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Challenges to the Nuclear Non-Proliferation Regime, and Implications for Nuclear Disarmament

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Challenges to the Nuclear Non-Proliferation Regime, and Implications for Nuclear Disarmament

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**Presentation to representatives of UN Missions at
the Australian Mission, New York, 8 September 2008**

1. Introduction

- Non-proliferation and nuclear disarmament are inextricably linked

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- the objective of non-proliferation – stopping the spread of nuclear weapons to further states – is not limited simply to preserving the status quo
- rather, it is to make an essential contribution to establishing the conditions under which nuclear disarmament can proceed.
- Nuclear disarmament requires a stable strategic environment where the nuclear-armed states have confidence, not only that the other nuclear-armed states will honour their treaty commitments, but that non-nuclear-weapon states (NNWS) will also do so – that no new nuclear-armed states will emerge
 - this is why the NPT (Article VI) places the obligation to pursue nuclear disarmament not only on the nuclear-weapon states (NWS), but on *all* Parties (i.e. including the NNWS).
- This paper outlines current non-proliferation issues and how these might impact on the prospects for nuclear disarmament
 - in particular, whether the "nuclear renaissance" presents new proliferation risks.

2. Non-proliferation Overview

- The non-proliferation regime has been remarkably successful
 - in the 1960s – before the NPT - 25-30 nuclear-armed states were predicted by the 1990s
 - the NPT helped to slow proliferation – today there are 9 nuclear-armed states
 - the 5 recognised NWS, plus India, Pakistan and DPRK, and Israel (which neither confirms nor denies its nuclear weapon status).
- Major successes have included:
 - South Africa dismantling its nuclear weapons and joining the NPT
 - Argentina and Brazil joining the NPT
 - Belarus, Kazakhstan and Ukraine – which had nuclear weapons on their territories on the dissolution of the USSR – joining the NPT
 - indefinite extension of the NPT in 1995 – and near-universalisation of membership
 - Libya's decision to renounce WMD.
- A number of factors have contributed to this overall success, including:
 - the political commitment by most states to honour their non-proliferation obligations
 - verification of treaty observance through IAEA safeguards ("trust but verify")
 - the limited availability for most states of fissile materials and the means to produce them (i.e. enrichment and reprocessing)

- until the 1990s, the stability of the Cold War period.
- But today there are major challenges:
 - a lessening of commitment to non-proliferation
 - shown by the non-compliance cases – Iraq, Romania, DPRK, Libya and Iran – and now, it appears, Syria
 - as well as political ambivalence by many governments – or at least their diplomats
 - benefits of non-proliferation not always recognised – too often seen as a "North-South" issue
 - the spread of sensitive nuclear technologies (enrichment and reprocessing)
 - particularly through an active black market – including even nuclear weapon designs
 - practical limits to the IAEA's verification capability – detecting undeclared nuclear programs presents a major challenge.
- For the future:
 - implications of nuclear expansion – will the non-proliferation regime be weakened?
 - further spread of enrichment and reprocessing
 - to date, proliferation has involved *undeclared* nuclear programs
 - but for the future, *declared* (and safeguarded) programs could be destabilising – providing rapid breakout capability
 - safeguards alone can provide only limited assurance of future intent
 - and a wider use of *plutonium recycle* could present major proliferation and terrorism problems if not properly addressed.
- Perhaps the greatest challenge today – with profound implications for the future – is how to deal with *treaty violations*:
 - Iran's violations of the NPT and its safeguards agreement, and its defiance of IAEA and Security Council resolutions, undermine the *rules-based* approach to international relations.
- If the international community is not prepared to take effective action to uphold treaty obligations the non-proliferation regime will have a limited future
 - the dire predictions of a large number of nuclear-armed states could eventuate after all
 - rather than nuclear disarmament, the world will be facing increasing proliferation and an ever-increasing risk of nuclear war.

3. Major non-proliferation issues

Commitment to non-proliferation

- The great majority of states are *NPT parties* who observe their non-proliferation commitments
 - in most cases this is deliberate policy – states have concluded that the pursuit of nuclear weapons will not further their national security, and that they derive positive benefit from the non-proliferation regime
 - but some states may be held back by lack of capability, the high costs of a nuclear weapon program, and deterrence.
- Amongst factors reinforcing commitment to non-proliferation is *deterrence* through effective verification and consequential compliance enforcement action
 - the greatest reinforcing factor – whose importance cannot be overstated – continues to be the difficulty of producing fissile material
 - while enrichment and reprocessing capability is limited to a relatively small number of states, this places a major barrier in the way of states considering proliferation.
- Commitment will be weakened if it is thought the non-proliferation regime is not working effectively. Examples could include:
 - verification failures – if IAEA safeguards fail to detect treaty violations
 - enforcement failures – if effective action is not taken to enforce compliance
 - spread of break-out capability – if enrichment and reprocessing capability become wide-spread, this will lead to the possibility of rapid breakout by a number of states.
- It has to be a serious concern that many developing countries are attacking the NPT on political grounds
 - partly on the basis of what they see as failure of the NWS to fulfill disarmament obligations; partly on the issue of right of access to technology
 - the perception of insufficient commitment to the NPT by NWS makes for a difficult political atmosphere
 - must be addressed more effectively – by better explaining what has been achieved, *and* by committing to further substantial reductions.
- It is wrong to see non-proliferation as a "North/South" issue – the NPT is not just a bargain between NWS and NNWS, it is just as important as a bargain amongst the NNWS themselves
 - the NPT is especially important to developing countries – the proliferation cases have come out of their ranks, proliferation presents a greater threat

to their security

- on technology, the dangers of the spread of proliferation-sensitive technology must be recognized
- need for a major diplomatic effort on these issues, encouraging governments to appreciate the benefits they gain from a strong non-proliferation regime.
- India "exception" to NSG rules is often cited as an example of double-standards, which weakens the NPT
 - India is a unique case – clearly not going to join the NPT in foreseeable circumstances
 - nor however has it violated NPT principles through proliferation to others
 - major nuclear energy user – benefits of bringing into mainstream
 - but essential to ensure it is clearly understood that a state leaving the NPT would not be given similar treatment.

Verification

- Verification by IAEA safeguards is an important part of reinforcing confidence and commitment – and deterring treaty violations
 - if there was no risk of detection – e.g. if verification was absent, as with the Biological Weapons Convention – a number of states may be tempted to develop nuclear weapon capability
 - in the absence of a verification system, uncertainty about the activities of other states would provide motivation to develop such capability.
- IAEA safeguards are highly effective with regard to *declared* nuclear programs
 - shown by the fact that the major proliferation challenges have come from clandestine, or undeclared, programs
 - action to improve the IAEA's detection capabilities for undeclared nuclear activities has been in train since the early 1990s
 - much achieved, but there have been serious failures (Iran, Syria) – more failures will impact on confidence
 - but must be recognized IAEA does not have the resources and skills of a major state – need for cooperative approach, especially information-sharing.
- How to improve detection capability, especially for centrifuge plants?
 - new detection technologies, more training and assistance for IAEA
 - wider information for the IAEA – introduce reporting requirements for dual-use items, export denials, etc – update the Additional Protocol Annexes

- consider whether more rigorous safeguards are needed – an "Additional Protocol Plus"?
- Major needs are:
 - to universalise the Additional Protocol
 - greater cooperation and transparency by states towards the IAEA
 - safeguards should not be seen as an imposition, but as a *partner* in helping the state demonstrate to the international community that it is fully compliant with non-proliferation commitments
 - better information-sharing by governments with the IAEA
 - need for the IAEA to be more proactive in using its authority.

Treaty violations/non-compliance

- Compliance/enforcement
 - better decision-making process in IAEA (greater consistency, transparency)
 - UNSC support for stronger verification (e.g. in non-compliance cases)
 - UNSC support for stronger sanctions.
- NPT withdrawals
 - how to discourage withdrawals, and how to deal with them if they occur
 - withdrawal must be seen as a potential threat to international peace and security – especially if the state has violated the Treaty
 - how to maintain non-proliferation/safeguards commitments on existing programs in case of withdrawal
 - it is a serious deficiency that currently NPT safeguards agreements *lapse* if the state withdraws from the NPT.
- Dealing with Iran
 - if Iran succeeds in acquiring nuclear weapons, others will seek the same
 - the non-proliferation regime will be in jeopardy
 - even if Iran stops at enrichment, the flow-on effect could be the same (others will see Iran having a breakout capability as presenting a serious threat).
- DPRK – need to counter any perception that DPRK has benefited (gained political stature and leverage) by having a nuclear capability
 - actually DPRK's leverage has been its potential to inflict major damage on Seoul.

4. Future developments

- Does the likely expansion of nuclear energy programs increase the risk of proliferation?
 - nuclear power in itself does not present a proliferation problem
 - proliferation risk arises only if the means to produce fissile material – enrichment and reprocessing – spread to further countries
 - this could provide a basis for undeclared programs
 - but declared programs also problematic – would provide rapid breakout capability, destabilising the non-proliferation regime.
- Proliferation risk can be minimised by developing a new institutional framework, complementing the NPT, and new, proliferation-resistant, technologies.

New framework for the nuclear industry

- Multilateralising proliferation-sensitive stages of the nuclear fuel cycle
 - need to move from national enrichment projects
 - to do so, necessary to address issues of security of supply and equity
 - fuel supply assurances, cradle-to-grave fuel management, etc for states that do not pursue national enrichment and/or reprocessing programs (this is an important element of GNEP)
 - equity – ensuring non-proliferation isn't used to justify commercial cartel
 - one way of addressing these issues is through international/regional fuel cycle centres, where participants have assured supply and share profits (pioneered by Russia's Angarsk project).

Technology development

- Reactors with long-life cores, refuelling by the supplier (or "nuclear batteries", i.e. transportable reactors that are replaced by the supplier when the fuel is consumed).
- Proliferation-resistant fuel cycle systems, especially for plutonium recycle
 - replacing reprocessing with new technologies such as pyro-processing
 - where plutonium is never separated, but remains mixed with highly radioactive fission products (thus self-protecting against diversion and theft)
 - replacing the traditional fast breeder reactor (where weapons grade plutonium is produced in a "breeding blanket" surrounding the core) with new fast reactor designs – where plutonium is produced in the core and always has an isotopic composition (high burn-up) not suited for weapons

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- these technologies also promise major advantages in radioactive waste management, substantially reducing the time high level waste must be isolated from the environment (from 10,000 years + to 300-500 years)
- these technologies are major focus for **Generation IV and GNEP**.

Confidence building measures

- Importance of measures to complement IAEA safeguards
 - commercialization and globalization can provide greater transparency in nuclear programs
 - moving from wholly national, especially government-run, programs to international cooperation
 - other national, bilateral and regional transparency mechanisms could have an important role.

5. Nuclear disarmament issues

- Nuclear disarmament depends on stable strategic environment – especially effective non-proliferation, and effective regimes against other WMD.
- Controls on the spread of proliferation-sensitive technologies especially important
 - and also more effective non-proliferation verification, transparency measures, etc.
- Need to draw *non-NPT states* into disarmament commitments and processes
 - starting with the *CTBT* – which will impose *qualitative* limit on development of nuclear weapons.
- Another major priority is to establish a *fissile material control regime*
 - capping production of fissile material for nuclear weapons, establishing a *quantitative limit* – as in the proposed Fissile Material Cut-off Treaty (FMCT) – and working towards bringing excess military stocks under irreversible peaceful use commitment
 - fissile material control will apply to recognised NWS – filling a gap in the NPT – and importantly will also draw in the non-NPT states.
- *Effective verification* will be an essential part of disarmament
 - the FMCT will introduce verification to the nuclear activities of the nuclear-armed states
 - already substantial work has been done by the US, Russia and the IAEA on verification of fissile material from nuclear weapon dismantlement ("Trilateral Initiative"), and there have been studies on verification of dismantlement itself

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- developing effective verification against incomplete declarations – the possibility of undeclared nuclear weapons – will be a major challenge
 - this will be of vital importance as nuclear weapon numbers diminish.
- Nuclear disarmament involves much more than developing the verification and other technical approaches needed to provide confidence in the process
 - it is essential to address the underlying security concerns that led states to develop nuclear weapons
 - the NPT recognizes this by calling for negotiation of a general disarmament treaty
 - probably necessary to find case-by case solutions
 - it is not the purpose of this paper to discuss these broader disarmament issues – but a serious commitment to the principles of *collective security* will surely be an essential step in the path towards a world free of nuclear weapons.

6. International Commission on Nuclear Non-Proliferation and Disarmament

- Australia and Japan have established an International Commission to make recommendations on these issues
 - chaired by former Foreign Ministers Mr Gareth Evans and Ms Yoriko Kawaguchi
 - initial report to be in time for 2010 NPT Review Conference
 - Commissioners to be announced shortly.

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