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NUCLEAR FUTURES?

An examination of the implications of current trends in civil nuclear power expansion and nuclear weapons proliferation, and the interaction between them

Report of a one-day symposium held at the Royal Society in London on 6 December 2007 on "Nuclear Futures – Realities and Choices", organised by Oxford Research Group (ORG) in association with the David Davies Memorial Institute for International Studies (DDMI) within the Department of International Politics at Aberystwyth University.[1]

This report is a summary of the discussions based on notes taken by the rapporteurs. The meeting was held under the Chatham House Rule, so none of the views or points raised is attributed to any speaker. The chief rapporteur and author of this report is Dr. Nick Ritchie, Post-Doctoral Research Fellow at the Department of Peace Studies, University of Bradford. A major report/book is to be published under ORG and DDMI joint auspices during 2008 containing papers on the themes covered by the symposium, contributed by participants themselves.

The symposium was held in honour of ORG's distinguished honorary scientific and technical consultant on nuclear issues, Dr. Frank Barnaby, whose keynote presentation opened the main discussion on the security implications of the civil nuclear power renaissance.

Prior to the symposium, a private round-table was held on Wednesday 5 December at the Royal United Services Institute (RUSI), co-hosted with the British American Information Council (BASIC). Following the symposium, a meeting was held at the House of Lords on Friday 7 December, by kind invitation of Baroness Helena Kennedy, and chaired by Carol Naughton of the WMD Awareness Programme, for symposium participants to brief the press and NGOs on the main outcomes of the discussions. The events were supported by generous grants from the Polden-Puckham Charitable Foundation, the Marmot Trust, and individual donors.

A linked public event was organised with the help of British Pugwash to celebrate the 25th anniversary of ORG's foundation on the evening before the symposium, also at the Royal Society, entitled "Nuclear Futures, Human Choice". The evening centred around a screening of the BBC film of Michael Frayn's award-winning play, *Copenhagen*, followed by a discussion led by Michael Frayn and five other eminent panellists, ORG's founder-director Scilla Elworthy and four of the symposium participants. The discussion focussed on the moral, psychological and philosophical conundrums raised in the play, in relation to questions about nuclear weapons today: the role of the scientist in politics, the role of women, and the fundamental philosophical question of what drives human beings to do and think as they do.[2]

ABOUT THE SYMPOSIUM

This symposium brought together 20 eminent nuclear and environmental scientists, and experts in international law, politics and nuclear non-proliferation from Britain, the United States, China, Mexico and Sweden to take a critical and far-reaching look at current trends in civil nuclear power expansion and nuclear weapons proliferation, and the interaction between them. It took as its starting point the

[1] See: see http://www.aber.ac.uk/interpol/en/research/DDMI/DavidDavies.htm
[2] Details on http://www.oxfordresearchgroup.org.uk/Copenhagenprogramme.pdf

proposition that failure to sensibly manage the two acknowledged major threats to global security – climate change and nuclear proliferation – could lead to a situation where within a few decades the number of states possessing nuclear weapons could grow to 40 or more, and the opportunities for terrorists to acquire and use nuclear weapons would be greatly increased.

The discussion began with each participant reflecting on lessons for dealing with future nuclear threats from significant episodes in nuclear history. This was followed by a key session on the so-called civil nuclear power renaissance, which focussed mainly on the security implications of a greatly expanded group of countries with nuclear power reactors and access to fissile materials. The discussion then turned to the status and future prospects for the nuclear non-proliferation regime. Finally, participants considered what realistic future choices could be made to reduce the risks of nuclear proliferation and nuclear war, and how the continued salience and legitimacy of nuclear weapons in international affairs could be minimised and ultimately renounced.

The symposium was not intended to reach a consensus of views among the participants. Its purpose was rather to be a timely enquiry into the difficult and contentious questions it posed, drawing on the wide range of expertise and experience of those present. By building on the momentum created by the Hoover Institution's "Reykjavik Revisited" initiative in the US[3], we hoped to make a contribution to advancing that vision and motivate our governments to rethink their policies, change direction and take steps towards the goal of a nuclear weapons-free world.

SESSION 1: EPISODES AND LESSONS FROM NUCLEAR HISTORY

The symposium opened with reflections from each participant on what he or she thought were the significant episodes from nuclear history from which important lessons could and should be drawn. These included:

- The 1983 "Able Archer" exercise, which simulated the full release of NATO nuclear forces. This was briefly interpreted by the Soviet Union as a prelude to a massive nuclear first-strike.
- The lost opportunity of the attempt to fundamentally review US nuclear weapons policy during the first years of the Clinton administration in the early 1990s under US Defence Secretary Les Aspin.
- The internal questioning of China's formal 'no-first use' nuclear policy in the 1970s, and the subsequent decision to retain that policy.
- The examination of the legality of the threat or use of nuclear weapons by the International Court of Justice in the mid 1990s – a process previously dismissed as 'impossible'. This demonstrated the potential of global civil society to influence decisions on nuclear weapons.
- The 'double-edged sword' outcome of the 1995 NPT Review and Extension Conference. This secured the successful negotiation of the Comprehensive Test Ban Treaty (CTBT) but at the same time dissolved one of the non-nuclear weapons states' primary levers over the nuclear weapon states, by extending the treaty indefinitely, rather than committing to five-yearly extension reviews.
- Three historical lost opportunities to rethink the commitment to a nuclear-weaponised world: 1) in the late 1940s with the Gromyko and Baruch plans; 2) in the mid-1960s following the Cuban Missile Crisis and the negotiation of the NPT, and 3) in the early 1990s following the end of the Cold War and the collapse of the Soviet Union.
- The US failure to embrace Gorbachev's 1986 nuclear abolition plan was described as the gravest error in US security policy since 1945. The lesson drawn from this was that trust-building agreements must be negotiated when political circumstances are propitious, since states are traditionally most comfortable with the politics of mistrust, and the moment will pass.

[3] See: http://fora.tv/2007/10/24/Steps_Toward_a_World_Free_of_Nuclear_Weapons

- A pervasive failure to recognise and institutionalise the idea that plans for the use of nuclear weapons is devoid of credibility.
- The observation that it is typically a few politicians, career bureaucrats and defence intellectuals, more so than the uniformed military, who provide the main resistance to meaningful change to current nuclear paradigms. They continue to elaborate and propound rationalisations for nuclear weapons and for new generations of civil nuclear power reactors.

SESSION 2: THE CIVIL NUCLEAR POWER RENAISSANCE

Frank Barnaby's discussion paper *The Consequences of a Civil Nuclear Power Renaissance*[4] provoked a lively discussion of the issues, exposing differences of opinion on:

- The capacity of the global nuclear power industry to build enough nuclear power reactors to contribute to a significant reduction in carbon emissions, in a way to keep the effects of climate change within manageable limits in the timescale presented by the scientific community.
- The security implications of moving towards a fast-breeder reactor 'plutonium economy' that would massively increase global stocks of plutonium for reactor fuel – plutonium that could also be used to manufacture nuclear explosives.
- The increased risk of a global civil nuclear power renaissance for acts of nuclear terrorism involving attacks on nuclear power reactors, or high-level radioactive waste storage facilities, or of theft of weapon-usable fissile material for primitive nuclear or radiological devices.
- The extent to which a major expansion of global nuclear power production was possible, and the degree to which market forces may drive the expansion of the industry on a global scale.
- The long-term availability of supply of accessible natural uranium deposits suitable for reactor fuel fabrication.

There was a general consensus (including those who did not want it to happen) that an expansion of nuclear power production was very likely, and that therefore the key challenges were: how this could be managed in ways that support stability and security through 'proliferation resistant' reactor technologies; how to establish a framework of fuel supply guarantees; how to provide safe long-term management of radioactive waste, and how to do it in ways that support international development.

There followed a lively discussion on whether nuclear power could make a significant contribution to the required cut in carbon emissions, on whether it was worth the risk in terms of the increased potential for nuclear proliferation, whether renewable energy sources (wind, solar, tidal) could provide sufficient future energy generation to significantly reduce carbon emissions, the extent to which energy conservation could offset needs for generating capability, whether a mix of energy sources including growth in nuclear power production was the likely way forward, and the extent to which an energy crisis is looming on the horizon as gas and oil supplies become less stable.

A number of participants commented on the apparent predisposition of the British government and civil service to nuclear power generation and reluctance to fully support and fund UK energy saving and renewable energy production technologies and processes.

SESSION 3: FUTURE NUCLEAR ORDER AND DISORDER

The Shultz, Perry, Kissinger, Nunn January 4, 2007 *Wall Street Journal* article on "A World Free of Nuclear Weapons" [5], and the then UK Foreign Secretary Margaret Beckett's speech to the Carnegie

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[4] See: http://www.oxfordresearchgroup.org.uk/publications/briefing_papers/pdf/nuclear_renaissance.pdf

[5] See: http://www.comeclean.org.uk/articles.php?articleID=278. A subsequent piece was published in the WSJ on 4 January 2008: http://online.wsj.com/article/SB120036422673589947.html

International Nonproliferation Conference in June 2007 on "A World Free of Nuclear Weapons?" [6] were cited.

It was generally agreed that a dangerous state of global nuclear disorder could well be our future. The aim of a nuclear weapons free world had to be articulated by governments, particularly the nuclear weapon states who should take the lead in moving more robustly towards the goal of nuclear disarmament. A long-term vision and cementing a 'norm' of nuclear abolition is essential, despite a plethora of as yet unresolved political and technical obstacles that must be addressed.

It was agreed this has to be done incrementally, rather than by attempting to negotiate global nuclear disarmament in a single step. It is a task for governments, drawing on a broad range of independent expertise, to examine what concrete measures need to be put in place now to take advantage of the new momentum towards nuclear arms control, non-proliferation and nuclear disarmament demonstrated in recent statements. Such steps are increasingly being seen, it was felt, to be a national security imperative, rather than simply actions to fulfil moral or legal commitments under the NPT. Nuclear weapons are, some argued, increasingly being seen as a burden rather than an asset.

It was recognised by a number of the participants that long-standing regional tensions had to be resolved to reduce incentives for further nuclear proliferation to states that do not currently have nuclear weapons, and to reduce 'vertical' proliferation' within established nuclear weapon states.

Some felt that 2005–2015 would be a defining decade for progress on nuclear de-legitimisation and disarmament initiatives. The need for new thinking on other systemic issues in the global order was acknowledged, with the recognition that inequity, and global environmental degradation through climate change could intensify the risks of nuclear weapon proliferation.

There was a lively discussion about whether international law can help to mitigate the threat of nuclear proliferation and secure a safer world. It was recognised that some people regarded this as beyond the limits of law. For others, however, a more robust legal framework is needed, which would force governments to at least agree to reach agreement on outlawing nuclear weapons in the future, with a Nuclear Weapons Convention that codifies and consolidates current obligations found in international humanitarian law and the NPT, mirroring those outlawing chemical and biological weapons. An alternative view was that the legal framework is already in place, and "we don't need any more law".

Some argued strongly that scenarios for the use of nuclear weapons are simply not credible, and that it is imperative Russia and the United States reduce their nuclear arsenals, which will still number many thousands even after reductions under the 2002 Moscow Treaty (to 1700–2200 warheads for each party) are completed in 2012.

It was remarked that there still remains an enduring and widespread, deeply held attachment to 'nuclearism' in which the doctrine of nuclear deterrence and the deployment of hundreds and thousands of nuclear warheads are still rationalised as providing security. Some argued that this seriously undermines attempts by the nuclear weapon states to prevent further nuclear weapon proliferation to states that do not yet have them, while at the same time maintaining their own nuclear arsenals and current doctrines.

The challenge in moving forward, it was argued, is not what to do, but how to generate the political will to carry out measures already systematically worked out and agreed to, notably at the 2000 NPT Review

[6] Available at http://www.carnegieendowment.org/events/index.cfm?fa=eventDetail&id=1004.

Conference[7], and in a variety of other forums such as those of the Canberra Commission[8], and the Blix Weapons of Mass Destruction Commission[9]. These key measures include:

- A successor to the START treaty that expires in 2009.
- Negotiating a Fissile Material Cut-off Treaty (FMCT).
- Securing entry into force of the CTBT.
- Discussions on a nuclear no-first-use agreement and rejection of doctrines of nuclear pre-emption.
- Taking nuclear weapons off high alert (in particular the Russian and American ICBM fleets).
- Expanding the Global Threat Reduction Initiative to secure fissile materials (weapon-usable plutonium and highly-enriched uranium).
- Developing a process for international control of the nuclear fuel cycle to reduce the spread of uranium enrichment and plutonium reprocessing capabilities.

An overarching theme emerged in the discussions that the world is in a period of grave global crises, which demand a new spirit of global co-operation, and a strong political and social will to engage in new thinking, and united political action. The threats posed by population-growth, climate change, resource scarcity, and the clash of ideologies and cultures, demand new paradigms in the international system as a whole: the 'business as usual' approach, which includes relying on nuclear weapons for a nation's security, is no longer sustainable, nor is it even in the best interests of the dominant nuclear-possessor states.

SESSION 4: FUTURE CHOICES

There was general concern expressed about the disintegration of the post-Cold War security architecture, comprising the START, CFE and INF treaties, as these treaties either become due to expire or are under serious threat. It was pointed out that little is being to done to ensure their longevity or to work out new arrangements to supersede them. This is exacerbating the serious strategic security problems raised by: i) the termination of the ABM (Anti-Ballistic Missile) treaty and the deployment of missile defences; ii) failure to secure entry into force of the CTBT (Comprehensive Test Ban Treaty); iii) failure to negotiate a FMCT (Fissile Material Cut-off Treaty). Responsibility for progress on nuclear arms control and disarmament rests, it was felt, with the United States and Russia, given their major nuclear stockpiles, which still comprise around 10,000 and 15,000 warheads respectively.

It was also argued that the non-nuclear weapon states could and should do more to raise issues about the nuclear policies and actions of the nuclear weapon states, and press for greater transparency on their nuclear forces and doctrines: their role and influence in countering nuclear proliferation could be significant. It was agreed, however, that the greatest and most important challenge was to get the United States to agree to take the lead in taking the necessary steps towards nuclear disarmament. The participation of India, Israel and Pakistan will also be key in future nuclear disarmament measures. The difficulties are not to be underestimated; not least, progress towards nuclear disarmament will raise problematic questions about missile defence and disparities in advanced conventional weapon capabilities.

Nevertheless, the coming three-year period represents an opportunity for change, with a new US Strategic Posture Commission and Nuclear Posture Review due to report to Congress in 2008 and 2009 respectively; with the election of new governments in Washington and Moscow; the expiry of the START treaty in 2009 and pressure for a new accord to replace it; and the 2010 NPT Review Conference, where

[7] See: http://www.reachingcriticalwill.org/legal/npt/13point.html
[8] See: http://www.ccnr.org/canberra.html
[9] See: http://www.wmdcommission.org/sida.asp?id=1

progress is seen to be of absolutely vital importance, especially given the complete failure of the Review Conference in 2005.

THE IMPORTANCE OF TRUST

A theme that ran throughout the discussions was the importance of trust building. The absence of trust amongst governments on nuclear weapons issues and an unwillingness to take risks to build trust for mutual benefit, it was suggested, may constitute a great obstacle to progress. It was remarked that a tendency to look for the 'technical fix' to problems often obscured the potential for a more sustainable approach, through the careful development of trust between governments though dialogue, confidence-building measures and negotiations. A consideration all too often neglected by international relations analysts and politicians were the psychological factors underlying political deadlocks, and the importance of acknowledging the deep-rooted, and often unconscious, assumptions and feelings underlying political differences in negotiations over nuclear power and weapons. It was also observed that during the Cold War there were profound misperceptions of nuclear policies, motives and actions, and that the world may only have escaped a nuclear disaster at the peak of the nuclear arms race due more to luck than to judgement.

In addition to the obvious importance of an emphasis on diplomacy and dialogue, several measures were proposed which could build trust, and reduce the risk of nuclear conflict through misperception, or by accident. These include:

- A forum for continuous multilateral dialogue on nuclear weapons policies, actions and non-proliferation between the nuclear weapon states.
- Greater transparency on nuclear arsenals and doctrines.
- A reinforced and articulated commitment to a nuclear weapon-free world.
- The de-legitimisation of nuclear weapons as weapons of war, through no-first-use declarations or agreements, and Nuclear Weapons-Free Zones (NWFZs)
- Further work on technical verification issues and increased transparency to build confidence in the viability of taking the necessary steps towards a nuclear weapon-free world.

SUMMARY

The following nine points summarise the discussions:

1) The importance of the spread of knowledge at government-to-government level to increase mutual understanding of each other's nuclear weapons capabilities, policies, intentions and actions, and to reduce misperception, increase confidence and a willingness for transparency, and minimise the risk of nuclear use in future conflicts.

2) The key importance of "de-legitimising" nuclear weapons in international security.

3) There have been lost opportunities in the past for progress towards nuclear disarmament. There is now the potential for a fresh opportunity as governments change, agreements come up for reconsideration, and we move towards the 2010 NPT Review Conference, which must not be lost.

4) A convincing rationale for nuclear weapons remains elusive, even though the deterrence argument, to be seen to be ready to respond quickly and massively to a nuclear attack by another state, still remains powerful in many people's minds.

5) Recognition that the main global security threats to humanity – climate change, resource competition, poverty and marginalisation, as well as the spread of nuclear and other weapons of mass destruction – interact with one another. Sustainable solutions require addressing these

challenges in an integrated fashion, rather than in a piecemeal or fragmented way.

6) The extent and benefits of a nuclear power renaissance as a response to climate change, and the ability of the global civil nuclear power industry to reduce carbon emissions and manage the security risks, are open to quite fierce debate. But the increased risks of state and non-state nuclear proliferation as a consequence of the spread of nuclear power production capabilities is a problem that is not being seriously addressed.

Symposium participants brief press and NGO representatives on the results of the symposium's deliberations at the House of Lords on Friday 7 December 2007

7) The logic of nuclear deterrence is meaningful to the powerful elites of the nuclear weapons states, but many others (for example, the non-aligned states) reject the logic.

8) There exists a cultural and institutional resistance in the UK to the rationale for energy policies that fully embrace renewable energy technologies. There is a parallel cultural and institutional resistance to embracing the 'logic' and wisdom of verifiable, multilateral nuclear disarmament.

9) One of the key challenges is to motivate political leaderships to take the necessary measures now to reduce long-term dangers. This applies equally to nuclear proliferation and climate change. However, the problem remains that there is disagreement about which policies will reduce the dangers. Differences of opinion about existing policies (that nuclear is 'clean' energy, and that deterrence brings peace) still stand in the way of change.

www.oxfordresearchgroup.org.uk

http://www.aber.ac.uk/interpol/en/research/DDMI/homepage.htm