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**Nuclear Non-Proliferation Trends in the Asia-Pacific: The Dilemmas of Regime Stasis,
Strategic Flux and Market Expansion**

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The global nuclear non-proliferation picture is in a state of flux characterised by the push and pull of positive and negative dynamics. On the positive side, there has been something of a 'sea-change' in the attitudes of the world's pre-eminent power, the United States, towards central elements of the arms control and non-proliferation architecture since the election of Barack Obama in November 2008. This has included a commitment to move toward eventual nuclear disarmament and the negotiation of a new Strategic Arms Reduction Treaty (New START) with Russia. This has taken place in a broader environment in which nuclear proliferation remains a major security concern in the Middle East and North-East Asia and the effectiveness of the international non-proliferation regime, based on the NPT, remains in question. Heightened concern regarding the security implications of climate change has also lead to a rise in the profile of nuclear energy as a potential low-carbon emission energy source. International nuclear affairs are therefore characterised by three major dynamics: a state of flux in the global strategic nuclear environment; the stasis of the international non-proliferation regime; and increasing global demand for nuclear energy.

The tensions within and between these three realms are especially prevalent in the Asia-Pacific context. Globally the NPT system is confronted by a series of challenges that have weakened both its effectiveness and its legitimacy – including the failure of the nuclear weapons states to move toward nuclear disarmament and ongoing proliferation activities of member states such as Iran. In the strategic realm, the region is increasingly defined by

multiplayer asymmetries between the nuclear weapons states. The region's nuclear weapons states not only have vastly different nuclear capabilities but also operate within varied regional security environments. Combined with recent US-Russian nuclear arms reductions, continued uncertainty regarding the effectiveness of ballistic missile defences (BMD), and the continued proliferation activities of North Korea, the region is arguably entering a new era in which there remain significant incentives for further vertical and horizontal nuclear proliferation. Finally, the market realm of the nuclear equation in Asia is increasingly defined by an expansion in demand for nuclear energy. The potential spread of nuclear materials/technologies that this would entail is cause for concern in a region characterised by changing strategic dynamics.

The Deconstruction of the Non-Proliferation Consensus

The non-proliferation regime based on the Nuclear Non-Proliferation Treaty (NPT) concluded in 1968 has been seen as establishing a robust norm of nuclear non-proliferation. This norm has been founded on three main 'pillars' encapsulated in the NPT's six major articles – a non-proliferation commitment by both nuclear weapon states (NWS) and non-nuclear weapons states (NNWS) parties to the treaty (Articles I, II and III), a commitment to foster peaceful nuclear cooperation (Articles IV and V) and commitment to nuclear disarmament (Article VI) (IAEA 1970). The basic bargain at the heart of the NPT is one based on the 'anticipation of reciprocity' between the parties to it – i.e. in return for a commitment from the NNWS to not acquire nuclear weapons the NWS committed themselves to aid the NNWS in acquiring the 'peaceful benefits' of the nuclear age and to restrain, and ultimately end, their vertical proliferation (Smith 1987).

Since the indefinite extension of the NPT in 1995 it has become clear that this central bargain is breaking down. This has largely been due to the inherent tension between the logics of the NWS and NNWS regarding the purpose of the NPT. For the NWS, it is further horizontal proliferation that is to be contained by the NPT, while for the NNWS it is nuclear weapons themselves that are the problem to be contained through nuclear disarmament measures. Although the Article VI disarmament obligation was considered a central element of the political bargain that the NNWS parties made with the NWS to forgo nuclear weapons, the treaty's inequality throughout the Cold War was justified under the heightened tensions of the US-Soviet arms race (Nye 1985; Harrison 2006). The non-proliferation purpose of the treaty was also served by the superpowers' provision of extended nuclear deterrence to alliance partners and their attempts to manage nuclear proliferation within their spheres of influence (Smith 1987). With the end of such systemic constraints in 1991 the NNWS have argued that the articles of the NPT make it clear that the possession of nuclear weapons by the five NWS is a temporary situation, with non-proliferation (Articles II, III) and nuclear disarmament (Article VI) seen as complementary goals. From this perspective nuclear disarmament tempers the discriminatory effects of the non-proliferation pillar and enhances the legitimacy of the regime by 'creating the expectation that the special rights of the nuclear weapons states will end at some point in the future' (Rathbun 2006: 233).

Since 1991 various factors have intervened to bring the tension between the non-proliferation and disarmament pillars of the regime to the fore. For the US the non-compliance of NNWS parties to the NPT such as Iraq, North Korea, Iran, Libya and Syria, the nuclear 'break-outs' of treaty outliers India and Pakistan, the events of 9/11 and the exposure of the proliferation network of A. Q. Khan over the past two decades contributed to an increasing emphasis on strengthening the non-proliferation pillar of the NPT, the development of counter-

proliferation initiatives and the continued salience of the nuclear arsenal as a key plank of US national security policy (Carranza 2006). Additionally the US approach to proliferation also came to be based upon a series of judgements that nuclear proliferation was inevitable, there were 'good' and 'bad' proliferators, multilateral non-proliferation instruments were ineffectual, and US regional security and economic interests trumped non-proliferation (Joseph 2005: 379-80).

Such judgements contributed to the US abrogation of the ABM Treaty in 2002 and underpinned the US-India nuclear cooperation agreement of March 2005, the latter of which was perceived as implying that Washington no longer supported the universal application of non-proliferation standards by approving outsiders who are judged to be 'good' proliferators on normative or strategic grounds (Potter 2005). It was also increasingly clear that some NNWS parties to the Treaty had utilised Article IV to obtain the expertise and capacity to pursue nuclear weapons programs, violating their Article III obligations to forgo nuclear weapons and their agreements with the IAEA to place their nuclear materials and technology under international supervision. Such dynamics came to a head in 2005 to produce the worst NPT RevCon for many years in which the conflicting imperatives of the NWS and key NNWS, such as members of the Non-Aligned Movement (NAM), contributed to the failure to achieve a consensus approach to the prominent cases of non-compliance by NPT members (e.g. Iran) and a lack of progress on nuclear disarmament (Simpson and Nielsen 2005).

The May 2010 RevCon took place in much more favourable 'atmospheric' conditions due to President Obama's commitment in April 2009 to achieving the entry into force of the CTBT, the negotiation of a verifiable FMCT, and the negotiation of a new START agreement with Russia (White House 2009). Despite these favourable conditions the 2010 RevCon arguably

made minimal progress on some of the key areas of tension between the NWS and NNWS. On the disarmament front, while the conclusion of New START was viewed positively, the majority of NNWS nonetheless perceived it as insufficient with elements of the NAM advocating for a legally binding and explicit timetable for nuclear disarmament. Predictably, this was resisted by the NWS, as were efforts to declare a moratorium on the upgrading and developing new types of nuclear weapons. While the US, Russia and China also all reaffirmed their commitment to disarmament at the RevCon, China stated that it would not join US-Russian reductions until their arsenals fell to Chinese levels – an unlikely development given the provisions of New START outlined earlier. China also blocked a proposal that called on the five recognized NWS to halt production of high enriched uranium and plutonium pending the conclusion of a FMCT (Potter, Lewis, Mukhatzhanova and Pomper 2010: 8-9).

The RevCon also saw the re-emergence of long-standing tensions between not only the NWS and NNWS but also western and non-western member states over the issues of compliance and non-proliferation. Contentious issues here included the status of the IAEA's Additional Protocol (AP), export controls, conditions for supply of nuclear materials/technologies and the US-India nuclear deal. The NWS and most western NNWS sought to make the AP the verification standard under the NPT, a precondition for the supply of nuclear materials/technologies and encourage members of the Nuclear Suppliers Group (NSG) to do likewise. NAM states objected to making the AP a pre-condition for the supply of nuclear materials/technologies, arguing that the export control regime has a double-standard given the exemption granted by the NSG to India in 2008. For these states the US-India deal contradicted a decision of the 1995 RevCon that required 'full scope safeguards' as a precondition to new nuclear supply arrangements. The US was that the 1995 decision was a

political and not a legal obligation and therefore it would not be revisiting its deal with India, an argument that ‘was viewed by many as suggesting that states can pick and choose to implement whatever elements of NPT RevCon decisions they care to while disavowing others that no longer strike their fancy—an approach that makes it very difficult to hold states to their NPT obligations’ (Potter, Lewis, Mukhatzhanova and Pomper 2010: 15). As controversy over China’s proposed sale of nuclear reactors to non-NPT member Pakistan testifies, the precedent of the US-India nuclear agreement is making it difficult for Washington to dissuade other NSG members from attempting to cut deals with other non-NPT states (Hibbs 2010).

Nuclear Asia: Asymmetries and Uncertainties

During the Cold War Asia was something of an afterthought with respect to nuclear issues as it was ‘dominated by the ideological and strategic confrontation between the United States and the Soviet Union’ (Alagappa 2008: 37). While there came to be Asian nuclear weapons states (e.g. China), they remained embedded in a strategic nuclear landscape shaped by the superpowers. If the strategic realm during the Cold War was shaped by US and the Soviet Union, that of the post-Cold War era is arguably being decided in Asia. A defining feature of the emerging Asian nuclear order is that at the basic level of arsenal size the region’s current nuclear powers - US, Russia, China, India, Pakistan, and North Korea – are radically unequal (Lyon 2009: 15). This asymmetry is not simply limited to the nuclear sphere but extends to conventional military capabilities and arguably to other areas of national power such as economic and diplomatic power (Bitzinger 2009).

Michael Krepon has argued that Asia's nuclear relationships can be understood as two triangles – a US-Russia-China triangle and an India-Pakistan-China triangle (Krepon 2009: 99). Yet these triangles also inextricably involve a number of important non-nuclear weapons states and one could add two further triangles - US-China-Japan and US-China-Taiwan - and a US-China-North Korea-South Korea quadrilateral to Asia's nuclear equation. Significantly, China and the US are central to all of these relationships. The direction of this relationship will be a crucial element in shaping the Asian nuclear order as developments within it will have major spill-over effects for the others. For example, if China continues to modernise and expand its nuclear arsenal in order to counter perceived advantages of US prompt global strike (PGS) capabilities and BMD, it inevitably will impact on the South Asian nuclear equation as India will seek to counter Chinese force modernisation with its own. This in turn will likely compel Pakistan to keep pace with New Delhi. Given Beijing's long-standing policy of supporting Pakistan to balance against Indian predominance on the subcontinent, such a dynamic could also potentially result in further Chinese aid to Islamabad and heighten tension between Beijing and New Delhi (Scott 2008: 252-54).

Therefore the Asian strategic environment is characterised by shifting relativities of power amongst its major powers, nuclear (and conventional) asymmetries between its major powers and a dynamic of interconnectivity across key strategic relationships. In this environment the relative shifting of nuclear arsenal sizes and capabilities amongst Asia's nuclear powers may be of increasing importance. In May 2010 the US had approximately 1,968 deployed strategic warheads, while Russia had approximately 2,600. In contrast the three other major Asian nuclear powers have much smaller arsenals of deployed strategic warheads with China estimated to have between 180 and 400, Pakistan between 70 and 90, and India between 60 and 80. The extent of North Korea's nuclear arsenal remains uncertain with most estimates

suggesting between 0 and 10, although there is no publicly available evidence that these have been operationalized (FAS 2010).

Even with the provisions of New START, signed by Presidents Obama and Medvedev in Moscow on 8 April 2010, US and Russian nuclear arsenals will remain quantitatively and qualitatively well beyond the arsenals of the other Asian nuclear powers. While New START commits the US and Russia to reduce their deployed arsenals to 1,550 strategic warheads by 2017, the treaty's accounting rules mean that reductions may actually be much less than claimed. For example, heavy bombers – one key leg of the US nuclear triad – will be counted as one warhead despite the fact that such bombers often carry multiple nuclear-armed missiles or bombs. The treaty's accounting rules also permit both a significant 'upload' capacity by omitting the US's arsenal of 'reserve' warheads awaiting dismantlement and Russia's 'several thousand' tactical nuclear weapons (Chalmers 2010: 28). The reductions of New START have also been portrayed as practical evidence of US and Russian commitment to their nuclear disarmament obligations under the NPT. It is unlikely that such modest reductions will convince the other major Asian nuclear weapons states to exercise restraint in developing their respective nuclear capabilities in a changing strategic environment. China, for example, has characterised them as 'comparatively moderate' and urged Washington and Moscow to make further significant cuts before it joins any 'multilateral disarmament process' (Fan 2010).

Three major aspects of the 2010 US Nuclear Posture Review (NPR) also make it unlikely that Asia's nuclear weapons states will act with restraint. First, it was hoped by some that the 2010 NPR would signal a major shift in US declaratory policy and nuclear posture by assigning to the US' nuclear arsenal the 'sole purpose' of deterring a nuclear attack by a

hostile nuclear weapons state and making a 'no first use' declaration (i.e. stating that nuclear weapons would only be used in response to a nuclear attack by others) (Cossa 2010). However it only signalled that it would move in this direction at some undisclosed point in the future by stating that the US would, 'continue to strengthen conventional capabilities and reduce the role of nuclear weapons in deterring non-nuclear attacks with the objective of making deterrence of nuclear attack on the United States...the sole purpose of US nuclear weapons' (US Department of Defense 2010: viii-ix).

Second, with respect to the issue of when the US would contemplate nuclear use the 2010 NPR stated that the US would only consider it 'in extreme circumstances' and would 'not use or threaten to use nuclear weapons against non-nuclear weapons states that are *party to the NPT* and in *compliance* with their nuclear non-proliferation obligations' (US Department of Defense 2010: ix. Emphasis added). The effect of this statement is threefold. First, the US still threatens to use nuclear weapons against nuclear weapons states that are party to the NPT (e.g. China, Russia) if they were to attack with nuclear, biological or chemical weapons. Second, it implies that the US reserves the right to use nuclear weapons against states that are not party to the NPT, and explicitly disavows its negative security assurance to those that are in violation of the treaty. Third, as the new policy does not explicitly identify what it means for a state to be 'in compliance' with the NPT, the administration is reserving the right to determine for itself what constitutes 'compliance' (Feaver 2010). In sum, the administration has marginally shrunk the nuclear 'umbrella' by ruling out one particular scenario in which nuclear use would be contemplated while attempting to reward 'compliance' with NPT obligations with a negative security assurance. It is unlikely that such assurances will sway current proliferators who either remain outside the NPT (e.g. North Korea) or who are not abiding by their NPT obligations (e.g. Iran) to reign in their respective nuclear activities.

Third, the 2010 NPR also identified the maintenance of 'strategic deterrence and stability at reduced nuclear force levels' and the 'strengthening of regional deterrence and reassurance of US allies' as core objectives. To maintain 'strategic deterrence and stability at reduced nuclear force levels' the NPR reasserts the US' retention of the traditional triad of SLBMs, ICBMs and heavy bombers and contemplates the 'possible addition of non-nuclear prompt-global strike capabilities' (i.e. conventionally armed ICBMs or SLBMs) (US Department of Defense 2010: 20). The retention of these capabilities is clearly linked to concerns regarding the continued nuclear modernization efforts and strategic doctrines of both Russia and China (US Department of Defense 2010: 5). Not coincidentally the NPR also notes as some of its alliance partners 'feel the pressures of neighboring major powers asserting stronger regional roles', the US will continue to assure these partners through 'the continued forward deployment of US forces in key regions, strengthening US and allied non-nuclear capabilities and the continued provision of extended deterrence' (US Department of Defense 2010: 31). Key elements of this are the continued development of US PGS and BMD capabilities in partnership with US allies and the continued provision of extended nuclear deterrence to allies (US Department of Defense 2010: 32-34).

This is clearly designed to allay the fears of allies that the administration's stated goal of reducing the role of nuclear weapons in US national security strategy will result in the erosion of the credibility of US security commitments. The continued development of such capabilities as BMD are potentially threatening for Beijing as they could negate its 'minimum deterrent' nuclear posture (Lewis 2007). This could in turn spur further Chinese modernization efforts and contribute to the destabilisation of the Sino-US strategic relationship (White 2007). However, it is also important not to overstate the impacts of the

NPR on Asia's nuclear weapons states. Jeffrey Lewis, for example, has argued that China's nuclear force modernization is the culmination of a decades-long attempt to acquire the nuclear capabilities deployed by other nuclear weapons states. He therefore cautions against the view that sees contemporary changes in China's nuclear posture and force modernization as a 'mechanistic response to changes in US strategic capabilities' (Lewis 2009: 204-05).

It is also clear that some of Asia's other nuclear relationships have their own specific dynamics not directly related to the question of US nuclear hegemony. Most significant here is the question of South Asia's nuclear equation. As noted above, this equation is a triangular one involving not only India and Pakistan but also China. While the India-Pakistan nuclear relationship has arguably stabilised over the last decade, there are concerns that a Sino-Indian strategic competition is emerging. The scope for Sino-Indian strategic competition and/or tensions is considerable given the existence of long-standing territorial disputes, conventional and nuclear imbalances, China's close military and nuclear ties to Pakistan, and New Delhi's close post-2005 alignment with the US (Sinha 2006). Indeed, Beijing's recent manoeuvring to conclude a nuclear cooperation deal with Islamabad has been seen as part of a Chinese attempt to 'contain' India's rising strategic profile (Griffin 2006; Times of India 2010).

Asia's 'Nuclear Renaissance' and the Dilemma of Spreading Nuclear Latency

The market realm of the nuclear equation in Asia is increasingly defined by an expansion in demand for nuclear energy. This expansion is often held to have been driven in equal measure by imperatives for energy security and growing concerns about climate change. The key driver however is a quest for energy security with concerns regarding climate change firmly relegated to the 'back seat'. Nevertheless the potential 'renaissance' of nuclear energy

in a region characterised by changing strategic dynamics also presents major proliferation challenges. Before examining why this may be the case, it is first necessary to briefly note the scale and scope of the expansion in demand for nuclear energy in Asia.

Although there has been much talk about a ‘nuclear renaissance’ it is important to differentiate between the potential growth of nuclear energy production in states with existing nuclear power facilities/infrastructure and the potential spread of such technologies to states currently without them (Miller and Sagan 2009: 9). If one were to look at simple metrics such as nuclear power’s share of global electricity generation and the number of operating reactors one would conclude that the global nuclear energy industry was static rather than expanding as it has consistently accounted for 15-16% of global electricity generation since the 1980s, while the number of operating reactors has hovered around the 400 mark for the same period (Kidd 2009: 199).

If we instead focus on the issues of growth in nuclear power in states with existing nuclear energy generation capacity and the spread of nuclear technologies to states currently without it, then it is possible to judge that much of the current expansion is occurring in states with established nuclear power generation capacity. However, there are a number of nuclear power aspirants in the region. Globally, there are currently 31 states operating 440 nuclear power reactors. In Asia, as noted in Table 1, there are currently six states who account for 112 operational nuclear power reactors – China (11), Japan (54), South Korea (20), Taiwan (6), India (19), and Pakistan (2). Of these seven Asian states China, South Korea, Taiwan, and India have begun construction of a significant number of new reactors, while China and India clearly plan the biggest expansion.

Table 1 Source: World Nuclear Association, ‘Asia’s Nuclear Energy Growth’, April 2010, <http://www.world-nuclear.org/info/inf47.html>

Country	Operational Reactors	Reactors Under Construction	Planned Reactors	Proposed
Pakistan	2	1	2	2
India	19	4	20	24
Taiwan	6	2	0	6
South Korea	20	6	6	0
Japan	54	2	12	1
China	11	22	35	120

Additionally, a further 22 states throughout Asia have expressed an interest to the IAEA in developing a nuclear power generation capacity. This group of states includes twelve in the Middle East, two in South Asia and eight in South-East Asia. In the Middle East the states with the most advanced proposals are the United Arab Emirates, Turkey, Egypt and Bahrain. In South East Asia, Indonesia, Thailand and Vietnam have begun planning for two nuclear reactors each by 2020, plans that the IAEA has confirmed are well-advanced (Miller and Sagan 2009: 10; World Nuclear Association 2010).

Although the proposed expansion of nuclear power reactors is relatively modest, it nonetheless raises a number of dilemmas for international security. A number of observers have noted that with respect to the issues of safety and security of this nuclear expansion it will matter a great deal which states will acquire which technologies (Findlay 2010: 20-21).

Three major reasons for concern in this respect are commonly noted: levels of domestic governance; the record of compliance (or non-compliance) of NNWS with NPT obligations; and level of terrorist threat to potential new nuclear energy states. All of these issues are of concern with respect to the Asian states that are contemplating expanding existing nuclear power generation capabilities and for those aspiring to nuclear energy programs. The issues of domestic levels of governance and record of compliance with NPT obligations are clearly linked, with Miller and Sagan noting that ‘each known or suspected case of a government starting a secret nuclear weapons program, while it was a member of the NPT and thus violating its Article II NPT commitment, was undertaken by a non-democratic government’ (Miller and Sagan 2009: 11).

There also exists the issue of the spread of ‘nuclear latency’ throughout the region as recent research suggests that civilian nuclear cooperation raises the potential for the proliferation of nuclear weapons (Kroenig 2009; Furhmann 2009). Civilian nuclear cooperation, according to this view, raises the potential for proliferation for two major reasons: all materials and technologies related to nuclear weapons production have legitimate civilian applications and civilian nuclear cooperation increases the nuclear-related knowledge-base of the recipient state (Furhmann 2009: 12). Although not every state that receives civilian nuclear cooperation acquires nuclear weapons Furhmann argues that security threats combined with civilian nuclear cooperation ‘are a recipe for nuclear acquisition’ (Furhmann 2009: 15).

This should be cause for some concern in a region characterised by a shifting balance of power amongst its great powers and pointed nuclear and conventional military asymmetries. In this sense the dilemma posed by the spread of nuclear latency in Asia is that while it does not pose an immediate proliferation problem it could well in the future as the strategic

environment changes. A state such as Indonesia, for example, if it succeeds in developing its own nuclear energy program, would then have the capacity to initiate a weapons program if its perception of its security environment dramatically changed. This does not suggest that the spread of nuclear materials and technologies will inevitably lead to proliferation but rather that such a spread may become an enabling factor to weapons acquisition. Key to limiting this 'enabling' aspect of Asian nuclear expansion will be to control sensitive nuclear fuel cycle technologies (i.e. uranium conversion, uranium enrichment and reprocessing) and assure nuclear fuel supply guarantees (Goldschmidt 2008: 3-4). In the former respect it is notable that the AP is not in force in India, Pakistan, Vietnam, Thailand or Malaysia – all states that are either expanding existing nuclear power generation capabilities or seeking to develop them (IAEA 2010).

Conclusion

The nuclear picture in Asia is therefore decidedly mixed. In terms of the strategic situation, the region is arguably in a state of flux characterised by a changing balance of power between the region's great powers and nuclear and conventional military asymmetries within key regional strategic relationships. Additionally, developments within these key strategic relationships, especially the Sino-US one, have the potential to have important spill-over effects on other regional relationships. On the NPT side of the equation we have seen that the regime remains characterised by long-standing tensions within and between the NWS and NNWS parties to the treaty. In particular, the division between those states seeking to emphasise the non-proliferation elements of the regime and those seeking to privilege the nuclear disarmament element continues to muddy the waters with respect to addressing the issues of sanctioning non-compliance and tightening conditions for nuclear cooperation. The modest expansion of demand for nuclear energy in Asia raises the potential not only for

security and safety threats stemming from issues of governance and compliance but also the dilemma of spreading nuclear materials and technology in a region whose strategic environment that could change significantly in the immediate future.

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