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The Second Nuclear Age: Proliferation Pessimism versus Sober Optimism in South Asia and East Asia

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There is probably no place else in the world today where proliferation concerns are more acute than in Asia.[1] Actors in the region either possess or have exhibited clear desires for developing nuclear weapons capabilities. These programs are being cultivated in the context of intense rivalries over power and territory, and embedded, in many cases, in a cauldron of unresolved historical hatreds. There are no regional arms control regimes, and participation in global ones is sporadic. The danger with regard to these programs is exacerbated by their lack of transparency, their illiberal political sponsors (in some cases), and their profiles as small, unsafeguarded programs. For 'proliferation pessimists', Asia therefore represents the worst of two worlds: small nuclear powers operating under conditions of security-scarcity, where fierce animosities and rivalries do not bode well for rational or stable deterrence.

How accurate is this assessment? Is the first use, intentional or accidental, of a nuclear weapon since 1945 fated to be in Asia? More broadly, how should we be thinking about proliferation and the 'second' nuclear age in East Asia and South Asia in the twenty-first century? What are the prospects, if any, for regional arms control? If these prospects are poor, what is to be the ultimate form of order with regard to nuclear proliferation in the region?

This contribution makes two arguments with regard to the causes and consequences of the second nuclear age in Asia. Regarding causes of proliferation, I argue that these are *overdetermined* in Asia. As was the case in the first nuclear age, proliferation derives largely from the intersection of security-scarcity and resource constraints. However, in addition to these

basic security drivers, there are a plethora of secondary drivers ranging from domestic forces, political currency (insurance and bargaining), prestige, and a healthy dose of skepticism regarding first world hypocrisy that explain the region's proliferation. The combination of these primary and secondary drivers not only ensures that proliferation is overdetermined in Asia, but also means that rollback of these capabilities, though desirable, is not likely.

The second part of the study addresses the consequences of proliferation. Contrary to the pessimistic assessment regarding the causes of proliferation, I make a case for 'sober optimism' regarding the prospects for stability. Asian nuclear and missile proliferation are certainly dangerous but not nearly as disastrous as has been popularly predicted. Swaggering, competitive testing, crises, accidents, and outright conflicts may certainly occur, but there is no reason to expect that the likelihood of this behavior escalating to a nuclear exchange is any more probable than was the case for the first nuclear age. Deterrence (albeit in a different form than the superpower experience) is likely to continue, augmented by an appreciation of the taboo on nuclear first-use.

An argument for 'sober optimism' with regard to Asian proliferation is *not* meant as an argument against nonproliferation. Stemming the spread and appeal of nuclear weapons and missile technology to 'rogue regimes' as well as to other potential proliferators remains extremely important. However, I argue that there is no necessary connection between an enthusiasm for nonproliferation and pessimistic assessments of proliferation consequences for the region. The two have been conjoined in almost stereotypical depictions of the agents of second nuclear age as irrational, maniacal, and irresponsible. In some cases such a characterization may be true, but I argue that there is no reason *a priori* to assume this as a hard and fast rule for the entire region. In short, one can still be an advocate of nonproliferation and remain soberly optimistic that the consequences of proliferation (should it occur) for the region are not unequivocally disastrous. Moreover, given the understanding of what drives proliferation behavior in the region, some specific recommendations emerge for the nonproliferation effort. I open with a brief empirical overview, followed by the arguments regarding the causes and consequences of proliferation in the region. I conclude with a short discussion on the role current and new nonproliferation institutions can play in reinforcing and enhancing the non-use outcome in Asia.

THE SECOND NUCLEAR AGE IN ASIA

The second nuclear age is substantively different from the first. In the first nuclear age, whether this term referred to the United States and the Soviet Union or the next tier of nuclear powers (Britain, France, China), there were fewer agents and, generally speaking, greater uniformity among them.[2] By contrast, the second nuclear age is like comparing apples and oranges. Not only are the levels of proliferation greatly varied, but they differ on a whole range of dimensions. China, the South Asian states, the two Koreas, Japan and Taiwan display a range of extant and recessed nuclear and ballistic missile (BM) capabilities that vary in terms of quantity and quality of systems, accuracy, range, infrastructure, and transparency. These capabilities are accompanied by varied degrees of commitments to nonproliferation regimes; moreover, they operate or are cultivated in an international structure no longer defined by bipolarity and one in which fears of abandonment, local threats, and uncertainty are brought into higher relief. A brief empirical overview makes clear these differences.

China possesses the most advanced nuclear weapons and ballistic missile programs in Asia. Its ballistic missile (BM) infrastructure offers a wide variety of land and sea-based systems (see Table 1 for details).[3] China's nuclear arsenal consists of 400–450 devices. Beijing relies largely on the land-based leg of the triad, reserving nearly 250 of these 'strategic' warheads for medium and long-range strike missions mated with the BM program.[4] Chinese efforts to modernize this arsenal were manifest in a series of tests completed in 1996, the information of which enabled finalizing weapons designs (China has conducted 45 tests over 33 years against 1,030 by the United States).[5] China is not currently producing more fissile materials for nuclear weapons but has a stockpile sufficient to increase or improve its weapon inventory. In addition, it is in the midst of a wide-ranging modernization program that aims to improve range, payload and accuracy of delivery vehicles (through development of solid propellants, improved rocket motors, and targeting technologies) to replace older DF systems deployed in the 1970s and the 1980s (see Table 1). Improvements are also being sought regarding the survivability of its nuclear and BM forces, command, control and communication capabilities, stealth technologies, as well as countermeasures to ballistic missile defense (decoy warheads, multiple reentry vehicles, electronic and infrared jammers).

At the next tier in terms of demonstrated capabilities are India and Pakistan. The South Asian rivals have two of the more advanced ballistic missile programs in the developing world. India's program, in particular, is

TABLE 1
THE SECOND NUCLEAR AGE

Country	Ballistic missiles	Range (km) Payload (km)	Nuclear	Comments
China	Dong Feng-3/3A (CSS-2)	2800 km 2150 kg	Nuclear warhead 1–5 MT	1-stage, liquid propellant; surface–surface. 50–120 missiles. Deployed 1971
	DF-4 (CSS-3)	4750 km 2200 kg	Nuclear warhead 1–5 MT	2-stage, 20–30 missiles. Deployed 1980
	DF-5/5A (CSS-4)	12,000–15,000 km 3200 kg	Nuclear warhead 1–5 MT	2-stage. Storable liquid fuel. 7–20+ missiles. Deployed 1981. Possible MRV
	DF-21/21A (CSS-6)	1800 km 600 kg	Nuclear warhead 200–300 KT	2-stage. Solid propellant. Replacing DF-3. 10–36+ missiles. Deployed 1986
	DF-15/M-9 (CSS-6)	600 km 950 kg	Nuclear warhead 50–350 KT	1-stage. Solid fuel. Dual capable. M-9 version for export. 100+ deployed (1995)
	DF-11/M-11/RDF- 11S (CSS-X-7)	300 km 500 kg	Nuclear warhead 50–350 KT	2-stage solid fuel. Dual capable. M-11 version designed for export. 40+ (1995)
	M-7/8610 (CSS-8)	160 km 190 kg	Conventional warhead	2-stage. Solid fuel
	DF-31	8000 km 700 kg	Nuclear warhead 200–300 Kt	Tested 1999, under development; 3-stage, solid propellant; to be deployed 2000 to replace DF-4; possibly MIRV/MRV

TABLE 1 (Contd)

Country	Ballistic missiles	Range (km) Payload (km)	Nuclear	Comments
DF-41	12,000 km	Nuclear warhead 800 kg	In development, will replace 200–300 KT	DF-5 2010; 3-stage solid propellant. Possibly MIRV
	JL-1 (CSS-N-3)	1700 km 600 kg	Nuclear warhead 200–300 KT	2-stage SLBM; solid fuel. 12–24 missiles. Deployed 1986
	JL-2 (CSS-NX-4)	8000 km 700 kg	Nuclear warhead 200–300 KT	3-stage SLBM; solid fuel, same as DF-31; under development
India	Prithvi-150	150 km 1000 kg	1974 PNE May 1998 tests	Operational, from Russian SA-2
	Prithvi-250	250 km 200 kg		Operational, from Russian SA-2
	Prithvi-350	350 km 500 kg		In development, from Russian SA-2
	Dhanush	250 km 500 kg		In development, from Prithvi
	Sagarika	300 km 500 kg		In development, from Prithvi
	Agni	1500 km 1000 kg		Tested 18 Feb. 1994, from Scout
	Agni-2	2000 km 1000 kg		Tested 11 April 1999, from Scout

TABLE 1 (Contd)

Country	Ballistic missiles	Range (km) Payload (km)	Nuclear	Comments
	Surya	1200 km ? kg		In development, from Polar Satellite Launch Vehicle and Agni-2
Pakistan	M-11	280 km 800 kg	May 1998 tests	In storage
	Hatf-1	80 km 500 kg		Operational
	Hatf-1A	100 km 500 kg		Operational
	Hatf-2	300 km 500 kg		In development, M-11 derivative?
	Hatf-3	600 km 500 kg		In development, M-9 derivative?
	Ghauri	1300 km 500–750 kg		Tested 6 April 1998, from Nodong
	Ghauri-2	2000 km 100 kg		Tested 14 April 1999, from Nodong
	Ghauri-3	3700 km 3500 kg		Engines tested 23 July 1999 and 29 Sept. 1999
	Shaheen-2	2500 km 1000 kg		Mobile, 2-stage, solid fuel, in development, from Nodong-2, unveiled at April 2000 Pakistan day parade. 'To be tested shortly'

TABLE 1 (Contd)

Country	Ballistic missiles	Range (km) Payload (km)	Nuclear	Comments
North Korea	Scud-B	300 km 1000 kg	weapons-grade *plutonium* reprocessing capabilities.	Operational, in production
	Scud-C	500 km 700 kg		Operational, in production
	Nodong-1	1000 km 700–1000 kg	2 LWRs (1994 Agreed Framework)	In development, tested
	Nodong-2	1500 km 770 kg		In development
	Taepodong-1	1500–2000 km 1000 kg		Tested 31 Aug. 1998, Combined Nodong and Scud
	Taepodong-2	3500–6000 km 1000 kg		In development
South Korea	Nike-Hercules-1	180 km 300 kg	Civilian nuclear energy	Operational, modified SAM
	Nike-Hercules-2	250 km 300 kg	Reprocessing capability	In development, modified SAM
Taiwan	Ching Feng	130 km 400 kg	Civilian nuclear energy	Operational, from Lance, from Green Bee
	Tien Ma	950 km 500 kg		In development, from Sky Horse

TABLE 1 (Contd)

Country	Ballistic missiles	Range (km) Payload (km)	Nuclear	Comments
	Tien Chi	300 km 500 kg		In development, modified SAM
Japan	M-3 (SLV)	4000 km 500 kg	Civilian nuclear energy	Capability
	H-1 (SLV)	12,000 km 550+ kg	Reprocessing	Capability
	H-2 (SLV)	15,000 km 4000 kg		Capability (program cancelled?)

Source: Compiled from Center for Nonproliferation Studies >http://cns.miis.edu/cns/projects/eanp/pubs/chinanuc/bmsl.htm<; >http://cns.miis.edu/cns/projects/eanp/pubs/chinanuc/nstock.htm<; Joseph Cirincione, 'Assessing the Assessment: The 1999 National Intelligence Estimate of the Ballistic Missile Threat', *Nonproliferation Review* (Spring 2000); William Carpenter and David Wiencek (eds.) *Asian Security Handbook* (NY: M.E. Sharpe 1996) p.67; *Jane's Defense Weekly*; and Robert Manning, Ronald Montaperto and Brad Roberts, *China, Nuclear Weapons, and Arms Control* (NY: Council on Foreign Relations 2000) pp.22–3.

capable of design and production of relatively advanced missiles (i.e., solid propellants, multi-stage, mobile, medium-range distances) with little foreign assistance.[6] Pakistan's missile program, although not as self-sufficient or deep in variety and range of missiles as India's, remains competitive in shorter-range missiles.[7] The object of much attention since the 1998 tests, India and Pakistan's nuclear programs mirror their missile programs in terms of levels of relative development. India's very active nuclear energy program has endowed them with the facilities to support a complete nuclear fuel cycle. The majority of Indian nuclear reactors are under International Atomic Energy Agency (IAEA) safeguards, however, those that are not have been the producers of weapons-grade plutonium and enriched uranium for weapons use (e.g., Bhabha Atomic Research Center). The nuclear weapons program started in the early 1960s, and after the 1974 peaceful nuclear explosion (PNE), India remained an undeclared nuclear power, its operational weapons capability limited to oversized bombs deliverable by airplane. From the mid-1980s they sought to modernize these capabilities in terms of miniaturization and accuracy, which was one of the purposes of the 1998 tests. Pakistan's nuclear weapons program originated in response to the 1971 war and accelerated after the 1974 Indian PNE. Like India, only a portion of its nuclear facilities are under IAEA safeguards;[8] however unlike its rival, Pakistan, while able to produce plutonium and highly enriched uranium, still remains dependent on foreign suppliers (China) for sophisticated materials and technologies to expand their program. While Islamabad has asserted its willingness to sign the Non-Proliferation Treaty (NPT) should India do so, both remain non-parties to the regime.

The Democratic People's Republic of Korea (DPRK or North Korea) stands in a separate category. Its ballistic missile program since the early 1980s has produced a range of missile systems, either deployed or tested, demonstrating progress beyond most expectations (see Table 1).[9] Mated with the missile program have been dedicated DPRK efforts at acquiring nuclear weapons capabilities. Deriving from atomic energy agreements with the Soviet Union in the 1960s,[10] Pyongyang's nuclear industry was capable of supporting a complete nuclear fuel cycle by the 1980s. Subsequent reactors (an operational 5-megawatt (MW) reactor and construction of 50 MW and 200 MW reactors) presaged an annual reprocessed plutonium production capacity that could sustain in excess of 10 nuclear weapons. While these activities remain frozen and are subject to dismantling as a result of the 1994 US-DPRK Agreed Framework, suspicions remain regarding the North's plutonium-reprocessing history, alleged covert activities outside Yongbyon, and possible crude nuclear devices.[11]

Finally latent or recessed capabilities are evident in the relatively advanced civilian nuclear energy programs in South Korea, Japan, and Taiwan. There are no explicit links between nuclear energy and weapons; however, the promotion of civilian power reactors (with safeguards on nuclear materials) encourages latent nuclear weapons capabilities by allowing states to develop the research reactors, industrial infrastructure, technology, and materials that could eventually be converted to bomb-making purposes.[12] In this vein, Northeast Asia is the only region in the world where nuclear energy is viewed as a substitute increasingly for fossil fuel resources.[13] As of the mid-1990s, nuclear power supplies 36 per cent of the Republic of Korea's (ROK) energy; 28.8 per cent for Taiwan, and 33.8 per cent for Japan (against 2 per cent for China), and by 2010 the US Department of Energy estimates that nearly half of global nuclear energy capacity will be in East Asia.[14] The Tokyo, Taipei and Seoul governments have all forsworn nuclear weapons and acceded to the NPT regime; nevertheless, the increasing reliance on nuclear energy in combination with the lack of storage space in Asia creates strong incentives for reprocessing spent fuel.[15] Moreover, connected with this dynamic is the vision of energy self-sufficiency through the development of fast-breeder reactor technology (e.g., Japan) which creates additional incentives for reprocessing and stockpiling plutonium. Hence latent nuclear capabilities are present in Asia's nuclear energy activities as are insecurity spirals deriving from the longer-term proliferation dangers of plutonium stockpiles.[16]

CAUSES OF PROLIFERATION

The causes for nuclear proliferation in Asia are *overdetermined.* Three sub-arguments substantiate this claim. First, despite the asymmetry of nuclear capabilities within the region, states in Asia proliferate for similar reasons. Second, these causes are generally similar to those that drove proliferation in the first nuclear age. Third, while the causes for proliferation are similar across the first and second nuclear ages, what distinguishes the Asian cases is that the entire spectrum of domestic and international factors cited by experts as highly potent drivers of a state's need for nuclear weapons and delivery systems are salient to Asia. Moreover, these drivers are both abundant and long-lasting.

The Security Rationale

The first cause relevant to all cases of proliferation in Asia operates at the intersection of security needs and material constraints. States seek security

against perceived threats and seek to close gaps with rival competitors within very real resource limitations; moreover, the self-help imperatives of anarchy render reliance on allies for security an unattractive proposition (when abandonment fears are high) or an unfeasible one (when allies do not exist).[17] As Goldstein argues, nuclear weapons therefore offer the most efficient means by which to optimize across security needs, abandonment fears, and resource constraints.[18] Internal balancing against an adversary with conventional forces is less useful for these purposes for various reasons, the most important of which is if the gaps are too large to overcome. Nuclear weapons are also more 'fungible' than conventional forces in the sense that they remain relevant security assets in most cases regardless of wholesale changes in future adversaries or contingencies.[19] In sum, nuclear weapons offer the most robust means by which threatened states protect vital interests.

> National nuclear weapons enable states to satisfy basic security requirements self-reliantly and relatively economically. They are not cheap but when married to deterrent doctrines nuclear weapons can dissuade even much more powerful adversaries without incurring the high costs of comparably effective conventional defenses.[19a]

This security/cost/fear calculus of allied abandonment-based logic is common to all proliferation cases in Asia. In the most well-analyzed case of China (well analyzed relative to the new proliferators), there is general agreement that the Chinese sought nuclear weapons dating back to January 1955 as a direct function of perceived US nuclear threats against China during the Korean War and offshore islands crises in the mid-1950s; the security alliance with Taiwan; superior American conventional capabilities; and the turn to 'New Look' and massive retaliation in US strategic doctrine. Absence of confidence in the Soviet security commitment in a potential Sino-American conflict also weighed heavily in Beijing's decision to seek an independent nuclear capability.[20]

In the case of India, multiple external threats, resource constraints, and alignment uncertainties caused a shift away from its earlier adherence to disarmament norms. The 1962 Sino-Indian border war and 1964 Chinese nuclear test gave the initial impetus to India's nuclear program.[21] The ensuing 1965 Indo-Pakistani conflict over Kashmir and in particular, veiled Chinese threats to open a second front on the Himalayan border forced the Indians to contemplate seriously the inadequacy of their conventional deterrent and re-think the traditional emphasis on disarmament. The absence of external support also mattered in India's decision making. In

particular, the reluctance of the British, Americans or Soviets to answer New Delhi's entreaties for nuclear guarantees informed the Indian decision to test in 1974.[22] In addition, larger superpower security dynamics in Central Asia created alignment patterns that heightened Indian threat perceptions. The Soviet invasion of Afghanistan in December 1979 led to a consolidation of US-Pakistani relations during the Reagan administration (e.g., $3.2 billion assistance package, F-16 sales, and CIA training of Afghan resistance fighters in Pakistan), which in turn, supplemented Indian concerns about Chinese support of Pakistan. These threat perceptions led India to develop (under the Defense Research and Development Organization (DRDO) Integrated Guided Missile Development Program [IGMDP]) and test fire India's first intermediate range ballistic missile (IRBM) (Agni) in 1989.[23] With regard to the most recent tests, the Chinese threat still remains the permissive condition for the Indian nuclear capability (in that one cannot imagine caps on the Indian program without retaining a minimum deterrent against China), however, the specific cause of the 1998 test was related to Pakistan.[24] In particular, Pakistan's test of the IRBM Ghauri in April 1998 demonstrated a more robust capability to target Indian cities (up to 26 cities) to which India had to respond.[25]

Like India and China, a similar mix of threats and resource constraints determined Pakistani nuclear and missile proliferation. From the late 1950s, Islamabad exhibited little interest in a nuclear program, but after the 1965 war with India, the government became more concerned about growing Indian conventional force superiority. Following that war, Pakistan's defeat in the 1971 war, the Indian 1974 test, and the Prithvi missile program (which was perceived to be designed specifically for targeting Pakistan), Pakistan set itself firmly on the path of acquiring nuclear weapons as the only equalizer to Indian conventional and nuclear capabilities.[26] Exacerbating the need to proliferate were unsettling variations in the level of aligned support for Pakistan from outside parties. One of Islamabad's justifications for the nuclear program was that it could not rely on the United States for its security. American support of Pakistan has varied widely, the low points being the end to arms transfers after 1965, cool relations during the detente years, and the imposition of sanctions during the Carter administration. Relations improved during the Reagan years largely as a function of Soviet actions in Afghanistan but with the end of the Cold War, Pakistani confidence in the United States plummeted. Islamabad saw a growing American alignment with India as a counterweight to China. This dynamic was manifest among other things in US unwillingness to provide security guarantees in the face of India's May 1998 tests, ultimately spurring the Pakistani decision to test.[27]

Although North Korea's nuclear program is by far the most opaque of those in the second nuclear age, an argument could be made that the drivers are not too dissimilar from other cases of proliferation. As noted above, Pyongyang's interest in atomic energy dated back to the 1960s, but serious endeavors really did not begin until the late-1980s (i.e., when the nuclear industry was capable of supporting a complete fuel cycle and construction of 50 MW and 200 MW reactors began). This interest coincided with a time when the North's political-military and economic situations took serious turns for the worse. Pyongyang watched helplessly as China and the Soviet Union normalized relations with South Korea (1992 and 1990 respectively). This situation became even more acute when Beijing and Moscow subsequently abrogated their Cold War security-guarantees (and patron aid) to the North. Almost contemporaneously, the North suffered successive years of negative economic growth; acute energy and food shortages; and deteriorating conventional force supplies and readiness. Arguably this combination of security scarcity and resource constraints made nuclear weapons appealing as the most fungible and robust security equalizer.[28]

This causal dynamic is relevant to the cases of Japan, South Korea, and Taiwan. Even though all are committed non-nuclear weapons states (NNWS) and supporters of the nonproliferation regime, all have latent capabilities and face salient external threats. For the most part, what obviates the perceived need for any of these countries to seek extant capabilities and delivery systems is American security guarantees (explicit in the former two cases and implicit in the third). The likelihood of any of these states proliferating would grow measurably if credibility in the American commitment waned. South Korean pursuit of an independent nuclear weapons capability in the late 1960s and the 1970s was not a function of heightened external threats, but directly a function of fears of American abandonment deriving from the Nixon doctrine and the withdrawal of the US 7th Infantry Division in 1970–71.[29]

In this regard ironically, the *success* of US alliances in East Asia is another factor that might contribute to future proliferation. A stabilization of the security situation on the Korean peninsula for example would lead to some drawdown of the American forward presence. For the allies, US extended nuclear guarantees in the absence of this presence would not be very credible, prompting greater interest in autonomous capabilities.[30] An even more radical interpretation would question the credibility of the US nuclear umbrella to Asian allies *today*. This argument is largely because the end of the Cold War structurally renders extended nuclear deterrence less credible to allies. During the Cold War bipolar conflict, what rendered

credible the notion that the United States would respond to an attack on an ally and risk retaliation at home was the belief that this conflict would be decisive in terms of the wider geostrategic superpower competition. However, a similar nuclear exchange scenario (e.g., prompted by a DPRK chemical attack on Seoul in which the United States would respond and risk retaliation by the DPRK against Hawaii or San Francisco) would not carry the same stakes, and, logically speaking, should be less credible for the ally.

The Absence of Domestic-Political Obstacles

The second causal factor for proliferation in Asia is the absence of domestic-political opposition. This situation obtains either because the programs are covert and therefore not subject to public debate (e.g., the ROK clandestine program in the 1970s), or because there is proactive support among the general public and politicians. The latter dynamic is especially relevant in the South Asian cases.[31]

In India, domestic support for the programs took place at two levels. The first was at the level of politics and society in general where the nuclear program became interlinked with Indian status and prestige. The Bharatiya Janata Party (BJP) campaigned prior to its March 1998 victory on promises of restoring India to national greatness, and as a concrete act in this regard, 'inducted' nuclear weapons into the national security apparatus. Images were created regarding nuclear weapons status and being treated in the world as a first-class power which appealed not only to the conservative Hindu right but the population as a whole, such that as one analyst put it, '[i]n India today, there are very few votes to be found in a posture of dovishness on the nuclear issue'.[32]

The second domestic dynamic in support of proliferation occurred at the level of the bureaucracy. As Bracken argues, support and the drive for nuclear weapons-related research over the years became the means by which a young, rising, civilian technocratic sector circumvented and displaced the old, corrupt, and inefficient military bureaucracy.[33] This trend was especially the case in India where the Atomic Energy Commission, Defense Research and Development Organization (DRDO), and the Space Program formed a triumvirate of new influential technocratic bureaus that demanded respect in Indian society and developed powerful interests in self-perpetuation.[34]

Similar dynamics were evident in the Pakistani case. The government skillfully utilized the symbolism of nuclear weapons to rally support for the program. Throughout the evolution of the nuclear program, there was little public discussion. Instead, the government appealed to the public through

skillful manipulation of the media, framing the issue in prestige and honor terms for Pakistan: '[T]he end result is that the majority of Pakistani citizens have no idea of the costs and consequences of the country's nuclear programme. Nor are they aware of the peace movements in various nuclear and non-nuclear states. Nonetheless, they have become innocent/ignorant converts of the value of nuclear weapons ...'.[35]

First World Hypocrisy: 'Do As We Say, Not As We Do'

A contributing factor on the domestic front for proliferation is widespread perceptions of First World hypocrisy. From the perspective of new proliferators, there are fundamental inconsistencies between statements and actions on the part of the nuclear weapons states (NWS). These states call for global nuclear disarmament, controls on technology transfer, a comprehensive test ban, and do not officially recognize any new nuclear powers, yet at the same time they do not consider a rollback of their own capabilities. On the contrary, NWS readily acknowledge in their own security doctrines the centrality of the nuclear deterrent.[36] In addition, if smaller nuclear powers such as Britain and France, for whom the Cold War was the primary driver of their acquisition of capabilities, do not willingly disarm, then why should others not acquire them?[37] This 'do as we say, not as we do' criticism pertains not only to NWS but also to NNWS states like Japan, Canada, Australia, and Germany whose commitments to nonproliferation regimes are seen to ring hollow because of the US nuclear umbrella and their plutonium stockpiles.[38]

First World hypocrisy reduces domestic constraints on new proliferators in two ways. It undercuts the legitimacy and dodges the arguments of domestic constituencies opposed to the weapons programs. Furthermore, it is easily manipulated by proliferation advocates to press forward with the program on normative grounds. As one expert noted

> Because of their discriminatory nature and the continued security value attached to nuclear weapons by the major powers, the non-proliferation treaties have been viewed by some as a mask for power play, to freeze the status quo in favor of the haves against the have-nots ... A large number of non-nuclear states have indeed accepted the NPT and CTBT ... This, however, does not imply that all – especially those that have the security concerns and the technical know-how, and who must or choose to rely on themselves for security – must or will accept it.[39]

In Pakistan, for example, the government portrayed the international

nonproliferation norms as a First World conspiracy aimed at preventing Pakistan from attaining its rightful place in the world. In addition, US efforts to block Pakistan's acquisition of nuclear technologies (e.g., Kissinger's threats to Bhutto, pressuring France to renege on reprocessing deals with Islamabad in the 1970s) all had the effect of lionizing nuclear weapons in domestic politics as a symbol of national sovereignty.[40]

The hypocrisy arguments were heard most loudly in India where proliferation advocates could stymie the critics and keep the nation's nuclear option open by appealing to moralistic arguments about the inequities practiced by the First World's 'nuclear apartheid'.[41] New Delhi condemned the NPT in 1970 as an attempt by the nuclear club to prevent others from going nuclear (after China), but at the same time, not granting security guarantees to those NNWS countries left vulnerable.[42] India denounced the indefinite extension of the NPT on the grounds that, some half decade after the end of the Cold War, it was a travesty that the NWS could pull off such a feat while still relying on their nuclear deterrent.[43] First World hypocrisy drove proliferation not only by allowing virtually any regime to legitimize its drive for nuclear weapons in normative/equity terms, but also by counter-intuitively raising the incentives to test every time a new nonproliferation milestone had been reached. For example, the NPT extension and finalization of the CTBT in the mid-1990s actually prompted potential proliferators to consider testing sooner rather than later as First World-backed nonproliferation regimes were slowly closing the window of opportunity.[44]

Political Currency of Capabilities

An additional cause common to all cases of proliferation in Asia is the political currency of acquiring these capabilities. In addition to the strategic rationale for proliferating, states perceive various political benefits from becoming nuclear- and BM-capable. Of course, there are substantial political costs imposed by the nonproliferation regimes on new proliferators, but these costs are not seen to outweigh the benefits in terms of insurance, prestige, and bargaining position.

The bargaining and insurance motives are interlinked. On the one hand, nuclear and long-range BM capabilities, while sought for security and 'equalizer' purposes, can serve as tools of political coercion to gain bargaining advantages. Arguably, the DPRK through its fledgling BM capabilities was able to force international attention to its food problem as well as compel the engagement efforts by the United States, Japan, and South Korea. No one (except perhaps Pyongyang) intended for this coercion

to be the case; nevertheless, it has been the net result; moreover, one that might not otherwise have been without the DPRK's missile program.[45] Similarly, Indian statements in the aftermath of the May 1998 tests hinted at diplomatic coercion based on its new, demonstrated capability. Home Minister Lal Krishna Advani stated after the tests that India had a new qualitative edge in solving the Kashmir problem and that Pakistan should 'realise the change in the geostrategic situation ..., and roll back its anti-India policy'. In a more blatant example, the Indian Army chief shortly after the tests made a symbolic visit to the Indian part of Kashmir to 'discuss the elements of a "new Strategy" with local commanders'.[46]

The flip side of the bargaining motive is the insurance motive. For fear of demonstration effects from cases like the DPRK, states choose to proliferate precisely to prevent becoming vulnerable to political coercion and nuclear blackmail. While security was certainly a driver of Pakistan's nuclear and missile program, an important motive was to avoid allowing its rival the political leverage to dictate its terms on significant political or sovereignty issues in a way unacceptable to Pakistan.[47] Similarly, after the test at Lop Nor in October 1964, voices within India called for a change in policy on nuclear capabilities to counter the political influence that China would gain with the nuclear advantage. As Indian diplomat Sisir Gupta said, '... without using its nuclear weapons and without unleashing the kind of war which would be regarded in the West as the crossing of the provocation threshold, China may subject a non-nuclear India to periodic blackmail, weaken its people's spirit of resistance and self-confidence and thus achieve without a war its major political and military objectives in Asia'.[48] India's insurance motive for proliferation was also evident in its behavior after the 1974 test. For nearly one decade thereafter, the nuclear program consisted of awkward, oversized, tactically challenged bombs that were not integrated into military operations. They served as a political hedge against Chinese nuclear blackmail, not as strategically relevant assets.[49]

Prestige

The political currency that derives from proliferation in Asia is also related to issues of prestige and status. As Sagan has argued, states acquire nuclear weapons not only to balance against external threats, but also for their symbolic power.[50] For many countries in Asia, nuclear weapons and ballistic missiles are today what national armies were in the postcolonial era.[51] They serve as marks of modernity and power. Many post-Cold War analyses of Asian security have drawn attention to the region's avid nationalism – a function of history, colonial legacies, and economic growth.[52] Inherent in

this nationalism are aspirations to rise in the international prestige hierarchy and to be treated as a 'great' or 'major' power. Nuclear weapons and ballistic missiles have become an important indicator of this status. In extreme terms, these capabilities almost become like national airlines – countries seek to acquire them because of how they reflect on one's identity and level of development.

In the case of nuclear weapons, this boost in prestige is most certainly a function of their awesome destructive power.[53] Nevertheless, it is also a function of careful observation of precedents and examples of nuclear prestige set in the West. For France, for example, after the colonial defeats in Southeast Asia and devastation of World War II, becoming a NWS state was an important symbol of its return to historical great-power status.[54] Some argue that, without nuclear weapons, the UK would have no special reason for claiming a permanent seat today on UN Security Council.[55] Perhaps most important for Asian eyes were the perceived prestige precedents set by China's nuclearization in the 1960s. China became the last enshrined member of the hallowed nuclear 'club' in 1970 (with the NPT) after which all others could only be NNWS or illegitimate NWS. Subsequent events such as Nixon's decision to visit China in 1971 (and Sino-American rapprochement), the ousting of Taiwan from the UN, and the bestowing of a permanent security council seat to Beijing were all seen as tangible elevations to China's international stature directly related to its nuclear status. These lessons were not lost on India.[56] New Delhi's attitude toward nuclear and missile capabilities is strongly influenced, as acknowledged by prominent Indians, by ambitions to achieve 'great-power status'. As two Indians noted: 'The bomb is a currency of self-esteem.' Or, as K. Subrahmanyam said, 'Nuclear weapons are not military weapons. Their logic is that of international politics and it is a logic of global, nuclear order ... India wants to be a player in, and not an object of, this global nuclear order'.[57] Prestige factors also mattered for Pakistan. Not just in the sense of being perceived as India's equal in South Asia, but also as the first Islamic country capable of such technological feats despite severe resource constraints. *Izzat* (honor) or *sharam* (shame) constituted the language in which the country pursued its nuclear and Ghauri missile programs.[58]

Security or Symbols?

The argument here is not that prestige and political currency are the primary drivers of proliferation in Asia. The mix of security-scarcity and resource constraints are still the most compelling reasons for states to perceive nuclear weapons at the most robust and efficient means of 'equalizing'

power disadvantages. At the same time though, prestige and political currency factors are not merely peripheral or causally insignificant factors. Status concerns are more than just the language with which proliferators embellish or justify their drive for nuclear and missile programs.[59] Prestige concerns are more than just afterthoughts; at times they are also the forethoughts that inform or cause proliferation decisions.

The causal significance of these factors derives from the fact that anomalies in some preeminent cases of proliferation in Asia cannot be explained by basic security arguments. For example, the 1998 South Asian tests do not make strategic sense, strictly speaking, in that they showed little value-added militarily. The Indian tests exhibited some ability to miniaturize and weaponize with missiles, but neither set of tests showed an ability for increased accuracy in weapons and delivery vehicles to the point of being able to demonstrate counterforce targeting capabilities. Thus, the South Asian balance still rested on mutual deterrence based on countervalue capabilities – which means that the tests in terms of their payoff were more for symbolic reasons. They represented both countries' declared nuclear status and the shift away from recessed nuclear deterrence.[60]

Similarly, more anomalies appear if one looks at either the India-China or Pakistan-India dyad. If the purpose of testing is for deterrence, then one wants to make certain that one has achieved a threshold deterrent capability, *before* testing. In other words, you must have the infrastructure and the ability to 'plus-up' in capabilities rapidly (e.g., in terms of stockpiles of fissionable materials, missiles, warheads, command and control, etc.) prior to taking an act that declares your capability. Otherwise, testing without the capabilities and infrastructure would leave you vulnerable to preemption. Neither the Indian tests *vis-à-vis* the Chinese in 1974, nor the 1998 Pakistani tests *vis-à-vis* India reflect this logic.[61] In the former case, New Delhi was a decade away from weaponizing their capabilities, and therefore by testing was actually putting itself in a more vulnerable position, raising Beijing's incentive to preempt.

An alternative line of argument against the importance of the prestige and political currency factors in proliferation says that what may have been true in the past is no longer true today. In other words, proliferation gave rise to some benefits in terms of status and bargaining power to countries like China; however, since the NPT in 1970, and given the ostracism imposed by the nonproliferation community, any benefits from proliferation are fleeting and negated by the costs.[62]

While this argument may hold true in the future (and indeed should be a goal of the nonproliferation effort), as yet there is not enough evidence to

suggest its validity. For example, in the South Asian cases, the net result of the tests has been far from negative. The US imposed sanctions on the two countries after May 1998 as mandated by 1994 Nuclear Proliferation Prevention Act, and withdrew support for World Bank and IMF loans, but one month later reinstated agricultural exports because of pressures from the American farm lobby, and by early November only retained sanctions that covered high technology and military exports as New Delhi and Islamabad announced testing moratoria and pledged to sign the CTBT.[63] In addition, although other nonproliferation leaders like Japan followed suit, sanctions were largely ineffective as the Japanese government did not prevent private companies from operating in India. Neither the United Nations, Group of Eight, nor the European Union took actions going beyond a verbal statement condemning the tests.[64] For Pakistan, Islamabad understood that responding to the Indian tests in May 1998 would attract economic sanctions, but it calculated that enthusiasm for punitive actions would fade as the world could not indefinitely sanction one-fifth of the world's population.[65] For India, arguably, the 'benefits' of testing were a Clinton-Vajpayee summit in March 2000 which resulted in the Agreed Principles – this agreement institutionalized a regular summit-level dialogue, foreign ministers meetings, finance and commerce minister meetings with the United States. Some argue that the 1998 tests marked a watershed in US attention to the South Asian problem, moving from policies that were poorly conceived, reactive, and ambivalent to uncharacteristic focus and organization.[66]

The costs of proliferating will be higher the more embedded the states are in the international arena, hence skewing the cost calculations for regimes like Pakistan and North Korea in favor of proliferation. Finding ways to raise these costs is part of the solution to nonproliferation (discussed in the regimes section below), but this does not discount prestige and political currency as causally significant factors for proliferation. Again, they do not outweigh the security factors, but operate along side them, sometimes playing a more prominent role. Without these variables, proliferation behavioral anomalies cannot be explained.

CONSEQUENCES OF PROLIFERATION: SOBER OPTIMISM

For reasons of security-scarcity, resource constraints, political currency, and First World hypocrisy, nuclear proliferation is overdetermined in Asia. Two implications follow from this observation: (1) proliferation is not likely to decline in the future because of the abundance of these causal factors; and

(2) the likelihood of getting new proliferators to rollback their capabilities is low.[67] As long as the causal factors that drive proliferation remain in abundance in Asia, the potential for vertical and horizontal proliferation remains real. What then are the consequences?

Proliferation Pessimism

'Proliferation pessimists' see grave implications of these trends in Asia.[68] Three basic arguments inform this viewpoint. The first focuses on the exceptionalist nature of the Cold War nuclear deterrence situation. The US-Soviet nuclear confrontation was based on a unique set of circumstances (i.e., territorial separation, absence of previous history of hostility, status quo orientations, simplicity of the bipolar rivalry) that made for a balance of terror and stable deterrence.[69] This experience is the obverse of Asia where one sees close proximity, high levels of inter-state conflict, antagonistic histories, and non-status quo orientations among many of the regional powers. Contrary to Waltzian-type arguments for nuclear stability, the exceptionalist school therefore argues that differentiation among the units matters in terms of outcomes, and that the non-use outcome experienced in the Cold War US-Soviet dyad is not replicable in post-Cold War Asia.

A second school of thought focuses on dangers associated with accidents, organizational flaws, judgement errors, and failed fail-safe systems, and argues that the many problems evident in elaborate systems constructed by the Americans and Soviets would be exponentially worse in the rudimentary systems in Asia.[70] A third set of arguments draws from preventive/preemptive war logic, and draws attention to the asymmetric advantages created by proliferation and how these advantages, particularly when they are either temporary or vulnerable to attack, give rise to windows of opportunity for preemptive or preventive action.[71]

While proliferation is likely to continue in Asia, this trend may not, however, warrant such a pessimistic assessment. If states are proliferating for three basic purposes (i.e., security; avoiding blackmail; and prestige and political currency), then the outcome may not be nearly as dire as the conventional wisdom predicts. This proposition neither assumes nor implies that nonproliferation is a futile or wasted effort. Instead, it argues that, aside from individual cases of rogue regime proliferation, there is not an intuitively obvious reason to equate Asian proliferation and the pessimist school's predictions of disastrous outcomes as many nonproliferation advocates have done. The reasoning in this vein is far from air tight and actually does a disservice to the nonproliferation school by basing its arguments on weak analogies or inconsistent logic.

Ethnocentrism

Either explicitly or implicitly informing all of the proliferation pessimism views are 'First World socialization' presumptions that the dangers of US-Soviet proliferation were mitigated by the abhorrence of violence among the public and political leadership, an understanding of the high stakes involved with such destructive weapons, and rational calculations. In the Third World, however, a combustible combination of historical resentments, religious rivalries, and hypernationalism makes nuclear weapons use more likely. One of the key differences between the first and second nuclear ages is that latter is dominated by fierce nationalism and fanatic leaders, who embrace nuclear and ballistic missile technology as the great equalizer against hated, mortal enemies. 'Asian nationalism harnesses all the immaturity and energy unleashed by the French Revolution and by communism in its expansionist heyday.'[72] This mindset contrasts with the former world with the cool and calm (albeit intense) competition of sophisticated thinkers, rational deterrence models and responsible leaders. As Bracken puts it, 'The idea of budding defense intellectuals sitting around computer models and debating strategy in Iran or Pakistan defies credulity.'[73]

There is no denying that Asia has its fair share of conflicts steeped in peer competition, history, race, and religion. Moreover, *han* (or unredeemed resentment) characterizes many of the dyads in which proliferation potential exists or has already been realized. Nevertheless, there is no evidence to validate the assumption that the animosities are necessarily the most raw and vulgar in Asia.[74] Some have even argued that in broad historical perspectives, the level of bloodshed in Asia pales in comparison with that in Europe.[75] There is no reason *a priori* to assume that the animosity in Asia is any more base or any less informed by rationality than the animosity and emotions that reigned during the first nuclear age.[76]

Moreover, the causal link between hate and nuclear action is spurious. In other words, even if one were to accept that Asian hatred and enmity are inherently more intense and primordial than in the West, there is no necessary connection with the propensity to use nuclear weapons. The decision to wage nuclear destruction on another is not based on how much you loath the opponent but on how much you value the target of your opponent's retaliation, your own constituency.[77] Hence ethnocentric arguments about nuclear exchanges in Asia should focus not on hate but on the willingness to commit suicide as the primary cause.

These arguments also fail to comprehend how the bipolar superpower experience has greatly prejudiced our thinking on nuclear deterrence and

stability. As Goldstein notes, the conventional wisdom demonstrates an insufficient appreciation of the uniqueness rather than generalizability of the superpower experience.[78] For example, organizational arguments assume that the profile of the Asian programs as small and underdeveloped make them more prone to accidents, 'loose nukes', or inadvertent use. However, if the arsenals are small in size and few in number, they are, as a general rule, easier to monitor and control. In addition, many of the organizational pathologies made famous by Sagan require complexity in the nuclear infrastructure and decision-making trees – a precondition that is irrelevant in Asia because the infrastructures are basic and in many cases, divorced from the military bureaucracy (another pathology often mentioned).[79] In a similar vein, poor command, control, and communications infrastructures in Asia empirically have not resulted in 'use-or-lose' mentalities but have bred more caution (e.g. Indo-Pakistan conflicts). Limited overhead and reconnaissance capabilities have not encouraged confidence in the ability to hide one's arsenals but have discouraged confidence in carrying out successful first strikes. In addition, many of these small fledgling programs, by virtue of resource constraints, remain at underdeveloped stages (i.e., de-alerted, de-targeting, disassembled weapons systems, separated warheads from delivery vehicles).[80] Therefore, until an accident or outcome confirms the organizational school's view in the second nuclear age, and given what is now being unearthed about the near-misses and near-disasters in the first nuclear age, there is no *a priori* reason to assume a necessary causal connection between small programs and de-stabilizing outcomes.

Existential Deterrence

Proliferation pessimists fixate on assured second-strike capabilities as the primary agent of deterrence and underestimate the validity of other forms of deterrence among smaller nuclear powers. The pessimist's assessment rests on faith in the 'use or lose' logic – that is, that when states do not have assured second-strike capabilities, they live in constant fear of being vulnerable to a debilitating first strike. Thus, in a crisis between adversaries with small nuclear forces, the incentive to preempt (as well as the fear of being preempted upon) becomes high, giving rise to a destabilizing 'use-or-lose' mentality.[81]

There are two problems with this argument. First, in deductive terms, there is no denying that assured second-strike capabilities can form the backbone of stable deterrence; however, it does not mean that the *absence* of this condition necessarily leads to instability. Second, the empirical record does not bear out the 'use-or-lose' argument. As Hagerty notes, in all

of the crises involving smaller nuclear powers (Cuba 1962, Sino-Soviet 1969, Arab–Israeli 1973, Kashmir 1990), preemption has not occurred.[82] Instead what appears to operate among smaller nuclear powers is existential deterrence: '... the mere existence of nuclear forces means that, whatever we say or do, there is a certain irreducible risk that an armed conflict might escalate into a nuclear war. The fear of escalation is thus factored into political calculations: faced with this risk, states are more cautious and more prudent than they otherwise would be.'[83]

What therefore prevails in the second nuclear age in Asia may not be assured second-strike capability but 'first-strike uncertainty'. Stable deterrence derives from having just enough capabilities to raise uncertainty in the mind of the opponent that s/he cannot neutralize you with a first-strike. The precedent for this form of deterrence had already been set by the second-tier nuclear powers in the first age. As Goldstein's study shows, existential deterrent doctrines drove China, Britain, and France's pursuit of an independent but not second-strike assured nuclear deterrent against their respective superpower adversaries.[84] In the new nuclear age in Asia where cost constraints among new proliferators will be acute, smaller arsenals counter-intuitively will not incite attack. In addition, the opaque conditions under which programs in Asia develop enhance first-strike uncertainty, as worst-case assessments generally tend to err on the side of caution.

The South Asian case appears thus far to validate existential deterrent claims. Both countries will not be able to develop an assured survivable force because of resource constraints. Moreover, neither will possess the missile guidance and accuracy capability to move beyond countervalue targeting. However, both will have sufficient fissile material for a small number of atomic bombs on aircraft (Mirage, MiG-27, MiG-29, SU-30 and Jaguar for India or the A-5, F-16 and Mirage 3 for Pakistan); and the potential for weaponized warheads on some ballistic missiles (Prithvi 150 for India and Hatf 2 for Pakistan), but not to the level of a successful first-strike.[85] Neither country has attempted preemptive destruction of the other's nuclear facilities and both signed a Non-Attack agreement in 1991 based on their *de facto* nuclear status. The fact that these are now *de jure* capabilities should not make a difference.[86] India's draft nuclear doctrine makes reference to pursuing a triad, but most experts see this as 'grandiose', and contradictory with India's other stated and more realistic objective of a minimum deterrent.[87] Nuclear weapons have instilled a fear of escalation in bilateral conflicts that tempers actions on both sides. In the Indo-Pakistani crises of 1987, and especially 1990 and 1999, many site the dampening effect that New Delhi's explicit concern about rapid ascent up the ladder of escalation had on behavior.[88]

Nuclear Taboo

Another factor reinforcing the stability of first-strike uncertainty in the second nuclear age is the potential for new nuclear powers to become compliant with the norms against nuclear weapons use. As Russett argues, the first nuclear age recognized that such weapons were in fact unusable across much of the range of military and political interests. Despite the absence of restricting international laws or conventions and explicit threat of symmetrical retaliation, nuclear powers refrained from using such weapons in military situations where it could have altered a neutral or losing outcome. The United States did not use them in Korea or Vietnam, the Soviets did not use them in Afghanistan, and the Chinese did not use them in Vietnam.[89]

Proliferation pessimists do not deny the existence of the nuclear taboo; they do, nevertheless, see this taboo as shared only by First World proliferators. Is this a fair assessment? As Tannenwald argues, a taboo takes effect when the agent realizes (1) the exceptionalist nature of the weapon (i.e., in terms of its destructive power); (2) the absence of effective defenses (i.e., vulnerability); (3) and fears the political and social consequences of taking such an action. All of these conditions readily hold for new nuclear powers. Moreover, the revulsion against nuclear weapons use (first-use) has become so institutionalized in an array of international agreements and practices such that new NWS states operate in an environment that severely circumscribes the realm of legitimate nuclear use.[90]

Proliferation pessimists therefore underestimate the *transformative* effects of nuclear weapons on these new proliferators. They assume that the interests for aspiring nuclear powers remain constant in the pre- and post-acquisition phases. They do not consider that once states cross the nuclear threshold, they become acutely aware of the dangers and responsibilities that come with these new awesome capabilities. The likelihood of such a learning process occurring is even higher if nuclear weapons are valued for their political currency. As noted above, while security needs certainly drive proliferation in Asia, a predominant factor that cannot be disentangled from this dynamic is the striving for prestige and international recognition as an NWS state. Moreover, if the taboo equates the use of nuclear weapons with an 'uncivilized' or 'barbarian' state,[91] then those states that are status-conscious will be that much more attuned to the taboo. The effects of the taboo on Asian proliferators are therefore both regulative and constitutive. In the former sense, as these states further embed themselves in the international community (discussed below), this change heightens the costs of breaking

any rules regarding nuclear use. The taboo's constitutive effects also are evident in that any use would undermine one of the primary purposes for which the capabilities were sought (e.g., prestige, badge of modernity).

Although it is still relatively early in the game, there is some evidence that the acquisition of nuclear capabilities has been accompanied by a change in preferences about what is acceptable behavior. While India has rejected any notions that it might roll back its newfound capability, it has readily admitted that as an incipient nuclear weapons state, it now has certain responsibilities that include a no-first-use policy and not sharing nuclear weapons technology with other irresponsible states.[92] Similarly, Pakistan previously placed little value and even resented nonproliferation norms as these were seen as inhibiting and degrading to the national character.[93] Otherwise, they might have been swayed by the *benefits* of not responding to the Indian tests as a shining example of a country adhering to nuclear nonproliferation norms. Arguably it is only after becoming an incipient nuclear weapons state that such arguments about nonproliferation gain value. Nowhere is this perverse dynamic more evident than in both sides' views of the CTBT. Previously perceived as an instrument intended to preempt nuclear spread beyond the first age, the CTBT is now arguably seen by India and Pakistan in less antagonistic terms, and even among some, as a responsibility to be borne as a nuclear state.

CONCLUSION: THE ROLE OF THE NONPROLIFERATION REGIME? MORE SOBER OPTIMISM

This contribution has made two points with regard to proliferation in Asia. First, proliferation is overdetermined, and hence rollback, though desirable, is unlikely. Second, while the likelihood of continued Asian proliferation in the future is real (given the abundance of causes), this tendency does not necessarily presage disastrous consequences for regional stability (contrary to proliferation pessimists).

What then are the implications of this argument for the nonproliferation regime? First, the argument does *not* connote the irrelevance or futility of nonproliferation. It does, however, imply that nonproliferation arguments based on an inherent equating of new proliferation with irrational and/or inadvertent nuclear use are spurious (and ultimately do a disservice to the objectives of the nonproliferation community). Second, the argument shows that the challenges faced by the nonproliferation advocates are formidable. The abundance of causes means that more states will likely try to proliferate, and that if they are successful, rollback, although ideal, will be

difficult except in specific circumstances.[94] Moreover, the nonproliferation community's focus on rollback may actually be detrimental to stability because it fails to acknowledge the security factors that drove proliferation in the first place. Without addressing the former, one cannot have rollback of the latter: 'Non-proliferation is the means and security the end, not vice-versa.'[95] Rollback should not be a normative prescription but a pragmatic decision based on an assessment of the region's proliferation drivers.

Third, because rollback is problematic, where the nonproliferation community's efforts are at a premium are in terms of (1) stopping proliferation before it happens, and (2) maintaining and reinforcing a robust norm against nuclear non-use. Indeed, fostering the region's compliance with existing global regimes on the control of technology and materials, as well as building upon existing regional and bilateral institutions, can greatly reinforce the non-use outcome in Asia.

At first glance, the region's record of compliance with global conventions and international treaties appears weak and inconsistent.[96]

Moreover, the absence of leadership among the First World nuclear powers (particularly the US on failure to ratify the CTBT and discussions of NMD and revision of the ABM treaty) only reinforce perceptions of First World hypocrisy among the new proliferators.[97]

Despite these setbacks, there is still room for optimism. Even though key states like Pakistan, India, and the DPRK remain outside the NPT regime, the treaty's indefinite extension in 1995 sets an important precedent with regard to universal membership and compliance which these states cannot simply ignore or dismiss. Moreover, Chinese participation in arms control and nonproliferation regimes over the past 15 years has increased substantially. In addition to membership in the NPT, CWC and BWC, China became a Zangger Committee member in 1997. Despite earlier transfers of nuclear technology and missile parts to the Middle East and the South Asian subcontinent, Beijing has since committed to adhering to the NSG triggers list and to abide by the MTCR principles in a bilateral agreement with the US (see Tables 2 and 3). In addition, it announced a self-imposed testing moratorium in 1996 and has committed to upholding the CTBT despite the US failure to ratify. Beijing also acceded to the Rarotonga protocols in 1997 (see Table 4, p.120), and supports FMCT negotiations.[98] While not a perfect record, the situation still is far from hopeless.

In addition, at the regional and sub-regional level, one development that raises confidence in the region's ability to organize support for nonproliferation institutions are the nuclear weapons-free zones. Four exist today, of which two are in Asia.

TABLE 2
GLOBAL REGIMES

Country	IAEA	CD	NSG	ZAC	MTCR	AG	WAAS	Comments
US	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Russia	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
China to join.	Yes	Yes	No – invited Declined Adheres in principle to NSG trigger lists	Yes (97)	bilat w/US	No – declined US offer 97 to join	No – urged to join by US but declined	ZAC member 1997; Bilat w/US on MTCR 1992
Japan	Yes	Yes – supports goal of total elim nukes	Yes	Yes	Yes – original member	Yes	Yes – original member	AG original member
DPRK	Yes	Yes	No	No	No	No	No	
ROK	Yes	Yes	Yes	Yes	No	Yes	Yes	AG member 1996
ROC	No	N/a	No	No	No	No	No	
India	Yes	Yes	No	No	No	No	No	

TABLE 2 (Contd)

Country	IAEA	CD	NSG	ZAC	MTCR	AG	WAAS	Comments
Pakistan	Yes	Yes	No	No	No	No	No	
Australia	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
NZ	Yes	Yes	Yes	No	Yes	Yes	Yes	

Source: compiled from *Inventory of International Nonproliferation Organizations and Regimes: 1996–1997* (Monterey, CA: Center for Nonproliferation Studies 1997); 'Northeast Asian Participation in Arms Control/Nonproliferation Regimes', available on the Center for Nonproliferation Studies website at >http://cns.miis.edu/cns/projects/eanp/fact/nearegms.htm<; 'Japanese Participation and Positions Regarding Various Arms Control and Nonproliferation Agreements, Organizations, and Regimes, July 1999', at >http://cns.miis.edu/cns/projects/eanp/fact/japan.htm<.

Notes:
IAEA: International Atomic Energy Agency (established 1957). To encourage atomic energy usage for peaceful purposes and administer safeguards to ensure that not used for military purposes.
CD: Conference on Disarmament (established 1979). Primary multilateral disarmament negotiating forum of intl community.
NSG: Nuclear Suppliers Group (established 1975). Also known as 'London Club' ensure that nuclear exports made only under appropriate safeguards, physical protection and nonproliferation conditions. Requires IAEA safeguards as condition of supply of nuclear materials and restricts supply to countries with proliferation potential.
ZAC: Zangger Committee (established 1971). Trigger list of fissionable materials and equipment for purpose of processing, use or production of fissionable materials. Status is informal. Not legally binding on members.
MTCR: Missile Tech Control Regime (established 1987). Informal nontreaty association of governments with common interests in nonproliferation of missiles, UAVs and related technologies. Equipment and systems restricted are for missiles greater than 300 km, 500 kg payload, bio/chem capable missiles, and solid/liquid propellant engines.
AG: Australia Group (established 1985). Informal association works on basis of consensus. To limit spread of CBW through control of chemical precursors, equipment and BW agents and organisms (dual-use chemicals).
WAAS: Wassenaar Arrangement on Export Controls for Conventional Arms and Dual-Use Goods and Technologies (established 1995). Successor to COCOM.

TABLE 3
INTERNATIONAL TREATIES

Country	NPT	CTBT	PTBT	BWC/CWC	OST/SBT	Geneva/ OPCW	IWC	Nuke material	Comments
US	Yes	Signed/no	Yes ratify	Yes/yes	Yes/Yes	Yes/Yes	?	?	
Russia	Yes	Signed/no	Yes ratify	Yes/Yes	Yes/Yes	Yes/No	Yes	Yes	
China	Yes	Signed/no ratify – unilateral moratorium on testing 1996	No	Yes/Yes	Yes/Yes	Yes/Yes	Yes	Yes	Working with Japan on joint project to clean up chemical weapons left in C
Japan	Yes – supported indefinite extension	signed/ ratify 1997	Yes	Yes/Yes	Yes/Yes	Yes/Yes – founding member OPCW	Yes	Yes	BWC ratified 1982; ratified CWC 1995
DPRK	Yes	No	No	Yes/No	No/No	Yes/No	No	No	Threatened NPT withdrawal 1996
ROK	Yes	Signed/no ratify	Yes	Yes/Yes	Yes/Yes	Yes/Yes	No	Yes	

TABLE 3 (Contd)

Country	NPT	CTBT	PTBT	BWC/CWC	OST/SBT	Geneva/ OPCW	IWC	Nuke material	Comments
ROC	(Yes)	No	(Yes)	No/No	(Yes)/(Yes)	(Yes)/(No)	No	No	
India	No	No – tried to lock draft treaty because saw as NWS Discrimination	Yes	Yes/Yes	Signed and ratified	?/Yes	Yes	?	Clinton-Vajpayee joint statement 3/00 that withdrawl forgo nuclear tests
Pakistan	No	No – refused to sign 1996 unless India did	Yes	Yes/Yes	Signed and Ratified	??	Signed	?	
Australia	Yes	Signed and ratified	Yes	Yes/Yes	Signed and Ratified	?/Yes	Signed and ratified	?	
NZ	Signed and ratified	Signed and ratified	Yes	Yes/Yes	Signed and ratified	??	Signed and ratified	?	

Source: compiled from *Inventory of International Nonproliferation Organizations and Regimes: 1996–1997* (Monterey, CA: Center for Nonproliferation Studies 1997); 'Northeast Asian Participation in Arms Control/Nonproliferation Regimes', available on the Center for Nonproliferation Studies, website at >http://www.cns.miis.edu/cns/projects/eanp/fact/nearegms.htm<; 'Japanese Participation and Positions Regarding Various Arms Control and Nonproliferation Agreements, Organizations, and Regimes, July 1999', at >http://www.cns.miis.edu/cns/projects/eanp/fact/japan.htm<.

TABLE 3 (Contd)

Notes:
NPT: Treaty on the Nonproliferation of Nuclear Weapons (1970). NWS do not transfer nuclear weapons. NNWS do not receive nuclear weapons. 187 member states of which 5 are NWS. Only 4 states remain non-parties: Cuba, India, Pakistan, and Israel.
CTBT: Comprehensive Test Ban Treaty (1996). Opened for signature. Bans any nuclear weapon test explosion.
PTBT: Partial Test Ban Treaty (Banning Nuclear Weapon Tests in the Atmosphere, Outer Space and Under Water): 1963. Bans nuclear weapon tests in atmosphere, outer space and underwater and anywhere where fallout spills outside of territorial borders. Precursor to CTBT. And if states cannot ratify CTBT, they are still under obligations of PTBT.
BWC/CWC: Convention on Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons (entered into force 1975); Convention on Prohibition of the Development, Production, Stockpiling, and Use of Chemical Weapons (opened for signature 1993). BTWC - not to develop, produce, stockpile or otherwise acquire or obtain microbial or other biological agents or toxins for nonpeaceful purposes and to destroy or divert to peaceful uses any such items within 9 months of signing; CWC – same restrictions for chemical weapons. Signatories must destroy within 10 years all weapons and production facilities.
OST: Outer Space Treaty (1967). Prohibits use of outer space for military purposes. No weapons on objects that orbit the earth. Use of outer space for peaceful purposes.
SBT: Seabed Treaty (1972). Not to embed in seabed outside 12-mile territorial limit any nuclear weapons, or WMD and installations for such purpose.
Geneva Protocol: Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous, or Other Gases, and of Bacteriological Methods of Warfare (1925). Signatories reserve the right to exception if others resort to CW use.
OPCW: Organization for the Prohibition of Chemical Weapons (1997). Came into being after entry into force of CWC. Implementing and verification body for CWC.
IWC: Inhumane Weapons Convention (1983). Not to use weapons that create non-detectable fragments; not to mine against civilian populations; not to use incendiary weapons against civilians or air-delivered incendiaries.
Nuke Material: Convention on the Physical Protection of Nuclear Material (1987). For physical protection of nuclear materials during international transport (plutonium, uranium 235 and 233, irradiated fuel).

These generally entail a legal obligation to place all nuclear materials and installations under full-scope IAEA safeguards; clearly demarcate geographic limits of the NWFZ; and specify the obligations, rights, and responsibilities of parties with regard to disavowing nuclear weapons. For example, the South Pacific Nuclear Free Zone (Treaty of Rarotonga) of 1986 forbids the manufacture, acquisition, possession, or control by its member states of any nuclear explosive device inside or outside the treaty zone. It also forbids testing, stationing, dumping or transfer of nuclear materials or equipment to any state not subject to IAEA safeguards. In addition the regime has been relatively successful in getting the NWS to observe the three Protocols of 1996 barring them from similar activity in the region.[99]

Because nuclear and missile programs in Asia are not likely to disappear, embedding these programs in global nonproliferation regimes as well as encouraging the creation of new regional institutions can reinforce stability in Asia in two ways that support nonproliferation objectives. First, such institutions ensure that the barriers to entry regarding nuclear and missile capabilities remains high. If nuclear rollback is not a feasible option, then the next best option is to make acquisition of these capabilities as difficult and costly as possible. This factor contributes to the non-use outcome in Asia by at least slowing the pace of proliferation. It also lowers the danger of accidents as those that undertake the efforts to surmount these barriers are also likely to be the more responsible proliferators. Second, such institutions create normative pressures to forgo acquisition as parties deeply enmeshed in the regimes greatly discount the benefits of going nuclear by the reputational costs of violating the regimes. Moreover, for those that have already proliferated, the robustness of these regimes further socializes these states to the nuclear taboo.

Based on the region's current nonproliferation activities, two additional possibilities deserve mention. One is a limited nuclear weapons-free zone in Northeast Asia centered on the Korean peninsula and Japan (after moderation of the North Korean threat). The foundation for such an institution could be built upon a 'bundling' of events in the region that act as permissive factors to such a zone: the 1992 North-South Denuclearization Declaration; KEDO; Japan's non-nuclear principles; the 1994 Agreed Framework and the 1991 US declaration regarding the removal of nuclear weapons from the region.[100] Track II groups have looked at various proposals in this regard.[101] In South Asia, there is little likelihood of a nuclear-free zone. The salience of unresolved conflicts renders rollback difficult and heightens the regional players' perceived need for deterrent capabilities. Nevertheless, this does not negate the potential for a no-first-use zone. Sucha zone could be 'bundled' around the India-Pakistan Non-Attack Agreement of 1988,[102] the South Asian Association for Regional Cooperation (SAARC),[103] and the Clinton-Vajpayee summit joint vision statement (in which India in principle supports forgoing of future tests; seeks support of starting talks on FMCT; and supports export controls).[104] Other possibilities include a Northeast Asia fissile material register and a North and South Asia technology control regime.[105]

Thus, an assessment of sober optimism with regard to the consequences of proliferation in Asia does not preclude the importance of current or future nonproliferation regimes. These regimes are not only critical to raising the material and reputational costs of proliferating, but also reinforcing norms

of safety and taboos on non-use, once proliferation has occurred. For nonproliferation advocates, however, to focus on nuclear rollback in Asia without addressing the causes (of which there are many) is fruitless.

Finally, the case for sober optimism is not implying that all will be rosy in Asia. Nuclear weapons will not have an inherent pacifying effect on conflicts and rivalries in the region. On the contrary, such rivalries will continue and may even heighten. Indeed there may be more saber rattling and swaggering; attempts at political coercion, hostile rhetoric and threats, and even sub-nuclear conflicts in the new nuclear age in Asia. Nevertheless, there is nothing as yet that can lead one to argue conclusively that, relative to the first nuclear world, such conflicts are more likely to escalate and that this second nuclear age is more dangerous. Such conflicts are undoubtedly worrying, but they do not necessarily undermine the reality of a minimum deterrent Asian nuclear world bounded by taboos on nuclear use.

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NOTES

1. In this contribution, Asia will include both Northeast and South Asia. I will focus mostly on China, Japan, and the two Koreas in Northeast Asia; and Pakistan and India in South Asia.
2. This is admittedly less the case for China. On second-tier nuclear powers in the first nuclear age, see Avery Goldstein, *Deterrence and Security in the 21st Century: China, Britain, France and the Enduring Legacy of the Nuclear Revolution* (Stanford UP 2000).
3. China remains the only power besides Russia with the ICBM capability to reach the United States and until a recent US-China non-targeting agreement (June 1998) was believed to have the majority of its long-range ICBM force of 20 missiles targeted on the US (it is believed to keep its missiles unfueled and without warheads separated).
4. The bomber leg of the triad are approximately 120 Hong-6 bombers (range of 3100km, each capable of delivering 1–3 bombs of 10KT–3MT); and 30 Qian-5A attack aircraft (range of 400 km, capable of delivering one nuclear bomb 10KT–3MT) deployed in 1965 and 1970 respectively. The sea-based leg consists of about 12 JL-1 SLBMs deployed in 1986 on one *Xia*-class submarine. Experts consider both the air- and sea-based legs of the triad less threatening. The bomber force is old, highly vulnerable to air defense, and incapable of reaching the US. The SLBM program has proved less successful despite the four decades of development invested in it. In addition, China is believed to possess about 150 tactical weapons made up of low-yield bombs, artillery shells, atomic demolition munitions and short-range missiles (although it does not officially acknowledge possession of tactical weapons). For a concise overview, see Robert Manning, Ronald Montaperto and Brad Roberts, *China, Nuclear Weapons, and Arms Control* (NY: Council on Foreign Relations 2000) pp.15–37.

5. China conducted its first nuclear test in 1964. It exploded a hydrogen weapon in 1966 and began production of nuclear weapons in 1968 and thermonuclear weapons in 1974.
6. India's most capable operational missile, the Prithvi-150, has a 1000kg payload and a range of 150km, although it has tested and developed longer-range systems (e.g., Agni). Modernization plans include the acquisition of submarine-launch capabilities. India also possesses an ambitious space-launch vehicle program for which the ready availability of guidance sets and warheads give them additional recessed BM capabilities.
7. Pakistan's most capable missile, the Hatf 2, has a 500kg payload and range of 280 km, although it has test launched longer-range missiles (e.g. Ghauri). The SRBM industry includes rocket motor production and test facilities. Substantial support for the Hatf series has come in the past from China (M-11 equipment transfers in the early 1990s). More recently, Pakistan has concentrated its efforts on testing and development of 1300–3500km range of the Ghauri and Shaheen series largely based on transfers of the North Korean Nodong missile series (see Table 1). Neither country is a member of the Missile Technology Control Regime (MTCR)
8. Three operating reactors are under IAEA safeguards (KANUPP power reactor in Karachi, PARR I and PARR II research reactors near Islamabad) Chashma nuclear power plant also is under IAEA safeguards. Pakistan also operates un-safeguarded reactors that are capable of producing weapons-grade plutonium
9. Despite its dire material constraints, North Korea accomplished this progress largely through reverse-engineering of Scud-B missile technology acquired from the Soviet Union. North Korea's first indigenous operational missile, the Nodong series, derives from Scud technology. The Aug. 1998 test flight of the Taepodong 1 over Japan demonstrated an unexpected leap in IRBM technology (albeit a failed 3-stage payload launch). In defiance of MTCR norms and often described as the agent that could single-handedly undermine the entire regime, North Korea has been the most active producer and provider of Scud missiles and missile technology to Iran, Syria and Pakistan; concerns abound regarding future proliferation of longer-range systems (e.g., Pakistan's Ghauri and Shaheen series are derivative of Nodong technology). For further discussions, see Evan Medeiros, *Northeast Asia in 1999: Current Threats to Nonproliferation Regimes*, CNS Occasional Paper 3 (n.d.), Center for Nonproliferation Studies (see >http://cns.miss.edu/ pubs/opapers/op3/ medeiros.htm<, p.4.
10. A peaceful uses of atomic energy agreement with the Soviet Union enabled North Korea to develop a small nuclear research reactor and a basic understanding of nuclear physics, engineering, and reactor operations.
11. Concerns abound regarding possible reprocessing activities in 1989 and May–June 1994, that would have provided the DPRK with enough weapons-grade plutonium for several nuclear weapons.
12. This transfer capability largely occurs through the capacity to produce highly enriched uranium (for reactor use early in the fuel cycle), and to reprocess plutonium and/or accumulate plutonium from the spent fuel. The former material forms the core of the atom bomb (used at Hiroshima) and the latter the implosion bomb used at Nagasaki. Crude implosion bombs require no more than 10kg of plutonium, which is a fraction of what can be extracted from the spent fuel of a civilian nuclear reactor (for the general point, see Scott Sagan, 'Why Do States Build Nuclear Weapons?', *International Security* 21/3 (Winter 1996–97) pp.56–7).
13. For resource-poor countries in Asia, nuclear electricity is price competitive with coal-based electricity (assuming stable capital costs for plant construction). Some argue that nuclear electricity is actually cheaper than coal-based energy because coast calculations for the former include cautionary expenses related to disposal, safety, and radiation protection, while the latter do not factor in the cost of pollution and other negative externalities (see Michael May, *Energy and Security in East Asia*, A/PARC Working Paper (Stanford University, Jan. 1998) p.20)).
14. By contrast, the US is estimated to reduce by ten percent its nuclear energy capacity by 2010. South Korea stands out as likely to experience the largest relative increase in nuclear energy capacity in the next decade, more than doubling its current capacity (not including

the additional power generation stemming from two 1000 MW reactors in North Korea as a result of the 1994 Agreed Framework implementation).

15. For further discussions, see Eiichi Katahara, 'Japan's Plutonium Policy: Consequences for Nonproliferation', *The Nonproliferation Review* 5/1 (Fall 1997); Selig Harrision (ed.) *Japan's Nuclear Future* (Washington DC: Carnegie Endowment for International Peace 1996); and 'Energy and Security in Northeast Asia: Fueling Security', IGCC Policy Paper No. 35 (La Jolla, CA: IGCC 1998) pp.20–1. For more general concerns also see Kent Calder, *Pacific Defense* (NY: William Morrow 1996) pp.62–74.
16. Regarding ballistic missiles, Japanese capabilities for ICBM arsenals deriving from their Space Launch Vehicle (SLV) program are well known, as are the normative and constitutional constraints to doing so. Gaining more recent attention have been ROK missile capabilities. These are modest based on a 1979 bilateral agreement with Washington that limited ROK missile ranges to 180km (the quid pro quo for this voluntary agreement was the transfer of US technology for the South's Nike-Hercules-2 missile). However, ROK intentions with the agreement's expiration (1999) and with the North's BM program have been for more independent development of longer-range missiles (pursuant to the DPRK Taepodong test flight in August 1998, the ROK tested a surface-to-surface missile [April 1999] demonstrating Seoul's capabilities and determination to develop a more advanced missile deterrent). US-ROK bilateral discussions center around an upgrading of ROK missile capabilities in line with MTCR guidelines, but Seoul's aspirations are for research and development of missile ranges in excess of this understanding. The South Koreans also have aspirations for an SLV program. While ROK BM capabilities are less advanced than Japan's, arguably they are also less 'recessed'. On the BM and SLV programs, see Victor Cha, 'The Economic Crisis, Strategic Culture, and the Military Modernization of South Korea', *Armed Forces and Society* (forthcoming).
17. See Sagan's 'security model', in Sagan (note 12); John Deutsch, 'The New Nuclear Threat', *Foreign Affairs* 71/41 (Fall 1992); and Goldstein (note 2).
18. Goldstein (note 2) p.57.
19. For further discussions on the relative advantages of nuclear over conventional deterrents, see Goldstein (note 2) pp.35–40, 54–5.

19a. Goldstein (note 2) p.225.

20. Manning *et al.* (note 4) pp.15–16; John Wilson Lewis and Xue Litai, *China Builds the Bomb* (Stanford UP 1988); Goldstein (note 2) ch.3, pp.62–7, 250–1; Paul Godwin, 'China's Nuclear Forces: An Assessment', *Current History* (Sept. 1999); and Chong-Pin Lin, *China's Nuclear Weapons Strategy* (Lexington, MA: Lexington Books 1988).
21. India was roundly defeated in the 1962 war over territorial disputes that remain unresolved today. As Hagerty claims, 'The national security roots of India's nuclear weapon programme lie in the 1963 [*sic*] defeat, and in China's 1964 nuclear explosive test. The programme's *raison d'être* is to deter another attack by China, which, while considered highly unlikely, cannot be entirely ruled out by any future leader.' Devin Hagerty, 'South Asia's Big Bangs', *Australian Journal of International Affairs* 53/1 (1999) pp.20–1; Muthiah Alagappa, 'International Response to Nuclear Tests in South Asia: The Need for a New Policy Framework', *Asia-Pacific Issues* 38 (15 June 1998) East-West Center, p.5.
22. Indian requests for such guarantees were raised at the UN Disarmament Conference (and after the 1965 Indo-Pakistan war) as a quid pro quo for British and American efforts to halt further proliferation in the aftermath of the Chinese test. The issue came up again in 1968 when the US, UK and Soviets sought India's accession to the NPT without offering credible guarantees to non-nuclear weapons. One could attribute at least partially the delay between Indian threat perceptions in 1965 and the decision to test in 1974 to Indira Gandhi's Aug. 1971 treaty of peace with the Soviet Union which Ganguly argues has been underestimated in terms of the security guarantees provided to India by Moscow (Sumit Ganguly, 'India's Pathway to Pokhran II', *International Security* 23/4 (Spring 1999) pp.153–7, 159).
23. Ganguly (note 22) pp.162–4; Alagappa (note 21) p.7.
24. Alagappa (note 21); Sandy Gordon, 'Capping South Asia's Nuclear Programs', *Asian Survey* 34/7 (July 1994) pp.662–73; and Hagerty (note 21) pp.20–1.

25. Indian perceptions with regarding to closing windows of opportunity with passage of the Comprehensive Test Ban Treaty (CTBT) in 1996 discussed below.
26. As Hagerty puts it, the 1971 war was for Pakistan what the 1962 war was for India. The core aim of Pakistani nuclearization from then on was to avoid a repetition of the humiliating defeat in 1971 (where Indian superior conventional capabilities enabled a successful intervention in the Pakistani civil war). See Hagerty (note 21) p.22; Samina Yasmeen, 'Pakistan's Nuclear Tests: Domestic Debate and International Determinants', *Australian Journal of International Affairs* 53/1 (1999) pp.43–4; also see Mohammad Aslam, *Dr. A.Q. Khan and Pakistan's Nuclear Programme* (Rawalpindi: Diplomat Publications 1989).
27. Proponents of this view also pointed to Secretary Albright and Undersecretary Pickering's visits to New Delhi in Oct. 1997 and Energy Secretary Bill Richardson's April 1998 visit as evidence of America's new embedding of South Asia policy in the larger Sino-American context. The US offered a variety of incentives to Islamabad not to respond to the Indian test (e.g., a high-level visit to Washington; repeal of the Pressler Amendment and release of previously suspended purchase of 28 F-16s; and $5 billion in World Bank and IMF loans over 5 years), but provided no concrete assurances against an Indian use of nuclear weapons (see Yasmeen (note 26) pp.43–4, 46; Samina Ahmed, 'Pakistan's Nuclear Weapons Program: Turning Points and Nuclear Choices', *International Security* 23/4 (Spring 1999) pp.180–90; and Hagerty (note 21) p.22).
28. This interpretation assumes some degree of deterrence-motivation with regard to DPRK intentions. An alternative interpretation that saw DPRK intentions as aggressive and revisionist would not assign such defensive motivations to North Korea's proliferation of nuclear and ballistic missile capabilities. For a discussion of revisionist intentions behind North Korea's proliferation, see Victor Cha, 'Making Sense of the Black Box: Hypotheses on Strategic Doctrine and the DPRK Threat', in Samuel Kim (ed.) *The North Korean System* (Palgrave, forthcoming). Also see Leon Sigal, *Disarming Strangers* (Princeton UP 1998).
29. See Victor D. Cha, *Alignment Despite Antagonism: The United States-Korea-Japan Security Triangle* (Stanford UP 2000) Ch.3.
30. On additional discussions regarding the link between the forward presence in Japan and Korea and attitudes toward the nuclear umbrella, see Narushige Michishita,'Alliances After Peace in Korea', *Survival* 41/3 (Fall 1999) pp.68–83.
31. The exception that proves the rule here is Japan.
32. Hagerty (note 21) pp.21–2.
33. Paul Bracken, 'Asia's Militaries and the New Nuclear Age', *Current History* 98/632 (Dec. 1999) pp.415–21.
34. See George Percovich, *India's Nuclear Bomb: The Impact of Global Proliferation* (Berkeley: Univ. of California 1999); and Bracken (note 26).
35. Yasmeen (note 26) p.44.
36. For examples of such contradictions in the US Secretary of Defense Annual Report 2000 and the 1999 NATO Strategic Concept, see Daniel Plesch, 'Anarchy in Action: Western Policy on Weapons of Mass Destruction', *Global Beat* (April 2000) >www.nyu.edu/globalbeat/ nuclear/plesch0400.html<. Also see Hagerty (note 21) pp.27–8.
37. Goldstein (note 2) pp.228, 234–5.
38. On the latter point as an impediment to Japan's leading role in nonproliferation efforts, see Eiichi Katahara, 'Japan's Plutonium Policy: Consequences for Nonproliferation', *The Nonproliferation Review* 5/1 (Fall 1997).
39. Alagappa (note 21) p.3.
40. Samina Ahmed, 'Pakistan's Nuclear Weapons Program', *International Security* 23/4 (Spring 1999) p.185.
41. Jaswant Singh, 'Against Nuclear Apartheid', *Foreign Affairs* 77/5 (Sept.–Oct. 1998) pp.41–52.
42. Ganguly (note 22) p.158.
43. Hagerty (note 21) p.27–8; and Singh (note 41) p.41.
44. Such concerns prompted Prime Minister Rao to begin preparations for an Indian test at the

end of 1995 on the grounds that it was 'now or never' (see Ganguly, note 22, p.168). The test was never carried out.

45. See Victor Cha, 'Engaging North Korea Credibly', *Survival* 42/2 (Summer 2000) pp.136–55.
46. These quotations come from Yasmeen (note 26) p.54. Similarly, when Pakistan realized that the implicit threat of nuclear action succeeded in deterring India from transversing the Line of Control in the 1990 Kashmir conflict, '... the success of the nuclear bluff reinforced the leadership's belief in the value of nuclear weapons both as a deterrent and as a tool of diplomatic bargaining...this became enshrined as an article of faith'. (Ahmed, note 40, pp.189–90).
47. Yasmeen (note 26) p.44. For example, the IRBM Ghauri test in April 1998 was hailed as enabling Islamabad to negotiate with India from a position of parity and strength (p.48).
48. Sisir Gupta, 'The Indian Dilemma', in Alastair Buchan (ed.) *A World of Nuclear Powers* (Englewood Cliffs, NJ: Prentice-Hall 1966) p.62, cited in Ganguly (note 22) p.152.
49. Bracken (note 33) pp.417–18.
50. Sagan (note 12).
51. Bracken (note 33) p.420.
52. Richard Betts, 'Wealth, Power and Instability: East Asia and the United States after the Cold War', *International Security* 18/3 (Winter 1993–94); Aaron Friedberg, 'Ripe for Rivalry: Prospects for Peace in a Multipolar Asia', *International Security* 18/3 (Winter 1993–94); Calder (note 15); and Paul Bracken, *Fire in the East* (NY: HarperCollins 1999).
53. See discussion in Robert Jervis, *Meaning of the Nuclear Revolution: Statecraft and the Prospect of Armageddon* (Ithaca, NY: Cornell UP 1989) Ch.6. As Jervis notes, when the weapon is so powerful that the two can destroy each other, then necessarily power converts to outcomes not through military clashes but by indirect processes and subjective assessments (p.182).
54. As Sagan notes, 'The belief that nuclear power and nuclear weapons were deeply linked to a state's position in the international system was present as early as 1951 when France's first five-year plan saw the links between nuclear weapons and France as a powerful country' (Sagan, note 12, p.78).
55. Nicholas J. Wheeler, 'The Dual Imperative of Britain's Nuclear Deterrent: the Soviet Threat, Alliance Politics and Arms Control', in Mark Hoffman (ed.) *UK Arms Control in the 1990s* (NY: Manchester UP 1990) p.36; and Stephen Pullinger, 'A Role for UK Nuclear Weapons After the Cold War?' *ISIS Briefing* 41 (Jan. 1994) p.2.
56. As Hagerty observed, 'Indian leaders noted the symbolic bestowal of great-power status on China and the fact that the membership of the Security Council and the nuclear club were now identical' (Hagerty, note 21, p.21); also see for concurring arguments Lawrence Scheinman, 'Challenges in South Asia to Nonproliferation Regimes', CNS Occasional Papers 3 (n.d.), Center for Nonproliferation Studies >http://cns/miss.edu/pubs/opapers/op3/schein.htm<. Or as another expert put it, 'Although New Delhi doubtless has genuine cause for concern about China's nuclear program, ... India's program is also driven by the desire for the prestige and international standing that New Delhi has observed being accorded in the international system to substantial nuclear weapons powers, including China' (Sandy Gordon, 'Capping South Asia's Nuclear Programs', *Asian Survey* 34/7 (July 1994) pp.666–7.
57. Cited in Strobe Talbott, 'Dealing with the Bomb in South Asia', *Foreign Affairs* 88/2 (March–April 1999) p.116.
58. Yasmeen (note 26) pp.43–56, 44; Ahmed (note 40) pp.179, 3; Gordon (note 56) p.667.
59. Goldstein (note 2) pp.271–2.
60. For related discussions, see Itty Abraham, *The Making of the Indian Atomic Bomb: Science, Secrecy and the Postcolonial State* (NY: Zed Books 1998); and Sumit Ganguly, 'Explaining India's Nuclear Policy', *Current History* 98/632 (Dec. 1999) pp.438–40.
61. Gordon (note 56) p.669.
62. Goldstein (note 56) p.254.
63. It is granted that the sanctions against India after the 1974 test were quite severe. The US cut off all nuclear cooperation with India. The 1976 Symington amendment to the annual

foreign aid bill proposed suspending economic and military assistance to countries without IAEA safeguards (Ganguly, note 22, pp.160–1).

64. Tariq Rauf, 'Learning to Live with the Bomb in South Asia: Accommodation Not Confrontation', *The Bulletin of Atomic Scientists* (Jan.–Feb. 1999) pp.14–16.
65. Yasmeen (note 26) p.50; and Ahmed (note 40) p.190. This assessment was informed by previous US one-time waivers of the Pressler amendment to sell $360m in military hardware to Pakistan.
66. Agreed Principles <http://usinfo.state.gov/regional/nea/mena/india1.htm>; and Rauf (note 64) p.2.
67. The implications of these findings for nonproliferation regimes are discussed below.
68. See David Karl, 'Proliferation Pessimism and Emerging Nuclear Powers', *International Security* 21/3 (Winter 1996–97).
69. Karl (note 68) pp.90–3. Also see Lewis Dunn, *Controlling the Bomb: Nuclear Proliferation in the 1980s* (New Haven, CT: Yale UP 1982); Lewis Dunn, *Containing Nuclear Proliferation*, Adelphi Paper No. 263 (London: IISS 1991); Karl Kaiser, 'Non-Proliferation and Nuclear Deterrence', *Survival* 31/2 (March–April 1989); Steven Miller, The Case Against a Ukrainian Nuclear Deterrent', *Foreign Affairs* 72/3 (Summer 1993); and Yair Evron, *Israel's Nuclear Dilemma* (Ithaca, NY: Cornell 1994).
70. Peter Feaver, *Guarding the Guardians: Civilian Control of Nuclear Weapons in the United States* (Ithaca, NY: Cornell 1992); Bruce Blair, *The Logic of Accidental Nuclear War* (Washington DC: Brookings Institution 1993); Scott Sagan, *The Limits of Safety: Organizations, Accidents, and Nuclear Weapons* (Princeton UP 1994); Scott Sagan and Kenneth Waltz, *The Spread of Nuclear Weapons: A Debate* (NY: Norton 1995); and Bracken (note 52).
71. On preemption and nuclear proliferation, see Gordon Chang, *Friends and Enemies: The United States, China and the Soviet Union, 1948–72* (Stanford UP 1990); Gordon Chang, 'JFK, China, and the Bomb', *Journal of American History*, 74/4 (March 1988); Karl (note 68) pp.966–7; Scott Sagan, 'The Perils of Proliferation: Organization Theory, and the Spread of Nuclear Weapons', *International Security* 18/4 (Spring 1994) pp.66–107; and William Burr and Jeffrey Richelson, 'Whether to Strangle the Baby in the Cradle: The United States and the Chinese Nuclear Program, 1960–64', *International Security* 25/3 (Winter 2000–01).
72. Bracken (note 33) p.420.
73. Bracken (note 52) pp.112–13; also see Brookings Institution/Council on Foreign Relations, *After the Tests: US Policy Toward India and Pakistan* (NY: CFR Press 1998) pp.2–3; and Calder (note 15).
74. Again quoting Bracken, '... the sources of instability in Asia are ones that cannot be eliminated through hot lines and high-tech locking devices to prevent the unauthorized launch of weapons. It may be better to have these safety measures in place than not to have them, but they divert attention from the more primitive animosity that lies below the surface and can be inflamed ...' (Bracken, note 33, p.420; also see Friedberg, note 52).
75. David Kang, 'Asian Bandwagons' in John Ikenberry and Michael Mastanduno (eds.) *International Relations Theory and the Asia-Pacific* (Columbia UP 2002).
76. For critiques of ethnocentrism in the proliferation debate, see Waltz's arguments in Sagan and Waltz (note 70); Peter Feaver, 'Optimists, Pessimists, and Theories of Nuclear Proliferation Management', *Security Studies* 4/4 (Summer 1995) pp.754–72; and Ahmed Hashim, 'The State, Society, and the Evolution of Warfare in the Middle East', *Washington Quarterly* 18/4 (Autumn 1995) pp.53–76.
77. Thanks to Avery Goldstein for raising this point.
78. Goldstein (note 2) pp.8–9.
79. Ibid. pp.276–9.
80. See Canberra Commission, *Report of the Canberra Commission on the Elimination of Nuclear Weapons* (Canberra, Australia: Dept. of Foreign Affairs and Trade 1996); and National Academy of Sciences, *The Future of US Nuclear Weapons Policy* (Washington DC: National Academy Press 1997).
81. For the classic statement, see Thomas Schelling, *The Strategy of Conflict* (Cambridge, MA: Harvard UP 1960) Ch.9.

82. Hagerty (note 21) pp.24–6; Devin T. Hagerty, 'Nuclear Deterrence in South Asia: The 1990 Indo-Pakistani Crisis', *International Security* 20/3 (Winter 1995–96) pp.79–114.
83. Marc Trachtenberg, 'The Influence of Nuclear Weapons in the Cuban Missile Crisis', *International Security* 10/1 (1985) pp.137–63, 139; also see McGeorge Bundy, 'Existential Deterrence and its Consequences', in Douglas MacLean (ed.) *The Security Gamble: Deterrence Dilemmas in the Nuclear Age* (NJ: Rowman & Littlefield 1984) pp.3–13; and Devin T. Hagerty, *The Consequences of Nuclear Proliferation* (Cambridge, MA: MIT Press 1998) p.26.
84. Goldstein (note 2) pp.44–6.
85. Hagerty (note 21) pp.23–4; Hagerty, 'Nuclear Deterrence in South Asia' (note 82).
86. Alagappa (note 21) p.6.
87. Sumit Ganguly, 'Explaining Indian Nuclear Policy', *Current History* (Dec. 1999) p.440; and Yasmeen (note 26) p.49. For additional arguments on how crisis stability and strategic stability conditions deriving from first-strike uncertainty are reinforcing for India and Pakistan, see Ganguly (note 22) p.177. For the draft nuclear doctrine, see Embassy of India website >http://www.indianembassy.org/polic.../nuclear_doctrine_aug_17_1999.html<. For reaffirmations of India's minimum credible deterrent arguments, see Clinton-Vajpayee joint vision statement March 2000, 'US-India Relations: A Vision for the 21st Century' at >http://usinfor.state.gov/regional/nea/mena/india1.htm<.
88. On the 1990 crisis, see Sumit Ganguly, 'Political Mobilization and Institutional Decay: Explaining the Crisis in Kashmir', *International Security* 21/2 (Fall 1996) pp.76–107. Nevertheless, two problems sit on the horizon. First, if first-strike uncertainty and the fear of escalation stabilize conflict at the nuclear level, then instability at lower levels of violence may eventually result. On the stability-instability paradox, see Robert Jervis, *The Illogic of American Nuclear Strategy* (Ithaca, NY: Cornell UP 1985) p.31; and Glenn Snyder, 'The Balance of Power and Balance of Terror', in Paul Seabury (ed.) *The Balance of Power* (San Francisco: Chandler 1965). Second, where existential deterrence is the most problematic potentially is with the Sino-Indian dyad. Beijing has the capabilities to inflict a high level of damage on India, although at current levels, it could not be assured of a successful first strike. However with growth in Chinese capabilities (and India's inability to develop ballistic missiles to target Chinese assets with confidence), first-strike uncertainty could be undermined.
89. Bruce Russett, 'The Real Decline in Nuclear Hegemony', in Czempiel and Rosenau (eds.) *Global Changes and Theoretical Challenges* (Lexington, MA: Lexington Books 1989) pp.177–93, 185; T.V. Paul, 'Nuclear Taboo and War Initiation in Regional Conflicts', *Journal of Conflict Resolution* 39/4 (Dec. 1995) pp.696–717.
90. Nina Tannenwald, 'The Nuclear Taboo: The United States and the Normative Basis of Nuclear Non-Use', *International Organization* 53/3 (Summer 1999) pp.433–68; and Amy Sands, 'The Nonproliferation Regimes at Risk', CNS Occasional Paper 3 (n.d.), Center for Nonproliferation Studies, >http://cns.miis.edu/pubs/opapers/op3/sands.htm<.
91. Tannenwald (note 90) p.437.
92. Ganguly (note 87) p.440; and Alagappa (note 21) p.6.
93. Domestic groups who counseled against the May 1998 tests, held little sway prior to the tests (see Yasmeen, note 26).
94. Positing the conditions for nuclear rollback is beyond the scope of this study. As Sagan argues, the likelihood of rollback increases when security threats moderate and/or security guarantees are forthcoming from other interested parties. Thus, South Africa publicly disposed of its program of six disassembled weapons in 1991 after the Soviet threat in Angola and Namibia ended. Argentina and Brazil in 1990 abandoned their programs because they did no longer saw each other as threats. And Ukraine, Kazakhstan and Belarus all gave up the arsenals they inherited from the Soviet Union because of security assurances from the US (Sagan, note 12, pp.60–2). However, as Goldstein argues, such optimistic predictions from the security model for proliferation have to be tempered by the technological considerations, i.e., as long as nuclear weapons remain the dominant technological innovation in military strategy, '[T]he presence of nuclear weapons, regardless of polarity, drives a strategic logic that weakens confidence in security as a collective good supplied through international alliances and encourages the pursuit of an independent deterrent capability as the ultimate guarantee of national security' (Goldstein, note 2, p.222).

95. Alagappa (note 21) pp.2–3.
96. China is a member of the NPT and signed the CTBT but has transferred nuclear and missile technology to Pakistan and Iran. India and Pakistan are not members of NPT, CTBT, or MTCR and actively oppose some of these conventions because they see these as freezing permanent gaps in capabilities between established powers and themselves (Daniel Plesch, 'Anarchy in Action: Western Policy on Weapons of Mass Destruction', *Global Beat* (April 2000) >www.nyu.edu/globalbeat/nuclear/plesch0400.html<).
97. Sands (note 90).
98. Evan Medeiros, 'Northeast Asia in 1999: Current Threats to Nonproliferation Regimes', CNS Occasional Paper 3 (n.d.), Center for Nonproliferation Studies >http://cns.miis.edu/pubs/opapers/op3/medeiros.htm<; Alistair Iain John, 'Prospects for Chinese Nuclear Force Modernization: Limited Deterrence Versus Multilateral Arms Control', *The China Quarterly* (June 1996).
99. France was dropped as a Dialogue partner in 1995 after its tests but was reinstated in 1996. Parties to the Zone are Australia, Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Nauru, New Zealand, Niue, Palau, Papua New Guinea, Republic of Marshall Islands, Solomon Islands, Tonga, Tuvalu, Vanuatu, Western Samoa (Dialogue partners: Canada, China, EU, Japan, ROK, UK, US, and France). In addition, the Southeast Asia Nuclear Weapon Free Zone (SEANWFZ) Treaty is even more stringent than Rarotonga, requiring negative security assurances from the NWS and extending the nuclear-free zone among the seven ASEAN members continental shelves and exclusive economic zones (no NWS have signed yet; the US and France object to the unequivocal nature of treaty's security assurances). In addition, the 1997 Almaty Declaration has called for a Central Asia NWFZ endorsed by Kyrgyzstan, Kazakhstan, Tajikistan, Turkmenistan, and Uzbekistan. See *Inventory of International Nonproliferation Organizations and Regimes 1996–1997* (Center for Nonproliferation Studies, Monterey Inst. of Int. Studies, May 1997) pp.52–60; and Tariq Rauf, 'Successes of the Nuclear Non-Proliferation Regime' (8 Oct. 1999) at Center for Nonproliferation Studies, >cns.miis.edu/cns/projects/ ionp/iaea.htm< pp.5–8.
101. See work by the Center for International Strategy, Technology, and Policy at Georgia Tech's Northeast Asia Cooperative Regional Security Initiative since 1992 at >http://www.cistp.gatech.edu/programs/lnwfz-nea.html<; also see the Funabashi Commission for Disarmament and Arms Control. This development might also garner Chinese support as Beijing has expressed interest in NWFZs and announced in July 1999 that it would sign the SEANWFZ protocols (which would make it the first NWS to do so).
102. Parties agree to refrain from direct or indirect actions aimed at undermining any nuclear installation or facility and agree to provide lists and descriptions of nuclear facilities and locations annually and whenever there is a change to the status quo. Both sides claim the other's lists are not complete. (See *Inventory*, note 99, pp.63–4).
103. Established in 1985 to promote the welfare of South Asia and collective self-reliance. In the past, proposals for South Asian nuclear weapons ban and disarmament have been raised in this venue (Pakistan in 1987).
104. >http://usinfo.state.gov.regional.new/mena/india1.htm<. Past Chinese behavior indicates that they, too, might be positively inclined to a Northeast Asia nuclear-free zone. Beijing more so than the United States (because of extended deterrence commitments) has proposed multilateral NFU and NSA agreements among P-5 countries. It has a bilateral NFU with Russia (Sept. 1994); an NSA with Ukraine (Dec. 1994) and with Kazakhstan (Feb. 1995) (Jozef Goldblat, 'The State of Nuclear Arms Control and Disarmament: Reversing Negative Trends', *Disarmament Diplomacy* No. 44 >www.acronym.org.uk/44neg.htm<).
105. In the former case, all the countries in the region have supported in principle starting Conference on Disarmament (CD) negotiations on the banning of further production of weapons-usable fissile material as barrier to further nuclear proliferation – in conjunction with this agreement might be the development of a comprehensive register of highly enriched uranium and plutonium stockpiles. In the latter case, membership for this new entity would consist of four current groups: the Zangger Committee, Nuclear Suppliers Group, Australia Group, and MTCR. Outstanding countries like the two Koreas, India, and Pakistan have committed in principle to these groups.

TABLE 4
REGIONAL AND BILATERAL INSTITUTIONS

Country	SEANWFZ	KEDO	NEA	SAARC	Rarotonga
US	No	Yes	Yes	n/a	Accepts protocols
Russia	No	No	n/a	n/a	Accepts protocols
China	No	No	n/a	n/a	Accepts protocols
Japan	No	Yes – original board member	Yes	n/a	Dialogue partner
DPRK	No	No	n/a	n/a	No
ROK	No	Yes	Yes	n/a	Dialogue partner
ROC	No	No	n/a	n/a	No
India	No	No	n/a	Yes	No
Pakistan	No	No	n/a	Yes	No
Australia	No	Yes	Yes	n/a	Yes
NZ	No	Yes	No	n/a	Yes

Sources: compiled from *Inventory of International Nonproliferation Organizations and Regimes: 1996–1997* (Monterey, CA: Center for Nonproliferation Studies 1997); 'Northeast Asian Participation in Arms Control/Nonproliferation Regimes', available on the Center for Nonproliferation Studies, website at >http://cns.miis.edu/cns/projects/eanp/fact/nearegms.htm<; 'Japanese Participation and Positions Regarding Various Arms Control and Nonproliferation Agreements, Organizations, and Regimes, July 1999', at >http://cns.miis.edu/cns/projects/eanp/fact/japan.htm<.

Notes:

SEANWFZ: South East Asia Nuclear Weapon Free Zone Treaty (Bangkok treaty) (1995). Precursor was 1971 ASEAN original five declaration of ZOPFAN (Zone of Peace, Freedom and Neutrality). No NWS have signed the protocols.

KEDO: Korea Energy Development Organization (1995). To provide for financing and supply of LWRs to DPRK and heavy fuel oil.

NEA: Nuclear Energy Agency (1958). Semi-autonomous body of OECD (formerly European Nuclear Energy Agency). To promote cooperation between members regarding: safety and regulatory aspects of nuclear power and on development of nuclear energy. No direct nonproliferation responsibilities although opposed to in principle.

SAARC: South Asian Association for Regional Cooperation (1985). To promote welfare of South Asia, collective self-reliance. In past proposals for South Asian nuclear weapons ban have been raised in this venue (Pakistan in 1987).

Rarotonga: South Pacific Nuclear-Free Zone Treaty (Rarotonga treaty) (1986). Not to manufacture, acquire, possess or control any nuclear explosive device anywhere within treaty zone. Protocol I obligates France, UK, US not to manufacture, station or test in the zone (3 states acceded March 1996). Protocol 2 obligates China, France, Russia, US, UK not to use or threaten to use any nuclear explosive device against parties of the Treaty (all acceded March 1996). Protocol 3 obligates China, France, Russia, UK, US not to test any nuclear device in Zone.