing nuclear fuel cycle services to ensure equal access to energy while ensuring reliable compliance with non-proliferation rules. In 2007 Russia announced the formation of the Joint Stock Company IUEC, seen as one part of the international system suggested by Putin.²¹ Through an Intergovernmental Agreement Russia and Kazakhstan established a Joint Stock Company with 90 percent of shares owned by the Russian partner, Tenex, and 10 percent of shares owned by the Kazakh partner. Subsequently in 2008 Armenia bought a 10 per cent shareholding from Tenex and Ukraine is said to have applied to join the initiative.²² The IUEC does not create new enrichment facilities in its initial phase. The agreement reserves blocks of enrichment capacity the existing enrichment facility in Angarsk, which has been placed under IAEA safeguards. In future enrichment capacity might be expanded, depending on the level of interest in enrichment services from new partners. France is currently constructing a new facility (the Georges Besse II plant) to replace the obsolete gas centrifuge technology operated by Eurodif. The French Atomic Energy Commission has apparently proposed that this facility should be open to international partnerships similar to IUEC.²³

²⁰ *Multilateralisation of the Nuclear Fuel Cycle*, INFCIRC/706, 31 May 2007.

²¹ Communication received from the Resident Representative of the Russian Federation to the IAEA on the *Establishment, Structure and Operation of the International Uranium Enrichment Centre*, INFCIRC/708, 8 June 2007.

²² Anya Loukianova, *Issue Brief: The International Uranium Enrichment Center at Angarsk: A Step Towards Assured Fuel Supply?*, James Martin Center for Non-proliferation Studies, October 2007, available at URL http://www.nti.org/e_research/e3_93.html.

²³ As reported by the World Nuclear Association on its website in July 2008, URL <http://www.world-nuclear.org/info/inf28.html>.

iii) *A multilateral enrichment centre in Iran.* In 2008 three respected US analysts suggested that the Iranian government should agree to allow two or more additional governments to participate in the management and operation of enrichment inside Iran in exchange for an end to international sanctions.²⁴ Under this proposal Iran would continue to own the existing enrichment facility located in Natanz along with the centrifuges contained in it. However, the management and operation of the facility would be shared.

A system of regional enrichment centres. Former US Ambassador James Goodby—now a Research Fellow at the Hoover Institution, part of Stanford University—has proposed that a multilateral enrichment centre should be established in each region of the world by linking the current and planned enrichment facilities in a more integrated manner.²⁵

C. Build new facilities under multilateral control

The more sensitive parts of the civil nuclear fuel cycle—enrichment services and reprocessing facilities—are concentrated in a handful of countries. Moreover, these countries are, by and large, synonymous with the group of highly industrialized countries usually considered to be major world powers. The following ideas would develop facilities elsewhere but on a basis militating against proliferation:

Construct a new multilateral enrichment facility. In 2007 the German government circulated a discussion paper suggesting that a new enrichment facility outside the current provider states could ‘place energy supply security on a broader geographical footing’.²⁶ Such a facility could also reduce perceptions that current arrange-

²⁴ William Luers, Thomas R. Pickering, Jim Walsh, ‘A Solution for the US–Iran Nuclear Standoff’, *New York Review of Books*, Volume 55, Number 4, 20 March 2008.

²⁵ James E. Goodby, *Internationalizing the Nuclear Fuel Cycle*, unpublished paper, Hoover Institution, May 2008.

²⁶ Communication received from the Resident Representative of Germany to the IAEA with regard to the German proposal on the *Multilateralization of the Nuclear Fuel Cycle*, INFCIRC/704, 4 May 2007.

ments are inequitable. However, the countries that control enrichment technologies are not willing to transfer them to another state and new entrants to the enrichment market would face significant technical difficulties and economic costs. Germany proposed that a country should create an international space by ceding administration rights and sovereignty over a designated part of its territory to the IAEA. The IAEA would in effect govern this international space (on terms to be agreed with the country concerned). Interested private companies would then be permitted to build enrichment plants in the designated space and offer their products internationally under IAEA control and monitoring.

Regional uranium enrichment in South America. In 2008 Argentina and Brazil agreed to create a binational nuclear energy committee (Comitê Binacional de Energia Nuclear or COBEN) with the ambition to enter the world commercial market for uranium enrichment, among other objectives. This part of the bilateral nuclear cooperation arrangement would be based on Brazilian centrifuge technology that would not be shared with Argentina. The objective was to meet the demand for enrichment services in Argentina and Brazil in support of national plans to expand the role of nuclear power plants in energy policy.²⁷

Regional uranium enrichment projects in the Gulf. Several proposals for multilateral cooperation have been put forward in the Gulf. In April 2007 Iran's Expediency Council proposed establishing a security and cooperation organisation in the Gulf region including the six Gulf Cooperation Council (GCC) countries, Iran and Iraq. The organisation was intended to take responsibility for a number of elements, including a joint nuclear enrichment consortium to produce nuclear fuel.²⁸ However, the Iranian proposal contained conditions known to be unacceptable to GCC countries (such as complete withdrawal of US armed forces from the region).

²⁷ 'Argentina, Brazil to develop nuclear energy agency', MercoPress 28 August 2008, available at URL <http://www.mercopress.com/vernoticia.do?id=14383&formato=HTML> The arrangement could also be opened to other South American countries considering expanded role for nuclear energy such as Uruguay and Venezuela.

²⁸ Meena Janardhan, 'GCC countries complicate US Iran plans', *Inter Press Service News Agency*, 16 April 2007.

Also in 2007, Saudi Arabia proposed a uranium enrichment consortium linking all countries in the Middle East, including Iran, in a joint venture.²⁹ Saudi Arabia proposed that a new facility would be constructed and hosted in a state outside the region (for example in Switzerland). In response, Iran welcomed the initiative provided that it was in addition to Iranian national enrichment capacity rather than replacing it, while Saudi Arabia's GCC partners were reported to be sceptical about the idea and did not endorse it.³⁰

A multilateral enrichment facility for Iran. In 2005 researchers at the Massachusetts Institute of Technology (MIT) proposed constructing a new enrichment facility in Iran but jointly owned and operated by Iran and Western governments. In this new plant the equipment would be of a higher level of sophistication when compared to the existing Iranian facility. However, Iran would undertake additional safeguard requirements to verify that it was not engaging in enrichment activities anywhere else and the plant would contain various physical barriers and administrative routines to reduce the risk of diversion of material or misuse of equipment.³¹

3. Internationalisation of the nuclear industry

Concern about nuclear proliferation is the motivation for the proposals briefly described in the previous section. The designers of those proposals often emphasize that multilateral nuclear arrangements should not interfere with the existing civilian market mechanisms. However, treating MNAs and markets separately may be artificial and unnecessary given that the business outlook for the nuclear sector is changing significantly at the moment.

A number of factors have acted together to reduce public resistance, in many settings, to expanding the role of nuclear energy.

²⁹ 'Arab states offer nuclear deal', *Middle East Economic Digest*, 2 November 2007, Vol. 51, Issue 44; 'The GCC Uranium Enrichment Proposal to Iran', APS Diplomat News Service, 5 November 2007.

³⁰ 'Saudi uranium offer to Iran meets with skepticism by Gulf neighbors', *Geo-Strategy Direct*, 14 November 2007.

³¹ John Thomson and Geoffrey Forden, *Iran as a Pioneer Case for Multilateral Nuclear Arrangements*, 24 May 2007, available at URL <http://www.sipri.org/contents/expon/iranmna.html/>.

Studies of environmental change have underlined the need to meet the continuous growth in the demand for electricity without increasing carbon emissions into the atmosphere. Rising fossil fuel costs have changed the economics of generating electricity using nuclear versus other technologies. Advances in technology and better regulation have made nuclear power plants safer as well as more efficient. Finally, political uncertainties in the Middle East, in Russia and elsewhere have fed a feeling that relative autonomy or greater security of electricity supply should be weighted more heavily in the overall basket of factors influencing energy policy.

Many key companies in the civilian nuclear energy sector have tended to have a narrow specialisation and a predominantly national focus in the past. However, developments in the marketplace are pushing the nuclear industry generally in the direction of greater internationalisation, diversification and consolidation. There is anecdotal evidence to support the hypothesis that new CO²-free energy production conglomerates are forming and positioning themselves to compete for work globally, hoping to eat into the market share of energy suppliers offering coal, oil and gas.³²

The need for capital to finance new construction is stimulating internationalisation. In future nuclear energy will increasingly compete for investment with other forms of electricity generation as there is a gradual trend in the electricity supply industry to replace state monopolies with competition open to private suppliers. The running costs of nuclear power plants are relatively low and this may offer competitive advantages in the future if the price of electricity resumes its long-term downward trend and oil and gas prices remain relatively high.³³ However, the main sources of private capital have been reluctant to invest in projects that expand the nuclear

³² The French company Areva is trying to position itself as a leading supplier of carbon-free electricity worldwide. In 2008 Areva, the company likely to build most of the new nuclear power stations in the world in the near term, bought Brazilian company Koblitz, a leading provider of biofuels.

³³ Hans-Holger Rogner, 'Nuclear Power: The Way Forward To Sustainable Energy Supplies', *In Focus*, Winter 2008.

sector because of the long waiting period for a return.³⁴ The perception of unpredictable risks (such as the difficulty of securing necessary licences from regulatory bodies and vulnerability to changes in the political acceptability of nuclear energy) has also dampened enthusiasm.

In response, the financing of major nuclear projects has become international as investors spread risk.³⁵ Further privatisation could also stimulate international investment in the corporations that implement projects rather than the projects themselves if investors are convinced of future growth prospects and revise expectations about the competitiveness of nuclear electricity in the marketplace. The result is likely to be concentration, leaving a smaller number of larger but more internationalised companies able to part-finance future projects themselves and recover their investment by sharing future income with electricity distributors.³⁶

Some companies may already be thinking along these lines as they increasingly try to offer customers “energy solutions” rather than discrete products.³⁷ To be competitive in new energy markets (either regionally or internationally), these conglomerates are likely to insist that their suppliers and service providers in turn offer improved quality at lower cost. For nuclear suppliers, this means that there could be significant rewards for companies with modern

³⁴ Financing has been easier to secure for decommissioning projects. However, if decommissioning projects are postponed and attention is switched to extending the life of power plants currently slated for closure this could free capital in financial institutions accustomed to working on nuclear projects for investment in other projects.

³⁵ For example, the Finnish nuclear power plant at Olkiluoto was initially financed by borrowing from banks in Finland, Germany, France, Sweden and the United States. When the project was refinanced in 2005, Japanese and British banks also contributed.

³⁶ A degree of concentration has already taken place when British nuclear company BNFL bought the nuclear division of US company Westinghouse and ABB-CE, the nuclear subsidiary of Swiss–Swedish engineering conglomerate ABB, and subsequently re-sold them to Toshiba of Japan. Siemens merged its nuclear division into a common subsidiary of French company Framatome.

³⁷ This tendency is already apparent in Europe. Elena Koinova, ‘Deloitte outlines vision of Bulgarian energy conglomerate’, *Sofia Echo*, 20 February 2008.

reactors that are licensed and certified in many different countries, because that reactor design could become a de facto international standard purchased by many energy conglomerates.

Further internationalisation is also likely to be stimulated by decisions made in the countries that will provide the main demand for civil nuclear programmes. Countries in Asia such as China, India and South Korea are likely to insist on significant local participation as a condition of doing business. The United States, which might develop a significant national programme to construct nuclear power plants after 2010, is setting up international partnerships intended to help restore the leading position the US occupied in the global nuclear energy market in the 1970s.

If internationalisation might be expected to be a general tendency in the nuclear sector, there are also indications that fuel suppliers would not be excluded from that general trend. In 2006 the US firm GE Energy bought the rights to an Australian laser-based process for enriching uranium called Silex in an attempt to enter the commercial market for enrichment services. The European company URENCO is currently building a uranium enrichment plant in the United States based on modern centrifuge technology.³⁸ AREVA has acquired joint control over ETC—the part of URENCO that develops and manufactures centrifuges for uranium enrichment—and the joint company is building the modern centrifuge enrichment plant being constructed in France.³⁹

³⁸ The plant will operate using a “black box” technique to shield URENCO technical data from the US operators of the facility. This is necessary to meet the obligation of European URENCO partners not to transfer the most sensitive technologies to any country. Regrettably the Australian transfer to the United States does not have the same degree of protection.

³⁹ GE Energy Press Release, *GE Signs Agreement With Silex Systems Of Australia To Develop Uranium Enrichment Technology: Move Would Expand GE's Presence Within Global Nuclear Sector*, 22 May 2006; AREVA completes a major stage in the Georges Besse II project, Areva Press Release, Paris 19 February 2008 available at URL <http://www.aveva-np.com/scripts/press/publigen/content/templates/show.asp?P=901&L=US>. URENCO's project in the United States is described on the company website Urenco and the National Enrichment Facility (NEF) at URL <http://www.urencocom/fullArticle.aspx?m=1601>.

Another economic issue which may affect whether MNAs take root as a feature of the international nuclear industry is related to the availability of uranium. Participation by Kazakhstan in the MNA in Angarsk has been one part of a package that includes privileged Russian access to the output from Kazakh uranium mines. This guarantees Russia access to uranium in the future at agreed prices, but experts doubt whether the package represents a good deal, and Russia might have been better advised to trust the free market.⁴⁰

In future, the global supply of enrichment services is likely to be dominated by 3 suppliers: Areva/URENCO in Europe (with its US subsidiary), USEC in the United States (currently building a modern centrifuge-based enrichment facility to replace an obsolete gas diffusion plant) and Rosatom in Russia (including its foreign sales arm, TENEX). However, current plans and programmes suggest that there will be small capacities in other places including Brazil, China, Iran and Japan and it is possible that other entrants will join the commercial market.⁴¹

4. A comparison of the proposals

The previous sections have documented a wide variety of proposals by governments, international organisations and non-governmental actors for multilateral nuclear approaches. The great majority address issues on the “front end” of the nuclear fuel cycle—that is, before fuel is irradiated in a reactor—while a small number take a comprehensive approach including dealing with the so-called “back end” of the cycle and the management of waste.

⁴⁰ Maria Avdeeva, SIPRI, *Nuclear Fuel Cycle of Kazakhstan: the Uranium Rush*, Presentation at the Swedish Nuclear Regulatory Authority, Stockholm, 21 May 2008.

⁴¹ Canada and South Africa (both exporters of natural uranium) are periodically reported to be considering undertaking enrichment as part of a strategy to enter higher value added sectors of the nuclear industry. Ernie Regehr, ‘Multilateralism and Canada’s uranium enrichment ambitions’, available at the Disarming Conflict website at URL <http://www.igloo.org/disarmingconflict/multilater> 9 May 2008; Christy van der Merwe, ‘Minister envisages uranium mining, enrichment, fuel making and even reprocessing of spent fuel elements in SA’, *Mining Weekly*, 5 October 2007, available at URL http://www.miningweekly.com/article.php?a_id=117785.

Existing proposals share some common features. They tend to be incentive-based and stress the positive benefits that could be gained from MNAs rather than being based on restricting technology to closed groups. The arrangements would be open to all countries that meet agreed international standards. For some countries this represents a change in nuclear policy—for example, the US does not require participants in GNEP to discontinue national fuel cycle programmes as a condition of entry into the arrangement, but rather underlines that such programmes would become redundant for GNEP partners.

Almost all of the proposals take account of the need to respect the legal and financial arrangements that underpin the market for nuclear fuel. In future the civil nuclear energy sector is expected to be increasingly in private ownership and none of the proposals expect the market development to be superseded by government ownership and control. The exception to this general tendency is some of the proposals targeted specifically on Iran, where cost and market considerations are subordinated to an overriding non-proliferation objective. According to this logic, an approach that offers a non-violent solution to the proliferation risks posed by Iranian nuclear policy should not be ruled out by its economic cost (narrowly measured).

The general question of who will regulate a more integrated, international, private nuclear industry is highlighted in all of the proposals. There are no detailed answers to this question, but all of the proposals foresee a central role for the IAEA.

In some cases the IAEA is seen to have a critical role in developing instruments that regulators will need to provide assurances on safety, security and non-proliferation. This would require continued work to strengthen the political, legal and technical basis for nuclear safeguards. The proposals often propose restricting eligibility to participate in MNAs or to purchase goods and services from them to countries that are in good standing in the NPT, and that accept both comprehensive safeguards and additional measures to strengthen the IAEA's inspection capabilities.

Under these arrangements the IAEA could certify that countries are compliant with safeguards, but it would still be for the national authorities in countries that provide the capacities to an MNA to determine which countries would have access to goods and services. However, in some proposals an additional step is taken and the IAEA is assigned the role as regulator. The Agency would determine access to MNA goods and services by making a determination on whether agreed criteria have been met.

An issue not addressed in any of the proposals concerns the ramifications of MNAs for export controls—for which no truly international standards currently exist. In contrast to safeguards, where the IAEA has developed technical standards, export controls are discussed in voluntary groups with limited participation: notably, in this instance, the Nuclear Suppliers Group (NSG). Exports of controlled items take place at the discretion of the national export licensing authorities in the countries where the suppliers of the relevant items are based. Plans for MNAs would have to be consistent with NSG guidelines, but for any arrangement to succeed, all of the partners as well as the recipients of services would have to be confident that supplies would not be interrupted by denial of export licences.⁴²

Another significant difference between proposals is whether or not they seek to limit and reduce the number and distribution of sensitive fuel cycle facilities. Some proposals argue for a small number of large MNA facilities that would service global demand. These proposals argue that preventing the diffusion of technologies to new states and regions would reduce proliferation risks while the larger size of plants would produce economies of scale and allow the most efficient use of plant capacity. Other proposals argue for a broader geographical distribution of facilities which could involve MNAs in regions (such as Africa, Asia, Latin America and the Middle East) where little commercial capacity currently exists in sensitive parts of the fuel cycle. These

⁴² Ian Anthony, *MNAs and Export Control Arrangements*, Paper presented at the SIPRI Seminar on Regional Multinational Nuclear Arrangements: Government, Commercial and Public–Private Approaches, Vienna International Center, Vienna 25 March 2008.

proposals argue that an arrangement that is equitable and that has broad participation would be more likely to gain political acceptance and that challenges of regulating the use of sensitive technology could be overcome.

The choice over which approach should be preferred has been complicated by the many open questions about the future role of nuclear energy in meeting expanding global demand for electricity. Countries are reluctant to limit their participation in what could be lucrative activities in an expanded global nuclear industry, but also reluctant to commit the very large sums needed to develop facilities that could turn out to be 'white elephants'.⁴³

This is particularly true for reprocessing facilities, where the number of facilities currently operating is very limited. There is no specific proposal for a multilateral nuclear approach based on international control over a reprocessing facility, and initiatives like GNEP are mainly intended to prevent the creation of reprocessing facilities in countries that do not already operate them. Moreover, the future of GNEP is uncertain. While a certain international momentum has been generated through high level meetings, the Bush Administration has been criticized for failing to anchor the domestic aspects of the programme with law makers, including key figures in Congress.⁴⁴ Furthermore, the implementation of GNEP may fall victim to

⁴³ For example, Switzerland has rejected 'proposals which aim to restrict access to sensitive nuclear technologies for non-nuclear weapons states not in possession of such technologies. It believes that proposals of this kind would unjustifiably discriminate against these States.' Statement by Ambassador Jürg Streuli, Permanent Representative of Switzerland to the Conference on Disarmament, Vienna, at the Preparatory Committee for the 2010 Review Conference of the States Parties to the Nuclear Non-Proliferation Treaty (NPT), 10 May 2007.

⁴⁴ The advantages and disadvantages of nuclear fuel recycling continue to be debated in the United States where initiatives like GNEP are seen by some as a rollback of US opposition to commerce in plutonium. In 2008 the Congress made a significant cut in the funds requested to finance GNEP, arguing that it is unnecessary 'to rush into a plan that continues to raise concerns among scientists and has only weak support from industry given that there are reasonable options available for short term storage of nuclear waste and that this project will cost tens of billions of dollars and last for decades.' Committee on Appropriations, House of Representatives, *Summary: 2008 Energy and Water Appropriations Full Committee Markup*, available at URL <http://appropriations.house.gov/pdf/EnergyandWater-FC.pdf>.

the downturn of bilateral relations between the United States and Russia following the decision by President Bush not to submit the US-Russia Agreement for Peaceful Nuclear Cooperation to the Congress for approval.

Proposals that have been developed for the back end of the fuel cycle are sometimes linked more closely to the discussion of international cooperation to manage radioactive waste by long-term storage. An increasing number of nuclear power plants would generate a growing volume of spent fuel. However, the main legal instrument addressing issues of nuclear waste differentiates between spent nuclear fuel and radioactive waste, in recognition of the fact that some states consider spent fuel as a valuable resource that may be reprocessed, while others regard this fuel as waste material to be disposed of.⁴⁵

If the countries that own this spent fuel regard it as a resource rather than a waste product there could be an expanded demand for reprocessing in the future. This could represent a significant proliferation risk if separated plutonium is stockpiled. Depending on its physical form, radioactive waste might represent a threat in light of concern about the use of radiological weapons (“dirty bombs”) by groups planning acts of mass impact terrorism.

MNA proposals that focus on the back-end of the fuel cycle also include waste repositories—arrangements whereby the country hosting a repository accepts the waste from foreign countries for long-term storage, eliminating the need for reprocessing.⁴⁶ With larger quantities of waste being produced, such arrangements would benefit countries that could not afford to build a national repository to the required standards for safety and security with the

⁴⁵ *The Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management*, 5 September 1997, INFCIRC/546, 24 December 1997.

⁴⁶ Between 2003–2005 a Russian proposal to create an international repository in Russia was discussed intensively. However, this option appears to have been terminated by the Russian government in light of political opposition from local groups in places where a repository might be located and concern about the environmental risks associated with the facility.

most modern safeguards. Therefore, interest in this kind of multinational cooperation could grow in future if there was an extensive nuclear renaissance.

5. How could Europe progress towards a consensus and constructive role on multilateral nuclear arrangements?

At the moment the European Union is not working for consensus upon any specific proposal for an MNA and has not taken the view that a harmonized policy on MNAs is required. A flexible approach has seemed appropriate given the variety of national motivations and interests within Europe, and the fact that a number of Member States have already espoused specific proposals.

One way to approach the issue of moving towards a consensus could be to identify a limited number of MNAs that could be part of a package with broad EU support and develop these proposals more thoroughly. Given the spectrum of views inside the EU it could be unrealistic to move straight to a positive consensus on this select group of MNAs. The alternative would be to start by excluding proposals with characteristics that few EU Member States could support, and focus on analysing and developing those that remain.

The way in which the EU has moved towards a perspective on nuclear energy more generally might show the path forward on the narrower issue of what role, if any, MNAs could play in future. Member States have agreed that, whatever national decisions they might reach on the future role of nuclear power, they will not put obstacles in the way of the national choices made by their EU partners. For example, Member States do not block the use of collective financing for research and development into future nuclear reactor designs even if they have no intention to make use of the outcome of projects. Similarly, it is agreed across the EU that nuclear installations must be operated at a high level of safety, they must be secure against attack by malicious actors, radioactive waste and stocks of spent fuel must be managed in a safe and environmentally sound manner, and civilian nuclear activities should not contribute to military programmes.

The general topic of energy security, including its nuclear component, is of steadily mounting prominence and concern in European circles. A private nuclear industry that must compete in a more integrated energy market alongside electricity generated by other means may not be willing or able to carry the costs of making the most sensitive parts of the nuclear fuel cycle safe, secure and proliferation resistant. If governments feel obliged to offer finance to this end for what could be seen as a public good, the impact of this “subsidy” on wider competition in a deregulated energy market would be an issue of definite European concern. To avoid new competition issues in an already highly-charged field, the EU should have an interest in examining whether MNAs might be part of a common approach to financing future nuclear fuel cycle capacities.

The EU could also reflect on the potential of MNAs as a practical example of “effective multilateralism”. The discussion in the previous sections has suggested some of the guidelines that could be the basis for evaluating the different proposals tabled in recent years, within a wider framework of EU security strategy. For example: to win EU support a proposal must be non-violent, in tune with the logic of the free market, it must have a stable and predictable financial base, it should build on EU experience regarding the stabilizing effect of interdependence, and it should be open to participation by bilateral and regional partners rather than representing an exclusive approach to any given problem state.

As a practical illustration of one approach, EU-financed working groups might be established to explore safety, security and non-proliferation aspects of nuclear energy policy with countries around the periphery of the enlarged EU, taking into account the various issues that have been identified earlier. The EU has many assets to deploy in such a project. The 2003 strategy against proliferation of weapons of mass destruction has not only created the political framework for action but also designed and implemented practical measures to try and achieve the objectives set out in the strategy. There is a wealth of experience and knowledge about legal and technical aspects of safeguards in EURATOM and the Joint Research Centre. The EU has already developed a long-term programme of technical assistance in the area of export control. Individual Member States also have national programmes delivering

various forms of international non-proliferation and disarmament assistance. The EU has been deeply engaged in finding peaceful ways to address the risks associated with aspects of the current nuclear programme in Iran.

A coordinated effort for such a dialogue on 'responsible nuclear management' could benefit both the EU and partner countries. Activities would have to engage the different institutions as well as Member States and a common view would be needed across several different parts of the Commission. The ideas would have to be briefed in potential partner countries, including discussions across different agencies, since these countries would need to "buy in" if the work was to produce meaningful results. Some areas that working groups could address include:

- Safety (including licensing and certification)
- Security
- Safeguards
- Security of supply (including multinational arrangements and the implications of the internationalisation of industry)
- Economics – including both how to finance electricity generation and supply and how to distribute electricity cost effectively
- Waste management
- Trans-regional initiatives to focus specifically on trafficking and non-proliferation:
- Smuggling
- Export control
- Supply chain security

This activity could be developed in a systematic way in a particular region of interest, possibly as a pilot action, designed to cover generic issues and respect country-specific factors. For example, a regional project of this kind might be offered to South and East Mediterranean partner countries given their strong interest in expanding the use of nuclear energy. However, neither Egypt nor Syria has yet developed an Additional Protocol to their safeguards agreements with the IAEA while all of the other countries either

have such agreements in place or are in the process of ratifying them nationally. The EU currently has no contractual relationship with Libya and the Association Agreement with Syria has not been brought into force. A mix of regional and bilateral elements, with burden-sharing among present EU members, could take these realities into account within a coordinated programme.

The EU has supported the IAEA with both financial and technical assistance. Nevertheless, the Agency continues to operate important programmes using a Nuclear Security Fund that depends on voluntary contributions, which the donors often provide with significant “strings attached”. This makes it difficult for the IAEA to plan on a systematic and long-term basis. The EU should seriously consider using its own funds to put the Nuclear Security Fund on a stable financial footing.

There are a wide range of what could be regarded as background issues that are not directly connected to the creation of MNAs in sensitive parts of the fuel cycle but which will be highly relevant to the future prospects for MNAs. Finding agreement on these background issues could also be part of a wider EU approach. The issues can be sorted into baskets:

- Economic factors.
- Regulation.
- Research and development.

Economic factors. One factor that will be critical in shaping the future prospects for MNAs is whether or not more integrated markets for electricity develop. This integration includes the questions of who owns and operates the facilities that generate electricity, and also the legal and technical questions surrounding the electricity distribution.

There are also questions around the extent to which government-backed financing could be available for MNAs—for example, in the form of public-private initiatives or some other form of co-financing arrangement. Making economic support available for MNAs that was not available to purely national programmes could be an incentive encouraging partners to focus on multilateral projects.

Regulation. The discussion above has underlined that the success of MNAs would depend on the partners (including both private actors and the governments of recipient countries) having confidence that a strong and stable legislative framework was in place to cover safety, security and non-proliferation aspects. There could be a strong European input in all three areas. The European Union has played an important part in the development of technical standards for safety and security as well as nuclear safeguards. From a non-proliferation perspective, the primary legislation governing dual-use export controls from the EU is established in a Regulation.

As a contribution to general international thinking on MNAs, the EU could examine in a more detailed and systematic way how the existing body of rules as well as those that are currently under consideration apply to MNA proposals. The EU would be well placed to assist countries with an audit of their national legislation to ensure that it conforms to all parts of the current nuclear acquis. An activity such as this might take the form of a pilot project in a country such as Georgia—where the IAEA has confirmed that serious cases of nuclear illicit trafficking were under investigation as recently as 2006.⁴⁷

One of the main stumbling blocks to MNAs could turn out to be the lack of a shared international basis for export control. MNA partners are unlikely to invest in expensive projects or jeopardize national energy policies if they feel there is a risk that export licences will be denied by particular countries on essentially political grounds. EU legislation currently represents the highest international standard for export control, and the EU should be well placed to lead a discussion of how to modernize and progressively standardize this part of the international nuclear acquis.

Research and development. Within the EU, a Sustainable Nuclear Energy Technology Platform (SNE-TP) has been used as an instrument to define a strategic approach to maintaining European

⁴⁷ IAEA information system on illicit trafficking and other unauthorized activities involving nuclear and radioactive materials, *Facts and Figures 2007*, 26 September 2008.

leadership in the civilian nuclear sector. The SNE-TP should develop a fully integrated approach to nuclear energy research within Europe. This programme has been developed to ensure that modern and efficient European options are available to EU Member States that choose to make nuclear energy generation an important part of their future energy strategy. However, once the internal EU R&D process is on a firm footing, bilateral dialogues could be undertaken with the other centres where leading edge nuclear technology development is to be expected—Russia, Japan, the United States, Canada and possibly including China and India. The prospects for future cooperation in MNAs, within this circle and with third countries, would be one logical element in such bilateral dialogues.

