

Nuclear South Asia

The IPCS Nuclear Security Programme Quarterly



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Cover Photo

Credit: *AFP/Getty Images via telegraph.co.uk*
(L to R) Kim Jong-un, Jang Song-thaek, Kim Jong-il

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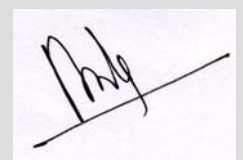
Nuclear South Asia: A Year After

Nuclear South Asia, the quarterly magazine of the IPCS Nuclear Security programme (NSP) started last year, has seen three successful issues in 2011. We sincerely hope we will be able to maintain the pace, and more importantly the quality of reports, briefs and commentaries on nuclear issues of note.

This issue (Jan-Mar 2012) contains an issue brief on an important issue, written by Tanvi Kulkarni and Alankrita Sinha. Titled 'India's Credible Minimum Deterrence: An Appraisal,' this brief was peer reviewed and discussed at the IPCS.

Besides the Issue Brief, there are interesting commentaries in this issue on current developments in Iran and North Korea, thus extending beyond South Asia. Anureet Rai ('Isolating Iran: Is it Counter-Productive?'), Tanvi Kulkarni ('India, Australia and Uranium: What after the 'Labor' Pains?') and Ruhee Neog ('Inside North Korea: Kim Jong-un and Succession' and 'Waiting for Godot?: US's North Korean Dilemma') comment on external issues, while Pradeepa Viswanathan ('Kudankulam Nuclear Power Plant: Contested Standpoints') And Ali Ahmed ('The Direction of India's Deterrent') deal with internal issues.

During the last quarter, the IPCS, in collaboration with the IISS, London, organized a workshop on 'Managing Civil Nuclear and Radiological Materials: Safety, Security and Diplomacy' to assess Indian and international perspectives on civil nuclear safety and security issues. Another landmark initiative that gathered momentum during the last quarter was the IPCS Task Force set up to review and provide an alternative blueprint for India's draft nuclear doctrine. The Task Force, comprising experts from the military, bureaucracy, scientific and strategic communities and academia, have held various intensive sessions over the past three months to draw up a list of recommendations to better serve Indian nuclear policy-makers. The conclusions are expected to be published in the next issue of the quarterly.



D Suba Chandran



Workshop on Managing Civil Nuclear and Radiological Materials: Safety, Security and Diplomacy, November 2011



India's Credible Minimum Deterrence: An Appraisal - (From L to R) Dr Manpreet Sethi, Brig Gurmeet Kanwal and Prof R Rajaraman



Fifth trilateral dialogue of India, Pakistan and China, September 2011

India's Credible Minimum Deterrence: A Decade Later

Tanvi Kulkarni and Alankrita Sinha

Research Officers, IPCS

Deterrence in the most conventional sense implies the making of military threats in order to prevent an adversary from taking aggressive actions (Buzan 1987). According to Barry Buzan (1987: 136), deterrence as a concept purports to stop an unwanted action by the adversary before they occur and encompasses both denial and the possibility of retaliation.

The introduction of nuclear weapons into this complex dynamic of deterrence does not stabilize the crisis situation, as conventional wisdom suggests, but makes it even more threatening. The core of nuclear deterrence involves convincing the adversary that the cost of an undesirable action is more than the rewards. This requires a comprehensive understanding of not only the adversary's motives, decision-making processes and objectives, but also one's own capability to influence the calculus of costs and benefits that an adversary attaches to his own belligerence. Therefore, nuclear deterrence also takes into account the credibility of one's own nuclear threat that is aimed at convincing the adversary that his belligerence will be 'punished' by unacceptable damage through nuclear means. It is in the wake of this that India evolved its own nuclear doctrine which seeks to uphold the notion of credible minimum deterrence.

“India is the only nuclear weapons state that officially pronounces its doctrine based on ‘credible minimum deterrence’ and can therefore claim an interpretation different from those in Western theories, particularly those applicable to the Cold War .”

I UNDERSTANDING NUCLEAR DETERRENCE: THE INDIAN CONTEXT

The National Security Advisory Board's Draft Report on Indian Nuclear Doctrine of 17 August 1999 was officially adopted (read operationalized) as India's Nuclear Doctrine on 4 January 2003, upon review by the Cabinet Committee on Security. Unlike other nuclear weapons states, India's nuclear programme went from being peaceful, to also include components of a weapons programme at a later stage. This partially explains the absence of a well-defined framework to guide the process of civil-military diversification, till then. Therefore, after Pokhran II, the doctrine was intended at justifying India's declared weapons status internationally and guiding India's nuclear policy thereafter. However, neither was the doctrine of a permanent unchangeable character, nor were its principles; while this left loose ends, it provided scope

for incorporating unforeseen developments.

Indian thinking on nuclear deterrence: Three major strands

In the Indian strategic community, three major strands of thinking on nuclear weapons are important to consider – those of the nuclear rejectionists, pragmatists and the maximalists (Bajpai 2000: 267-301). There is substantial debate over the nature of the Indian nuclear deterrent between the three schools of thought; while the rejectionists want to ultimately do away with nuclear weapons based deterrence, the maximalists call for a primarily thermonuclear deterrent. In opposition to this, the pragmatists feel that nuclear weapons successfully serve India's national interests and aid visibility in global politics, but a spiralling arms race should be avoided.

In the post Pokhran II period, the Indian approach and policy towards strategic weapons, including the concepts and ideas that define them, have been influenced by the pragmatists (like K Subrahmanyam and Gen K Sundarji-hailed as the gurus of India's nuclear policy). Their chief concern has been to balance India's nuclear capability, with smaller number of nuclear weapons.

Credible Minimum Deterrence (CMD) is one of the central pillars of India's nuclear policy. Nuclear policy makers often argue that India's nuclear weapons programme, has always been guided by the understanding of minimum deterrence – avoiding largess in terms of cost, pace or posture. Credibility came upon demonstration of weapons capability. The credible minimum posture was considered apt to justify India's nuclear weapons and missile capabilities after the 1998 tests. K Subrahmanyam called it a doctrine adopted to suit India's requirements and thinking on nuclear weapons (Subrahmanyam 1999). Bharat Karnad (2008) defines it as a self-explanatory, moderate, limited, reasonable and legitimate posture. The CMD doctrine highlights that India does not seek an open-ended nuclear arsenal and pillars other postures like the second-strike capability and no first use. CMD has now become the over-arching feature of the Indian Nuclear Doctrine, advertising three aspects of a nuclear weapons-empowered India: security with a thrust on deterrence, a responsible nuclear weapons state and commitment to global

nuclear disarmament.

Understanding Credibility and Minimalism

The CMD posture has two elements – credibility and minimalism. Both terms can be elucidated separately, but it is their equation that makes for the nuclear deterrence policy. Credibility is a combination of political will, capability, effective and assured retaliation, intelligence and survivability. The minimum can be interpreted in terms of size, cost, posture and eventuality of use.

The Indian nuclear doctrine echoes a strictly political interpretation of credible deterrence – one not shared in spirit by the military and scientific constituencies within the country – as a politico-psychological concept that serves to communicate to potential adversaries that India maintains the will and capability to inflict unacceptable punishment through ‘massive retaliation’ with nuclear weapons. Credibility is composed of an effective second strike capability and survivability (assured by a nuclear triad) ensured through a robust command and control system, safety and security of arsenal, operational force planning, training and preparedness, and research and development. This is to be backed by effective conventional military capabilities. The doctrine lends dynamism to the credible deterrent by making it responsive to India’s strategic environment, national security and technological imperatives.

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The understanding of credibility builds up a flexible, multi-dimensional and even a somewhat ‘moral’ definition of minimum deterrence. A minimum deterrent is to be maintained through not only the smallest possible size of nuclear arsenal but a defensive posture defined by no first use and non-use against non-nuclear weapons states, a de-alerted and de-mated warhead status and absolute civilian control over the nuclear force (minimum eventuality of use and thereby minimizing financial, human and social costs of a nuclear exchange). It also has a self-restraint imperative. Simultaneously, a minimum deterrent is meant to give sense of conduciveness to disarmament efforts and therefore reinforce the Indian morality argument.

It is important to note here that India’s nuclear doctrine talks of Credible Minimum Deterrence and not minimum credible deterrence – a deterrent of the smallest possible value (minimum) and yet ‘credible’. Minimum deterrent is to be consistent with maximum credibility. Quantification is

“Declarations like politico-psychological conception of nuclear weapons, ultimate commitment to global nuclear disarmament and unilateral moratorium on nuclear testing are self-restraining; they delimit the purpose and growth in size (qualitative and quantitative) of arsenal.”

inevitable yet unimportant; the number of nuclear weapons is not the real determinant of successful deterrence. The idea is to project the Indian nuclear deterrent as a minimum sufficient and dynamic concept. Moreover, CMD is a relational and relative concept. The deterrent is relative in the sense that its measurement is relative to the quality, quantity and value of the arms possessed by each participant in the adversarial relationship. Defending the nuclear doctrine, K Subrahmanyam (1999) wrote that no first use, credible minimum deterrence and civilian control being the three pillars of India’s nuclear doctrine “all other components ...are strict mathematical derivatives from the three...”.

Declarations like politico-psychological conception of nuclear weapons, ultimate commitment to global nuclear disarmament and unilateral moratorium on nuclear testing are self-restraining; they delimit the purpose and growth in size (qualitative and quantitative) of arsenal. Hence they lend to ‘minimum’ nuclear deterrence. At the heart of nuclear deterrence lies its targeting philosophy (Nair 1996: 98). Counter-value targeting ensures credibility and minimalism in the nuclear deterrent – bleeding the adversary through massive civilian damage with a small arsenal. Therefore calculations for the minimum deterrent are furnished also on the basis on the number of weapons/ warheads required to take out adversary’s non-military/ civilian centres.

The Nuclear No First Use (NFU) posture not only subscribes to the idea of non-usage/ minimum eventuality of the use of nuclear forces, but in fact is meant to reinforce the credibility of deterrent. The underlying idea that it projects is: a state can afford to avoid a pre-emptive attack only when it can successfully absorb the adversary’s attack and retaliate punitively. Another element that is of constant focus, but has not yet been separately acknowledged in the doctrine, is the time factor. To be credible nuclear arsenals are to be kept in a position that allows minimum deployable time. India’s nuclear doctrine qualifies CMD with effectiveness, endurance, timel

ness, diversification, flexibility and responsiveness; and a nuclear triad of delivery systems are to ensure these.

II CMD: A CRITIQUE

The relational and relative in India's credible minimum deterrence is concerned mainly with India's neighbours and nuclear weapons states – Pakistan and China. It results from an understanding that no threat from China or Pakistan, except a nuclear attack, is big enough for India to require an expansive use of nuclear forces. It is clear that India's nuclear weapons are deterrents only against nuclear threats. Is that enough?

CMD vis-à-vis Pakistan and China

The challenge to India's posture comes from the Pakistani policy and psyche – nuclear weapons are war-fighting tools,

“The nuclear asymmetry between India and Pakistan, which India could claim as working to its advantage, is now narrowing. Pakistan now bellows intentions of battlefield usability of nuclear weapons through its nuclear-capable Nasr (Hatf- 9) tactical missiles.”

mainly aimed to be used against India and reserving a first use option for Pakistan. The nuclear asymmetry between India and Pakistan, which India could claim as working to its advantage, is now narrowing. Pakistan now bellows intentions of battlefield usability of nuclear weapons through its nuclear-capable Nasr (Hatf- 9) tactical missiles. Besides these, Pakistan exhibits both, better control over managing nuclear ambiguity and stronger resolve concerning the usability of nuclear weapons. The Pakistani nuclear redlines remain ambiguously defined (although some experts in India may argue to the contrary) and military control over nuclear forces is tightening further. Increasingly, Pakistan emerges as the nuclear-threatener in the Indo-Pak equation.

With China, the mutual no-first-use policy rationalizes credible deterrence. Besides, China keeps India engaged with Pakistan, to pursue a nuclear trajectory to close gaps with the US. The Indian nuclear deterrent remains largely ineffective towards the burgeoning Chinese nuclear assistance to Pakistan. It is hard to believe what the Chinese claim to be their nuclear capabilities. Therefore, a correct calculation of the required credible minimum deterrence against China is very difficult to calculate. Any significant change in the US nuclear policies and strategies is bound to change the Chinese nuclear position. Consequently, it affects India's security preparations.

Is it enough to deter only nuclear attacks from China and Pakistan? If yes then India would definitely not be sharing the same perception as its adversaries on nuclear deterrence. Pakistan's nuclear philosophy of deterring conventional military threats and attacks by India has gone to the extent of considering detonation of tactical weapons on their own soil to ward off Indian forces. This may warrant fashioning the nuclear deterrent in ways that lends it greater credibility.

Nuclear deterrence, as a Cold War strategy, is premised on the rationality of the actors in the conflict. It assumes that states as the primary actors in a conflict are unitary rational actors and they base their choice of action in the context of an uncertain environment; one which is mitigated by their rationality. At the core of nuclear deterrence is the assumption that rational actors believe that the costs of their nuclear action would be far greater than the gains from bargained inaction. However, nuclear deterrence theories and policies premised on the Cold War realities are inapplicable to the changed realities of present day. (Cain 2010: 298). The primacy of states as primary actors in the international system is currently being challenged by the rise of non-state actors (terrorist groups). As far as nuclear deterrence is concerned, rationality of the two Cold War rivals has now given way to the irrationality of non-state actors.

In the Indian context, the idea of CMD which threatens a credible retaliatory nuclear strike with assured destruction falls

“Many questions await debate: Does the level of credibility differ for deterrence against China and Pakistan? What kind of confrontation is to be deterred? What is to be communicated to the adversary? With what aspect of the adversary's nuclear identity does one associate the deterrent (a mutual no first use policy with China or the size of the Chinese nuclear arsenal)? ”

short in face of sub-conventional threats for three major reasons. First, non-state actors are free of obligations attached to legitimately recognized players in the international system (Scwartz 2009: 57). This makes them less prone to bargaining strategies hinged on nuclear weapons. Second, they cannot be identified territorially, thus the idea of retaliatory attack gives way. The ambiguities under which non-state actors hide make them invulnerable to the credibility of retaliatory measures, thus purging the very ardour of deterrence as a strategy (Stone 2010: 274). Third, these non-state actors do not necessarily

share the same value- systems (Lowther 2010: 4) and world-views as the Indian state, thereby affecting the whole process of rational calculations which is imperative to influence and deter adversaries.

The operational doctrine of 2003 changed the nature of India's second strike from 'sufficient' to 'massive'. Massive retaliation and minimum deterrence are contradiction in terms. Combined with the NFU, they indicate that the response will be none or total. A minimum-sized arsenal may not be credible

“The operational doctrine of 2003 changed the nature of India's second strike from ‘sufficient’ to ‘massive’. Massive retaliation and minimum deterrence are contradiction in terms. Combined with the NFU, they indicate that the response will be none or total. ”

enough to warrant massive retaliation. Far from convincing adversaries, India's credible minimum deterrent has failed to convince even the domestic constituencies. The contentious Cold Start Doctrine, which enjoyed little political support, was nevertheless reflective of the Indian Army's understanding of credibility in the operational sense. The military's conventional war strategy is hindered by the 'all or nothing' attitude in the nuclear doctrine (Kampani 2011). Most of the technical debate concerned India's thermonuclear weapons capability, fissile weapons policy and the nuclear triad. A section of India's nuclear scientific community has been most vocal about the incredibility of India's nuclear deterrent. Apart from these, the civilian-military institutional divide in India adds to incongruence on nuclear policy (Kampani 2011).

Transparency and ambiguity clash rather seriously in India's doctrine of CMD. Intended ambiguity plays to deterrence advantage. But much of the ambiguity seems to be forced from lack of clarity about our own deterrent. Many questions await debate: Does the level of credibility differ for deterrence against China and Pakistan? What kind of confrontation is to be deterred? What is to be communicated to the adversary? With what aspect of the adversary's nuclear identity does one associate the deterrent (a mutual no first use policy with China or the size of the Chinese nuclear arsenal)? Politically, credibility requires effective communication of the threat of retaliation to the adversary than with quality and quantity of weapons. It is therefore built over time and depends heavily on rhetorical threats. Is Indian rhetoric credible? Greater official clarity on what constitutes our 'credible minimum' deterrent is therefore needed.

Finally, the way terminologies are constructed affects posturing and communication. 'Minimum' deterrence seals the lower limits of the arsenal, indicating that any number below

this limit would endanger deterrence. Herman Kahn's term 'finite deterrence' (Kahn 1960: 4) appropriately conveys the sense of a fixed upper limit. It is naïve to believe that India's nuclear force would always remain at a fixed minimum level of the deterrence. The term 'minimal', widely used by many Western experts, better conveys the relation between the deterrent and the consequent numerical flexibility. There might therefore be a need to rephrase the term in our lexicon.

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Isolating Iran: Is it Counter-Productive?

Anureet Rai

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The alleged Iranian plot to assassinate the Saudi ambassador to the US and the recent IAEA report on Iran's nuclear programme have revived the West's efforts to further isolate Iran through the imposition of sanctions. The possibility of military strikes has also not been ruled out. However, neither the plot nor the report holds enough ground for such actions to take place. Why is the US attempting to further isolate Iran today? Will isolating Iran achieve any tangible results for the US or will it prove to be counter-productive?

At times, unlikely conspiracy theories are given official credence, such as the supposed plot to assassinate the Saudi ambassador in Washington. Iran's nuclear programme is recognized as a threat in much the same way as Iraq's nonexistent WMD. For instance, the recent IAEA report on Iran alleges that it is building a nuclear weapon. Although this may be true, many critics argue that the report has been over-hyped in the media, and together with the Saudi plot, is being used to justify sanctions and prospective military action against Iran.

Iran's envoy to the IAEA Ali Asghar stated that the report was 'unprofessional, unbalanced, illegal and politicized', and that it had 'deeply ruined the reputation of the Agency as a technically competent authority'. The Russian representative to the IAEA has also raised questions about the credibility of the report. The credibility of the IAEA as an international agency is further being questioned as Yukiya Amano, the IAEA director general, comes across as being strictly in the Western camp. Recent *WikiLeaks* cables solidified this assumption when they revealed that he reassured US diplomats of being on the US's side on every strategic decision including the handling of the alleged Iranian nuclear weapons programme.

The US in the past has said that it would not stop efforts to try and put an end to Iran's nuclear programme; previous sanctions by the US have been directed primarily at hindering the advancement of Iranian nuclear know-how. Together, the Saudi plot and the IAEA report has enabled the US to call for heavier sanctions against Iran in the absence of any further movement on the nuclear front. If this is an attempt by the US to further isolate Iran, this will once again be seen as another

attempt by the US to further its own regional hegemony.

The US is likely to face hindrance from countries such as Russia and China since the US has not provided indisputable intelligence to suggest that Iran was involved in the plot. In Western understanding, specifically that of the US, the only way tangible results can be achieved is by hitting Iran with tougher sanctions. The Obama administration has already imposed sanctions on Iran's petrochemical sector which would stop Iran from further modernizing its gas and oil sector, thus obstructing the progression in its nuclear capabilities. There is not sufficient evidence or support in the international community for the use of military strikes against Iran; Germany has already considered discussion on this topic as counter-productive.

Nuclear facilities in Iran are buried deep and scattered wide, which means they would be impossible to put out of action without some form of ground intervention. The US should think carefully before undertaking such actions, especially since anti-American

sentiment already runs deep in Iran. The nationalist sentiment created in Iran since 1953 will only strengthen if military strikes are to occur, and could potentially encourage the regime to become more hard-line. As opposed to eliminating Iran's nuclear facilities, this type of attack could actually provide an incentive to Iran to try and obtain nuclear weapons as a guarantor of their security.

With the global economy already in tatters, it would not be wise to encourage military attacks, especially since Iran has responded by suggesting that oil supply will be used as an instrument to retaliate against any such action. With 40 per cent of the world's oil exports passing through the Straits of Hormuz, it would be detrimental to Iran's bigger customers such as China and India if it were to cut its oil exports.

Military strikes could also force Iran and Islamist movements such as Hezbollah and Hamas to unleash their own rocket arsenals, potentially leading up to a regional war. Simply put, military action against Iran would not only be catastrophic for the Middle East but also for the West.

India, Australia and Uranium: What after the ‘Labor’ Pains?

Tanvi Kulkarni

Research Officer, IPCS

Australia’s ruling Labor Party (ALP) decided to end the ban on uranium exports to India on 4 December 2011. The 206-185 vote that passed a proposal tabled by PM Gillard at the 46th National Conference of the ALP, overturned Australia’s prolonged policy of denying India nuclear commerce. The decision was welcomed by both Australia and India, to the extent of describing it as the gateway to long-term Indo-Australian strategic partnership. How did the Labor Party build up a rhetoric that supports uranium sales to India? Can the decision just yet point to a convergence of strategic interests and a potential Indo-Australian rapprochement? What formalities are expected to follow from the ALP’s decision?

The N-factor has for long influenced, if not decided, the flavour of the India-Australia bilateral relationship. Australia’s nuclear policy has upheld the tenets of the NPT and the country had been forefrontal in rendering India a nuclear pariah. Thus when the world’s third largest uranium supplier decided to boycott India’s nuclear energy market, it was apparently to protect the non-proliferation regime.

The beginning of the Indo-US nuclear cooperation revealed dents in Australia’s argument, visible in the way its political leadership went back and forth while talking about uranium sales to India. In 2007, PM Howard expressed his approval of uranium sales to India. But this policy was struck down by the succeeding Liberal government. PM Rudd also imposed the uranium embargo on India. Yet, as a member of the NSG, Australia voted in favour of giving India the waiver. Even then, a string of consistent denials preceded Australian media reports of behind-the-door talks of exporting uranium to India. As a culmination, PM Gillard announced on 15 November 2011 in *The Age* that she would convince the ALP to reverse the embargo.

The fixation with the NPT is typical of the Australian bureaucracy, as the Australian commentator and Greg Sheridan has pointed out, and bureaucratic resistance disallowed Australia’s political leadership to engage in nuclear talks with India for over a decade.

Two facets shape ALP’s decision to sell uranium to India. The official line combines several factors – India’s ambitious nuclear power market holds opportunities for Australia’s uranium mining industry. An expected supply of 2500 tonnes

of uranium annually to India starting from 2030 will generate export sales of US\$309 million, according to the Australian Uranium Association. Uranium mining activity is most established in Northern Territory and South Australia; their heads of state/territory were amongst those who strongly supported the vote to lift the ban on India. Moreover, better bilateral trade is expected out of the goodwill thus created. Economic benefits as an argument should have led Australia to sell uranium to India right at the outset or at least when India approached Australia’s competitors Canada and Kazakhstan. The ban then has been as much an albatross around Australia’s neck as India’s.

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The ‘right time in history’ that PM Gillard mentions is perhaps of the fruition of the Indo-US nuclear deal. The language used to promote the decision is akin to the episode that spanned the Indo-US nuclear agreement - India represents a ‘unique’ case and embracing ‘dynamic democratic India’ is necessary if Australia wants to seize opportunities in the ‘Asian century’. President Obama denies pressurizing the Australian Government to consider nuclear trade with India; but the fact that the ALP

decision has come after closely watching American moves indicates the clout of the Indo-US deal.

According to Rory Medcalf (Lowy Institute), the ALP’s decision is aimed at building a larger strategic partnership with India in Asia. The Indian response to ALP’s decision can at best be described as modest. Its immediate dismissal of an Indo-American-Australian trilateral security pact displays the Indian sense on the issue. India would prefer that commercial links with Australia should strengthen ahead of announcing strategic ones.

The ALP’s reversal has to be formally adopted as policy by Australia’s Federal Cabinet. Getting the Greens on board could be a problem. Australia also has to decide whether India as a ‘unique case’ would be entering the bilateral nuclear safeguards agreement as a NSW or a non-NSW. This may warrant modifications to the already strict safeguard policies that apply to Australian Obligated Nuclear Materials (AONM). The ALP’s decision is therefore only the tip of an iceberg of dramatic events that are yet to follow.

Commentary

Playboy Magazine and AQ Khan: Incredible Credibility?

Alankrita Sinha

Research Officer, IPCS

There is enough evidence that adds credence to the notoriety of the AQ Khan network. However, often, along with facts, fiction too finds its way into this narrative. The latest in this case is a compelling piece by Joshua Pollack, in *Playboy* magazine, insinuating that the fourth customer of the AQ Khan proliferation network was India. Pollack rests his case on three factors. The first is the similarity in centrifuges used by India and those engineered by Khan. The second evidence is the case against certain entities that had been accused and later indicted for contravening South Africa's non-proliferation legislation. The third being AQ Khan 'personality' itself which would have shown no remorse in being treacherous to Pakistan for personal gains. This article explores these while seeking to answer one central question: How credible is the evidence provided by Pollack in the face of facts, little known publicly as they might be?

Pollack suggests that the centrifuges used by India for uranium enrichment are so similar to the design of the G-2 centrifuges of URENCO, stolen and used by Khan for Pakistan's P-2 centrifuge, that "despite minor changes, the design is recognizable to the trained eye." Moreover, he emphasizes how India's late entry into the development of uranium centrifuges in the 1980s can be explained through the lack of indigenous capability in engineering one, and thereby points to the AQ Khan network's assistance. However he desists from giving details which can pin his case.

There are many levels at which his argument falters. First, similarities in centrifuge design is necessary but not sufficient evidence at hand considering that information regarding India's centrifuge programme has hardly any access points in the public domain. As Prof R Rajaraman critiques, one may like to hence question the source of Pollack's 'knowledge' about the design of India's uranium centrifuges. He can very well speculate, but he cannot be certain. Another fact which he misses out is the contingency of India's effort at uranium-enrichment and its interest in nuclear-fuelled submarines. India's nuclear weapons program was plutonium-based and hence did not require highly enriched uranium (HEU). The need for HEU only surfaced in the 1980s when India became interested in the idea of submarine reactors. In fact, according to David

Albright and Susan Basu, only in 1985 did India begin to receive manufacturing equipment and materials from German, Swiss, and French companies for its Rare Materials Project (RMP) hailed as India's primary centrifuge enrichment facility. This brings us to Pollack's second evidence.

According to Pollack, it is in this interest in uranium enrichment that India came in touch with the AQ Khan network. Pollack points to the South African court's documents which directed an investigation into two corporate entities registered in South Africa - Krisch Engineering Co (Pty) Ltd and Tradefin Engineering CC. It was during this investigation that a German citizen, Wisser, and a Swiss citizen, Geiges were indicted for supplying nuclear equipment to Pakistan between 1986 and 1995.

In fact, both Wisser and Geiges were indicted on ten charges, six relating to proliferating to Libya and four to Pakistan. None of the charges revealed anything about a link to India. Why then does Pollack insist that India was involved? His argument is predicated on the probability of proliferation after Wisser commissioned the production of flow-meter units designed for a hexafluoride application as is used by India. Even Albright and Basu concede that this raises a possibility of an Indian link but does not confirm it. More importantly, even the South African courts could not prove it.

“Pollack suggests that the centrifuges used by India for uranium enrichment are so similar to the design of the G-2 centrifuges of URENCO, stolen and used by Khan for Pakistan's P-2 centrifuge, that “despite minor changes, the design is recognizable to the trained eye.”

Last, Pollack uses AQ Khan's personality as a factor in order to make an argument for his 'treachery' towards Pakistan. According to Pollack, Khan's biography is as important as the man himself because it highlights his need for glorification. However, none of the instances of this 'need' relate directly to his role in proliferating to India. In fact, Pollack's final clue is nothing more than a personal judgement in order to fill the gaps within his argument which cannot be explained by anything credible.

Pollack's argument fails to link facts and contingencies which guide behaviour to the circumstantial evidence which he so compellingly provides. Moreover, his argument presupposes that Khan had a power of unilaterally deciding action, without giving the Indian state any agency in this regard. But then again, one must also remember, the choice of the medium itself gives much leeway to Pollack to escape a far more severe criticism.

Commentary

Waiting for Godot?: US' North Korean Dilemma

Ruhee Neog

Research Officer, IPCS

Former US special envoy to North Korea Stephen Bosworth met with a North Korean team led by Kim Kye Gwan, in Geneva in October 2011. Bosworth tersely called them 'very positive and generally constructive'. However, Panetta expressed skepticism, terming North Korea both 'reckless' and a 'serious threat', and reassured regional allies that the US security commitment was solid in spite of looming budget cuts. This occurs during a recorded shift in US's 'pivot'. What does this say about US strategy on North Korea? Will this influence North Korean nuclearization?

US' 'Pacific Century'

Bosworth's controlled optimism and Panetta's skepticism have led to suggestions of a split, with the administration on one side, and the CIA and Pentagon on the other. However, it may equally be a deliberate 'good cop-bad cop' strategy towards North Korea. Obama's attendance at the East Asia Summit, the first by a US president, added substance to the growing Asia-centrism.

In a speech to the Australian parliament, Obama said that North Korea would be held 'fully accountable' for any nuclear activities and the US would 'act firmly' in response to it. The North Korean threat legitimizes heavy US involvement in the region and the Asian focus may detract attention from the Af-Pak and Iraq situations. It remains to be seen if the American public will support such intense involvement in the Pacific even if they are explained as extensions of existing policies and commitments.

Risk mitigation vs risk elimination

The active military stance conveys a no-nonsense signal to North Korea, but the North Korean nuclear programme is going to develop in spite of it, as it has in the past few decades. The message is that North Korean provocations would not be tolerated, but talks for the sake of talks would be dangled as carrots to remove the justification for such actions. To suppose

that it will result in 'verifiable denuclearization' is an exercise in wishful thinking, and the US is cognizant of it.

'Strategic patience' vs 'strategic prudence'

The US maintains its 'strategic patience', but prudently so. Jong-un has been chosen with deliberation with the expectation that he will ensure the survival of the system. Unless the successor is inclined to depart from the norm, the North Korean regime will continue to maintain the one guarantor of its longevity, its nuclear weapons programme. In addition are US security guarantees to South Korea and Japan. On paper therefore, stalemate is already effectively reached.

“As the principal deputy assistant secretary for East Asia, Davies wrote to a colleague in 2008 asking her to soften the language used in a report on North Korea, with suggestions like the removal of ‘repressive’, and addition of ‘from the isolated country’ to qualify a sentence on reports of humanitarian malpractices.”

The strategy of prudence is demonstrated by the appointment of Glyn Davies as the successor to Bosworth. As the principal deputy assistant secretary for East Asia, Davies wrote to a colleague in 2008 asking her to soften the language used in a report on North Korea, with suggestions like the removal of 'repressive', and addition of 'from the isolated country' to qualify a sentence on reports of humanitarian

malpractices. The language was cautious, and suggested a distancing from a vocal reprobation of the regime. It is significant that he holds the dual role of US permanent representative to the IAEA and special envoy to North Korea because it insinuates that nuclear speak might be on the agenda for talks. Given that he will have to divide his time between two jobs, however, it also suggests that one of the two jobs is not expected to take up much of his time. The appointment of a low-profile expert in lieu of a high-profile diplomat such as Bosworth could part of a larger strategy to project the administration's serious commitment to policy continuity ahead of the 2012 presidential elections.

The US therefore it seems has in all but words reconciled to the current state of stalemate. All actions now are to signal policy continuity while transitioning the rhetoric from 'risk elimination' to 'risk mitigation - aimed at making the latter more palatable.

Kudankulam Nuclear Power Plant: Contested Standpoints

Pradeepa Viswanathan

Research Officer, IPCS

Agitations over the ongoing Kudankulam Nuclear Power Plant (KKNPP) and the not so recent Jaitapur Nuclear Power Project have created roadblocks for the realization of India's civilian nuclear ambitions. KKNPP's mandate is to generate electricity for the southern states of India facing acute power shortages, most notably Tamil Nadu. The agitation at Kudankulam ostensibly appears to be a conflict between the Indian government and the people, with the government siding with the corporates. Are there other standpoints that may lead to different interpretations? If so, are these shifting the focus away from the prime concern, that is, the safety of nuclear power plants in one's vicinity?

The agitations certainly cannot be generalized within the people versus the state debate. On the surface are the 'pro' and 'anti' nuclear lobby. The pro-nuclear lobby includes but is not limited to representatives of the official nuclear establishments like the Nuclear Power Corporation of India Limited (NPCIL), while the anti-nuclear lobby can be divided into two groups. There are people who are ideologically and fundamentally opposed to it, and those who have genuine concerns over their safety. Closely intertwined are livelihood concerns of the locals (basically fishermen) who fear that condenser water from the power plant could affect fish yield.

The fact of India's nuclear energy programme being a product of 'nu-colonization' has been highlighted as well. Nu-colonization (nuclear + colonization), a term coined by the National Alliance of Anti-nuclear Movements (NAAM), considers Indian nuclear agreements that allow the setting up of power plants by countries like Russia in Kudankulam, France in Jaitapur and the US in Haripur (now scrapped) as a replication of the colonization process. Hence, the emergence of that very democratic structure as an obstruction to the realization of its nuclear power dreams comes as a surprise.

There are also competitive politics at play behind the agitations. At one level, there is a clear conflict between the AIADMK-led Tamil Nadu government and the UPA government at the Centre. The harmony over KKNPP that existed between the state and central governments was soon replaced by discord between the two; an example of this discord being AIADMK calling the plant 'a federal project'

with not much left for the state to do in the scrapping of the project. These statements emerged during the run-off to the Panchayat elections, discounting the fact that Tamil Nadu, with the operationalization of the plant (Unit 1 and 2), would have been allocated 925 MW out of the 2000 MW of electricity generated, crucial for its development requirements. The outcome, however, made the motive behind the change in stance clear, with AIADMK sweeping the civic polls. This, was addressed as 'duplicity' by the Dravida Munnetra Kazhgam (DMK), a major political party in Tamil Nadu.

Another debate embodied in the agitations is between science and democracy, articulated in an article by Shiv Visvanathan, senior fellow at Centre for the Study of Developing Societies. He highlights the ability of democracy to question the 'sanctity of expertise' today. He also goes on to add that in a 'democracy, the scientist and the activist have to work in tandem, each understanding the challenges the other faces.'

While all this has been said, the prime concern – safety of nuclear power plants in a post-Chernobyl and post-Fukushima environment – remains unresolved. This concern has lost ground in the various interpretations laden with vested

interests that Kudankulam has produced. One reason that explains the shift away from the main concern of nuclear safety is the time taken for the agitators to acquire media attention. While people in favour regard the opposition as sudden and preceding the operationalization of Unit 1, in reality, it has been in existence ever since the Inter-Governmental Agreement between India and the Soviet Union (now Russia) was signed in 1988. The Kanyakumari Declaration signed in 2009 is evidence of the steady build up to the current movement.

The delay in resolving the issue has led to new interest groups stepping in, often linking their interest with the continuation or scrapping of the power plant. This will only result in further aggravating the issue. The immediate need is to generate a consolidated grievance list ideally revolving around safety and livelihood as the only concerns with the Kudankulam nuclear power plant. It is time for the people to let go of their vested interests and associate with the justness of the cause. It is also time for government officials to actively offer quick and reliable long-term solutions.

Inside North Korea: Kim Jong-un and Succession

Ruhee Neog

Research Officer, IPCS

'Dear Leader' passed away on 17 December this year, making much space for speculations on the business of succession in a nuclear North Korea. In this difficult time of transition, the most important job for the new leader would be to secure the support of his masses whether by force or appeasement. It can be expected that the focus, for the moment, is going to be directed inwards. Three key, interrelated aspects with one common denominator – food shortages – will be proposed for the domestic emphasis: military and public support and food aid.

Consolidation of power

Mass approval of Kim Jong-un, who is a relatively unfamiliar domestic figure, will have to be established, whether by a directive through him or his designated mentors (apparently Jong-il's sister, Hui, brother-in-law, Thae, and a Worker's Party official, Hae, have been assigned as guardians), through propaganda or militaristic big brother-like tactics, or both.

The regime, centred on any one Kim depending on the period in history, has derived its legitimacy and power through its hold on the North Korean people (apart of course from the possession of nuclear capability in recent times). The transition occurs in an increasingly dangerous climate of cross-border activity and defections in North Korea, with external goods and information becoming more readily available. With the rise in black markets around border areas due to acute food shortages, there is the apprehension, not entirely unfounded, that this encourages the uncensored seepage of outside information - which is obviously a threat to the maintenance of the regime.

In the context of the military, Jong-un was appointed a four-star general in 2010 during Jong-il's tenure without any previous military training. With Jong-il gone how is the military going to react to the succession of a relative unknown to the highest post in the North Korean regime? If a struggle or opposition is anticipated or feared, attention will necessarily be focused internally. This will be compounded by reports that even the military, the regime's foremost instrument of authority who should logically be kept satisfied at all times, are dangerously falling prey to food shortages.

What will be the tactics?

'Big Brother' will be keenly watching. After Kim il-Sung's death, the display of grief was minutely observed. Those who

seemed not to display the general standard of hysterics were watched by the inminban (civil policing squads built around the community); whose reports eventually reached the Department for the Protection of State Security. Propaganda expounding the god-like virtues of Jong-un will probably go into overdrive. This will be heightened by the regime's fears of a replication of the Arab Spring - 200 migrant workers from Libya were not being accepted back to North Korea in fear of the spread of such potent information. Heavy crackdowns, though not an unusual occurrence in North Korea, are likely to intensify further.

North Korea has been subjected to food shortages since the 1990s and foreign aid is imperative for the survival of the country. Although the regime has never been known to pay much heed to the needs of its people, investing in and focusing on its Songun or 'military first' policy in the face of one humanitarian crisis after another, it must also be noted that these are exceptional circumstances. A sufficiently-fed populace is less likely to give in to deviant machinations than one that feels it has nothing left to lose or one that has begun to doubt the efficiency of the system. To ensure this, therefore, the regime will have to make the international community amenable to its tactics for procuring humanitarian aid, which may be negotiated in return for nuclear concessions.

In this light, North Korea's willingness to resume the six party talks has already been well-documented; steps will perhaps be taken to strengthen this exercise. Interestingly, Kim Jong-un is to be henceforth referred to as the 'Great Successor' which is in the fashion of his forebears, the 'Supreme Leader' and 'Dear Leader'. Apart from elevating him to mythical heights in the absence of religion, it is also symbolic of continuity. The process of looking favourably upon the six party talks for the greater good of the nation was initiated by Jong-il, and Jong-un will probably follow suit.

Jong-il assumed complete control as head of state in a matter of years, and not directly upon the death of his father in 1994. This was despite the years that went into his training. If such is the case, Jong-un, who reportedly has had little training, will first have to learn the ropes of statecraft before he can indulge in activities that may catapult him into the global limelight. In this period, domestic compulsions will trump external factors.

“The regime, centred on any one Kim depending on the period in history, has derived its legitimacy and power through its hold on the North Korean people (apart of course from the possession of nuclear capability in recent times). The transition occurs in an increasingly dangerous climate of cross-border activity and defections in North Korea...”

On India-South Korea Relations

Jinwoog Kim

President, Korea Research Institute for Military Affairs, Seoul

India-South Korea relations date back many centuries to the time when the princess of Ayodhya married Kim Suro, the King of Gaya. Their descendants are still known to visit Ayodhya every year to pay homage to their ancestral maternal roots. Buddhism, which originated in India, reached Korea through China and remains a dominant religion on the Peninsula. Currently, the most prominent links are through numerous academic exchanges between India and South Korea.

The Korean Foundation provides scholarships to Indian students who wish to study the sciences and humanities in South Korea. Also, Korean language courses are taught at Jawaharlal Nehru University, Delhi University and The English and Foreign Languages University (EFLU), Hyderabad. In addition to these cultural and social exchanges, strides have also been made in economic, trade and diplomatic ties. This article will look at the developments in Indo-South Korean linkages that have developed thus far, and their future potential.

The most recent overture was the civil nuclear cooperation agreement between India and the ROK, signed between Indian President Pratibha Patil and the President of the Republic of South Korea (ROK) Lee Myung-bak in a summit meet in July this year. The safety of nuclear power plants have been repeatedly questioned post Fukushima, indeed, the Indian public protested against the construction of the proposed Jaitapur nuclear power plant by French company, Areva. South Korea specializes in the construction sector whether it be plants, housing, roads or ports. President Lee is himself an engineer and was earlier the chairman of the Hyundai Company which is diversified into automobiles, construction and ship-building. It is for this reason that South Korea can confidently provide the best earthquake-resistant and safe plants to India under the auspices of the civilian cooperation agreement. South Korea has developed a world-class civil nuclear power plant which contributes up to 40 per cent of the total electricity of South Korea, the safety standards of which has the IAEA stamp of approval.

The two leaders reached an understanding on Social Security Agreement implementation arrangements, aviation and shipping agreements and the prevention of double taxation. India and South Korea will meet and discuss important

strategic issues in the Nuclear Summit 2012 to be held in Seoul, ROK. In addition, both countries also cooperate at the international level on issues of mutual interest such as climate change.

Over 300 Korean companies working in India have made huge foreign direct investments in many sectors of the Indian economy. Presently there are some land acquisition and rehabilitation problems for the establishment of a mega steel power plant in Odisha (Orissa) by the world renowned steel company, POSCO. A strategic partnership has already been signed between South Korea and India in February 2010 which has improved. The CEPA (Comprehensive Economic Cooperation Agreement) is progressing well in trade investment and human exchange and has further potential to improve the Indo-South Korean relationship.

Despite the above developments, however, there is still a significant amount of scope for strategic cooperation between the two countries. South Korea has a long experience of modern ship-building; the shipbuilding industries are very specialized and possess state-of-the-art technologies, such as the Hyundai Ship-building Company.

India is an emerging power in South Asia whose strategic maritime location at the head of the Indian ocean can hardly be ignored. In this regard, therefore, South Korean ship-building technology and expertise can be of great assistance to India for commercial ship-building as well as for defence purposes, such as the construction of aircraft carriers.

Another area of cooperation is in the defence sector, particularly joint military and naval exercises, which would help both countries to modernize their training processes. South Korea has made advancements in anti-guerrilla warfare operating at the Corps of Special Warfare, the knowledge of which can be useful to India in managing terrorism and border road development. India, on its part, is highly skilled in the training of soldiers and army officers. Indian defence institutes such as the National Defence Academy (Pune), Officers' Training Academy (Chennai), and Indian Military Academy (Dehradun) are recognized centres of excellence and hence have a lot of guidance to offer to South Korea.

“The most recent overture was the civil nuclear cooperation agreement between India and the ROK, signed between Indian President Pratibha Patil and the President of the Republic of South Korea (ROK) Lee Myung-bak in a summit meet in July this year...South Korea can confidently provide the best earthquake-resistant and safe plants to India under the auspices of the civilian cooperation agreement.”

The Direction of India's Deterrent

Ali Ahmed

Research Fellow, IDSA

Vipin Narang's timely reminder, 'Indian Nuclear Posture: Confusing Signals from DRDO' on discipline as an index of institutionalization of the nuclear deterrent is welcome. He takes umbrage at the DRDO's propensity for role expansion as evidenced by its press releases subsequent to tests that ascribe operational roles to their wares, such as ballistic missiles having a nuclear role. The task is rightly that of the NSCS. Such checks from independent strategic experts is useful to avoid criticisms that 'experts' advantaged with 'insider' knowledge tend to orchestrate information in the media and Indian strategic literature.

However, Narang unwittingly brings up some assumptions that ought to be questioned. The contention of their universality needs interrogation. The more significant one is that India's deterrent managers are sufficiently cognizant of the implications of India's deterrent mantra, 'minimum credible deterrence'. It is intended that there be equity of emphasis between the two. However, the tendency in this formulation, as pointed out by Rajesh Basrur, has been towards the 'credible'.

This is self-evident from the formulation of the related tenet of India's nuclear doctrine, as expanded upon in the CCS review of 2003: 'Nuclear retaliation to a first strike will be massive and designed to inflict unacceptable damage.' This has been reasonably interpreted by its military as being a 'very heavy' retaliation. General Padhmanabhan had said, "the perpetrators of such an outrage will be punished so severely that their continuation in any fray will be in doubt."

The assumption that India's nuclear doctrine is one merely of 'assured retaliation' is not fully accurate. In addition, the promised retaliation is to be of 'sufficient' dimensions, which may not necessarily be 'massive', to inflict 'unacceptable damage'. Inflicting unacceptable damage in retaliation commands a consensus in India. Its definition has not been attempted officially, but refers to hurting the enemy considerably for nuclear first use.

The problem that India faces is in the interaction between its conventional and nuclear doctrines and those of Pakistan. Pakistan has demonstrated a capability for tactical nuclear use by unveiling the Nasr, and insists that its deterrent is also to deter conventional attacks by India. India has over the last decade moved to a proactive conventional posture, so as to under cut the impunity seemingly enjoyed by Pakistan at the

sub-conventional level at which it practices proxy war. Thus, in case Pakistani nuclear threshold is triggered unintended by India's conventional operations, India's escalation to unacceptable levels of damage on the enemy may result in like retaliation. Such an Indian response will be perfectly credible for higher order nuclear first use by Pakistan, but much less so for lower order use such as against a tactical target with the intention of strategic communication.

Therefore, for the DRDO to be furnishing India suitable options of response for threatened lower order nuclear first use seems to be sensible. That it has not unilaterally embarked on this can be conceded since the NCA, the NSCS and the SFC have been around for the better part of the last decade. In fact, it could well be that DRDO and its press releases are being employed for tacit signaling.

"Narang is right that it needs to be centralized and institutionalized. But for the moment keeping the communication exchange low profile perhaps suits India in being faithful to the idea that South Asia continues as the 'most dangerous place on earth'."

Narang is right that it needs to be centralized and institutionalized. But for the moment keeping the communication exchange low profile perhaps suits India in being faithful to the idea that South Asia continues as the 'most dangerous place on earth'. Narang rightly discerns a move towards a war-fighting posture to under-grid deterrence in India's developing a variegated nuclear capability in Prahara and Shaurya. In case such signals emanated from the nuclear complex then they would be liable to be read with greater

alarm. India's self-effacing nuclear moves will then come under scrutiny. With the DRDO at the firing line, it can be ascribed as a case of easily remedied institutional over-extension, rather than a deliberate off the record policy movement.

But is the nuclear complex right in moving in the direction that Narang detects? While this is not approved of by Narang, it is contended here that India needs to move away from the older formulation of unacceptable damage. It is not credible for lower order nuclear first use. There needs to be a suitable 'tit for tat' capability on hand. This will ensure deterrence at this level too, even while 'unacceptable damage' remains within the prerogative of choice.

Is it a case, as Narang suggests, of organizational momentum, or a case of 'keeping up with the Joneses'? Either way, Narang's recommendation that institutionalization proceed apace is both welcome and timely.

Nuclear Pakistan: At Diplomacy's Mercy

Alankrita Sinha and Tanvi Kulkarni

Research Officers, IPCS

The statement by Pakistan's acting Permanent Representative Raza Bashir Tarar on the 'Report to the IAEA' at the 66th session of the UNGA offers valuable insight into the conduct of international diplomacy. There are two main issues. The first deals with the diplomatic language employed, and the second, with correspondence between diplomatic statements and ground realities. The following commentary attempts to understand the efficacy of Pakistan's nuclear diplomacy.

At least two elements could be picked up from Tarar's statement to understand Pakistan's use of diplomatic language. First is the reference to the IAEA as the 'unique authority' to coordinate nuclear activities. Collaterally, other initiatives have been identified as those that are 'counter-productive' and cause 'duplication' of efforts. Compare this with the increasing role being played by the Nuclear Suppliers Group (NSG) in regulating nuclear commerce. In March this year, the NSG's objections to China's export of Chashma 3 and 4 nuclear reactors to Pakistan were over-riden by IAEA's unanimous approval to a safeguards agreement for the two reactors. Clearly, Pakistan now wants to associate a greater sense of legitimacy to the IAEA; the NSG objections had caused significant disquiet for Pakistan. It is with this sense of triumph that Pakistan asserts that it would be a member of the NSG only if the group accepted its nuclear weapons status and 'principled position' on the NPT.

The grand-fathered Chashma 3 and 4 nuclear reactors have recently become a cause for concern in terms of reactor-safety. The two reactors use China's domestic second generation design technology. Further import of reactors from China to Pakistan would then require more convincing arguments than the grandfather clause. Undermining the role of the NSG would also make Pakistani diplomacy run into potential problems.

The second element is the changing nature of Pakistani nuclear discourse on international forums after the Indo-US nuclear deal. Pakistan's usage of phrases like 'impartial' alludes to the Indo-US nuclear deal, and inherent in this language is the accusation that the international nuclear community, particularly the US, has been partial to India. At the same time, the Sino-Pak nuclear cooperation has been maligned as a 'proliferation' agenda. However, the discourse of impartiality

can conceal ground realities for very long.

It is no surprise that all Pakistani statements constantly reiterate the safety and security of their nuclear materials and facilities. What is noteworthy, however, is the overarching concern of the international community in this matter, even though Pakistan has in place a stringent mechanism to ensure nuclear safety and security. In fact, it is interesting to note the shift in Pakistani attention from military to civil nuclear issues in the last decade. The National Command Authority (NCA) had only a role of secondary importance, reserved for export controls and safety and security issues, till 2001. This seemed to change after the Pakistan Nuclear Regulatory Authority (PNRA) was established in 2001 with a PNRA Ordinance to ensure proper licensing, regulation, and safety of all radiological substances.

“Moreover, after the Export Control Act of 2004, Pakistan's nuclear export control which was previously overseen by statutory regulatory orders, ordinances and acts regulated under the Ministry of Commerce were now put under the aegis of the PNRA and subject to rigorous control mechanisms.”

Moreover, after the Export Control Act of 2004, Pakistan's nuclear export control which was previously overseen by statutory regulatory orders, ordinances and acts regulated under the Ministry of Commerce were now put under the aegis of the PNRA and subject to rigorous control mechanisms. Why then is there an international hue and cry about Pakistan's nuclear safety and security? A probable answer points towards the underlying fault-lines which have failed to be concealed by diplomatic statements. These include – the growing prominence of insider threats, frequent and sudden regime changes, clandestine

nuclearization, and increasing radicalization.

Diplomacy is the art of selective projection which is exploited by all countries which form the international society. But, if there exists a considerable rift between projection and reality, how long can diplomatic manoeuvring sustain international favour? one looks at such Pakistani statements in isolation, they might even succeed in painting a rosier picture than what might actually be the case. Although this is how diplomacy is used by every other country, in the case of Pakistan, the loss of control over the factors mentioned above leaves it to the mercy of diplomatic manoeuvring rather than using diplomacy as a tool to its advantage. The disjoint in projection and reality is too visible and glaring for its nuclear diplomacy to sustain over time.

China's Ballistic Missile Defence Counter Measures

Debalina Chatterjee

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In 2002 the Janes Missiles and Rockets Report announced that China conducted tests of counter-measures on CSS-5 Ballistic Missiles. China's ballistic missiles possess counter-measures against BMD by penetrating into an enemy's territory by confusing, overwhelming or defeating the ballistic missile defence. These counter-measures were developed in the wake of a fear that even a limited missile defence system of the US could counterbalance the credibility of the Chinese Intercontinental Ballistic Missiles (ICBMs). China is making technological advancements in the field of counter-measures against BMD in order to maintain an offensive defence, but there are limitations to these technologies.

China developed the MIRVs, for example the DF-21s, capable of making a BMD ineffective at mid-course or a terminal level, though not at the boost phase. However, it remained worried that countries like the US could choose to develop multiple kill vehicles to fit into the BMDs to counter these MIRVs. Therefore, it is now developing decoys, electronic jammers, chaff, decoys, use of heat resistant, radar absorbing materials and also enhancing the warhead capabilities of the ICBMs with multiple independently targeted re-entry vehicles.

Various other initiatives also seem to be in the pipeline. Chinese engineers are likely to design ASBMs to deploy aluminium-coated Mylar balloons when the ASBMs are in the exo-atmospheric phase.

In these the actual warhead will be inside one of the balloons. The other balloons will contain lithium batteries in order to simulate the heat escaping from the balloon with the warhead which would make it difficult to differentiate between the warhead and the decoys. The Chinese engineers are trying to overcome a hit-to-kill intercept by enclosing the ASBM warhead in a metallic shroud cooled by liquid nitrogen. This technology could even be conducive in case the BMD is in a boost phase.

The choice of any of these measures will either degrade the effectiveness of the missile defence or make it a complete failure. China can also possibly make a ballistic missiles' trajectory depressed as had been the case with DF-31s. This could raise the apex altitude which would increase the re-entry speed thereby making interception difficult. However, these

limitations can be corrected by different states using Divert and Attitude Control Systems.

China could further divide the biological and chemical weapons into sub-munitions which could make it difficult for the defence to intercept. Any launch of a long range missile attack with sub-munitions and the US National Missile Defence might not be able to counter such an attack. These counter-measures could also negate the Theatre Ballistic Missile Defence. China could use the J-20 aircrafts with stealth technologies to overwhelm a BMD. China is reported to be developing electro magnetic pulse bombs which could damage not only the C4I but also defensive mechanisms.

In addition, one of the smartest counter-measures against BMD could be to use cruise missiles. Cruise missiles are cheaper and they can be hidden behind terrains and stay undetected as they fly below the radar. Stealth technology on cruise missiles could make detection difficult. The BMD could be made ineffective just by destroying the Command and Control Systems of the enemy country. China has developed Land Attack Cruise Missiles like the Hongniao and the CJ-20 Air Launched Cruise Missiles or the *ShaShoujian*, which have given China a better deterrent credibility.

China can use the solid-fueled ballistic missiles like the DF-21s to counter a boost phase BMD as they would have shorter boost phases than liquid ones. Nowadays with countries having effective sensors and computers, discriminating between a re-entry warhead and decoy is relatively easier in the mid-course phase. The Chinese A2/AD capability with a combination of Advanced Air Defence Systems is believed to be aimed at counteracting the ballistic missile defence, especially Indian.

Though, the Indian Akash missiles are presumed to be able to counter these Chinese manoeuvres but it is difficult to judge how effective these will actually be until the missiles are not in an operational mode. But China still needs to work on its C4ISR infrastructure like processing of information, bandwidth capacity, and network support for greater surveillance.

“China developed the MIRVs, for example the DF-21s, capable of making a BMD ineffective at mid-course or a terminal level, though not at the boost phase. However, it remained worried that countries like the US could choose to develop multiple kill vehicles to fit into the BMDs to counter these MIRVs.”

Seminars and Conferences

Workshop on Managing Civil Nuclear and Radiological Materials: Safety, Security and Diplomacy

IPCS (New Delhi) in collaboration with IISS (London)

22 November 2011

The Institute of Peace and Conflict Studies (IPCS), New Delhi and the International Institute for Strategic Studies (IISS), London organized a workshop on “Managing Civil Nuclear and Radiological Materials: Safety, Security and Diplomacy” on 22 November 2011 at the India International Centre, New Delhi.

The workshop holds significance in the post Fukushima period and took place at a time when India is undertaking a comprehensive review of the safety of its nuclear plants; Prime Minister Manmohan Singh announced at the United Nations General Assembly in September 2011 that India would continue to pursue nuclear energy ‘upon full satisfaction’ of safety issues while supporting international efforts under the aegis of the IAEA to ‘enhance levels of safety and security’.

Alongside, India will also host early in 2012 a formal ‘sherpa’ meeting to maintain the multilateral momentum on nuclear security diplomacy towards the next Nuclear Security Summit in the Republic of Korea in March 2012. India has already establishing a Global Center for Nuclear Energy Partnership to strengthen international cooperation in areas including nuclear security and radiological safety.

This is the third IISS workshop of this series. The objective of this workshop was to assess and discuss the Indian and international perspectives on civil nuclear safety & security issues, besides the related diplomatic perspectives. The workshop was highly successful with presentations being made not just by the academic community placed in India and the world, but leading parliamentarians and scientists echoing their views as well.

The key note address for this workshop was delivered by Ambassador Shyam Saran, Former Special Envoy to the Prime Minister & Foreign Secretary. The workshop was divided into four sessions and each session dealt with a thematic area. The first session was on ‘*Safety – After Fukushima: Lessons learnt, impact on India and link to security*’; the second on ‘*Vulnerabilities and Threats - Global, regional and national perspectives; expansion of India’s civil nuclear industry*’; the third on ‘*Crisis Management - Prevention, Preparation, and Implementation: Agency-Institution Coordination and Best Practices*’ and the fourth session on ‘*Diplomacy - The Way Forward to the 2012 Nuclear Security Summit: Strengthening the Nuclear Security Regime and the Role of India*’.

India's Credible Minimum Deterrence: An Appraisal

IPCS Colloquy

Young Voices, Alternative Ideas

5 December 2011

The Institute of Peace and Conflict Studies (IPCS), as part of its capacity-building endeavour, provides a platform for young scholars to share their research ideas, and at the same time seek guidance from experts from their area of study. Conducted in the form of a colloquy for young scholars and professionals, IPCS has named this series as ‘Young Voices, Alternative Ideas’.

The most recent IPCS Colloquy for Young Scholars was conducted on 5 December 2011. This was the 46th colloquy in this series. Ms Tanvi Kulkarni and Ms Alankrita Sinha, both Research Officers from IPCS’ Nuclear Security Programme discussed their paper on ‘India’s Credible Minimum Deterrence: An Appraisal’. The Resource Persons for this session were Ms Manpreet Sethi, Senior Research Fellow, Centre for Air Power Studies (Academia), Brig Gurmeet Kanwal, Director, Centre for Land Warfare Studies (Armed Forces) and Prof R Rajaraman, Professor Emeritus of Physics,

Jawaharlal Nehru University (Scientific community), carefully selected to represent the academia, scientific community and armed forces.

Ms Kulkarni and Ms Sinha provided a critical assessment of the policy of Credible Minimum Nuclear Deterrence (CMD) as adopted in India’s Nuclear Doctrine. The CMD concept faces serious challenges, particularly when assessed in terms of deterrence against China and Pakistan. The interplay between credibility and minimum too needs to be carefully balanced while posturing.

The paper incorporated suggestions made by the resource persons and those that came out of the discussions. The paper has been published as IPCS Issue Brief on ‘India’s Nuclear Deterrent: A Decade Later’ in December 2011 (*see page 4*).

India's Nuclear Doctrine: Towards a Revision and an Alternative Blueprint

IPCS Task Force -Fifth Meeting

16 November 2011

The Indian academia and strategic community continues to produce abundant literature scrutinizing and criticizing the doctrine, but there seems to be no sign of an official review taking place to suit the transformations in India's strategic and security environment. The Nuclear Security Programme (NSP) of the IPCS has constituted a Task Force of experts from varied backgrounds within India's strategic community (research, academia, bureaucracy, military services) to review the Indian nuclear doctrine and provide an alternative blueprint.

The objective of this Task Force has been to assess the present nuclear doctrine against India's current security environment and to reconcile the Indian position with the assessed threat environment and its commitment to global nuclear disarmament. Over a series of five meetings in three months, the Task Force is in the process of finalizing a practical alternative/ revision to the Indian nuclear doctrine.

The latest meeting took place on 16 November 2011 and a

final draft of the Task Force's proposed Nuclear Doctrine for India was prepared.

At this meeting, the Task Force, members discussed and debated India's position on three issues - tactical nuclear weapon (TNW) systems, the Nuclear Triad, the organization of nuclear command and control in India. Members also discussed further steps towards disseminating a report of the various issues discussed as well as identifying appropriate channels to furnish the alternative blueprint of India's Nuclear Doctrine with the Government of India.

The Task Force members include researchers from the Institute's Nuclear Security Programme. Experts from the academia, military forces and bureaucracy have contributed to the preparation of the document in various capacities - as consultants, drafters and critical analysts. The Task Force is chaired by the Institute's Visiting Professor, PR Chari.

About the IPCS Nuclear Quarterly

Nuclear South Asia

The **IPCS Nuclear Security Programme (NSP)** at the IPCS seeks to respond to the twin challenges of nuclear disarmament and nonproliferation through the provision of independent, objective assessments, and by supplementing existing policy debates and strategic analyses. The NSP's work manifests in research projects, track-II dialogues, capacity-building for young scholars, and conferences, seminars and panel discussions to nurture the evolution of an informed strategic community.

Nuclear South Asia is a quarterly compilation of the publications and activities of the Nuclear Security Programme. At the Institute of Peace and Conflict Studies, the NSP's work manifests in research projects, track-II dialogues, capacity-building workshops for young scholars, seminars, conferences and panel discussions. The Nuclear South Asia quarterly aims to project the NSP's work, provide independent and objective assessments on issues pertaining to nuclear security, disarmament and non proliferation and contributing to the evolution of informed strategic thinking of nuclear issues.

Photo Gallery



Amb Shyam Saran delivered the keynote address at the IPCS-IISS Workshop on Managing Civil Nuclear and Radiological Materials: Nuclear Safety, Security and Diplomacy



(L-R) Prof Wyn Bowen, Prof PR Chari, Amb TP Sreenivasan, Dr L V Krishnan and Prof Lawrence Williams at the IPCS-IISS Workshop on Nuclear Safety



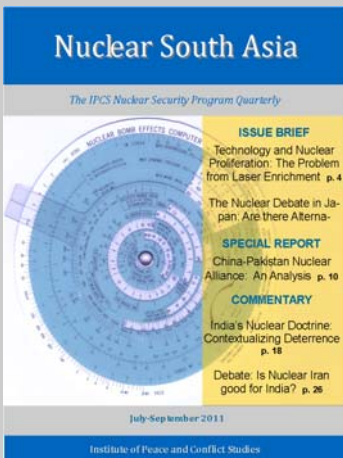
IPCS Young Scholars' Colloquy on India's Credible Minimum Deterrence: An Appraisal



Prof PR Chari and Amb KC Singh are members of the IPCS Task Force on Revisiting India's Nuclear Doctrine

Previous Publications

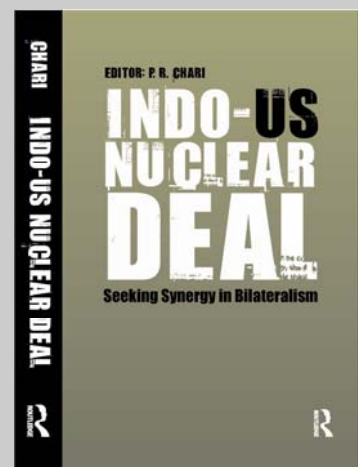
Forthcoming Publications



Nuclear South Asia - IPCS Nuclear Quarterly the July-Sept 2011



Latest Issue Brief from the Nuclear Security Programme (NSP) - India's Credible Minimum Deterrence: A Decade Later



Revised Edition of the Book 'Indo-US Nuclear Deal' Ed by Prof PR Chari, Visiting Professor, IPCS