

# Nuclear South Asia

*The IPCS Nuclear Security Program Quarterly*



April-June 2011

## SPECIAL REPORT

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for Nuclear Risk Reduction  
in Southern Asia p.7**

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**NUCLEAR SECURITY PROGRAM**

providing partnership and support to the global discourse on elimination of nuclear weapons

IPCS partners with the Nuclear Security Project of the Nuclear Threat Initiative (NTI) in its work towards global nuclear security.

*Editors*

**Tanvi Kulkarni**  
**Ruhe Neog**  
**Siddharth Ramana**

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## Director's Note

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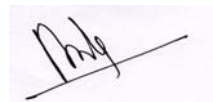
As mentioned in the previous version, the Nuclear Security Programme (NSP), at the IPCS is a unique programme. In fact, it is one of the few research programmes, at the global level, that organizes track-II dialogues and capacity-building workshops for young scholars, besides nurturing alternative debates through its seminars, conferences and panel discussions.

The NSP within the IPCS has the largest number of researchers working on various issues: India's Doctrine of Credible Minimum Nuclear Deterrence (Tanvi Kulkarni), Sino-Pak Nuclear Cooperation (Siddharth Ramana), Nuclear Installations in India (Ruhee Neog), Assessing the Pakistani Nuclear Redlines (Abhijit Iyer-Mitra) and Nuclear Safety and Security (Alankrita Sinha).

As a part of its research activities, during April-June 2011, the Nuclear Security Programme (NSP) has continued its initiative to arrive at a common nuclear lexicon for India and Pakistan. Two papers were published this quarter: the first one on Nuclear Energy and Non-Proliferation in which Prof Chari analyses the case of India on this important issue. The second paper is by Lydia Walker, an intern at the IPCS. In her report, Lydia constructs a Scenario for Nuclear Risk Reduction in southern Asia. The above have been published as an Issue Brief and a Special Report respectively and are now being reproduced in print.

Besides research, the NSP's major thrust is on its track-II dialogues. Such track-II level dialogues between India, China and Pakistan have been organized in Singapore and Bangkok. As mentioned in the previous quarterly, this is perhaps the only trilateral dialogue, on the international forum, between these three countries on nuclear issues. The report of the recent India-Pakistan-China Track II Dialogue held in Bangkok in January 2011 dialogue has been finalized and will be published on the IPCS website in the first week of July.

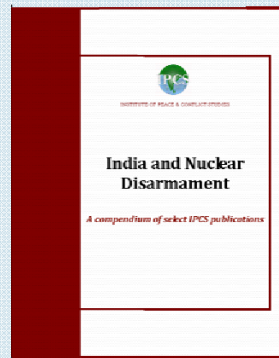
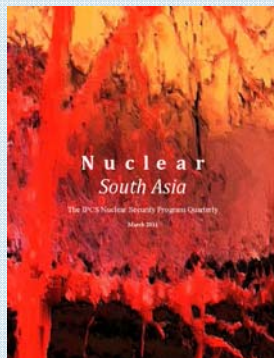
More importantly, the NSP has constituted a Task Force of experts, under the chairmanship of Prof PR Chari, to identify and construct alternative strategies to the Indian nuclear doctrinal issues. The project has been titled, "India's Nuclear Doctrine: Towards a revision and an Alternative Blueprint". The members of this Task Force include Maj Gen Dipankar Banerjee, Brig Gurmeet Kanwal, Mr NS Sisodia, Dr C Raja Mohan, Dr Arvind Gupta, AVM Kapil Kak, Prof R Rajaraman, Prof Onkar Marwah, Amb Lalit Mansingh, Amb K C Singh, Cmde Uday Bhaskar, Dr D Suba Chandran and Dr Mallika Joseph. Over a series of four-five meetings, the Task Force is expected to come up with a concrete and practical set of recommendations that could serve as a possible alternative blueprint to India's Nuclear Doctrine. The Task Force is scheduled to meet in the coming months and a blueprint would be finalized and published in the second half of the July-Sept quarter.



**D Suba Chandran**

*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.

### RECENT NSP PUBLICATIONS



# Nuclear Energy and Non-Proliferation

## The Curious Case of India

**PR Chari**

*Visiting Professor, IPCS, New Delhi*

A surface view of the link between nuclear energy and nuclear proliferation may suggest a causal connection. Nuclear technology is dual purpose and Jason-faced. Nuclear reactors can not only generate power and produce isotopes for agricultural, medical and industrial applications but also manufacture fissile materials for weapons purposes. Moreover, Murphy's Law is inexorable; it postulates that if anything can go wrong in a human activity, then, it will go wrong over a period of time.

More nuclear reactors imply more plutonium being produced and more uranium fuel being needed, which raises the dangers of nuclear proliferation-- both horizontal (more actors) and vertical (more weapons). An increase in the number of nuclear reactors could thus lead to the number of State and non-State nuclear actors increasing, and nuclear proliferation resulting. Murphy's Law also postulates that the number of accidents will increase, enlarging the problems of nuclear safety and security. In reality, the link between nuclear energy and nuclear proliferation is very complex and relates closely to issues of national security, external threats but, also domestic compulsions.

Clearly, no energy source is free of problems. Nevertheless, the devotees of one or other energy source generally advance their case by denigrating the competing sources of energy to promote their favored solution. Thus, the case made out against fossil fuels (coal, gas and oil) is that they lead to atmospheric pollution, global warming and climate change. Hydro-electricity is environmentally clean, and provides 'peaking power' viz. power at times when its need spikes, atypically in the early hours of the night. But, the argument made against it is that impounding water in large reservoirs behind high dams to run turbines leads to forests getting submerged, causing environmental damage and populations getting displaced. Solar energy is dismissed because solar cells are expensive and solar arrays require large land surfaces. Wind power is deprecated as being dependent on the climate. Tidal, geothermal and other non-conventional sources are belittled as still being at the experimental stage. And so on. The essential take away from this discussion is that all sources of energy must be exploited, especially as demands for energy escalates; so we cannot be absolutist here.

The same argument holds for nuclear energy; it has both, its advantages and its disadvantages. The case for nuclear energy is based on the logic that the increasing demand for fossil fuels to meet energy security compulsions heightens the dependence

on overseas supplies, with its inherent uncertainties pertaining to stability of supplies and prices. Nuclear power is environmentally clean, as compared to fossil fuels because there is no emission of particulate matter or green-house gases that exacerbate global warming and climate change. Further, the initial costs of establishing a nuclear power plant may be higher than for a fossil-fuel plant, but the costs of producing power are much cheaper; hence their running costs are significantly lower.

Conversely, the downside of nuclear energy can also be pressed. They relate to the high initial costs of establishing nuclear power plants due to their long gestation periods which adds to the costs of interest and overall costs of the project and difficulties in raising credit. Further, the possibility of accidents and their horrendous consequences is highlighted by the opponents of nuclear energy. Its critics also raise the issue of waste disposal, for which no satisfactory solution has yet been found.

However, the major resistance to enlarging atomic energy programs arises from the pathological fear of radiation, which will increase after the recent events in Japan. Nuclear safety and security issues have, therefore, gained salience. The emergence of maverick states like North Korea and Iran, and more worryingly, non-state actors like Al Qaeda (with its religious and political-extremist beliefs and a known interest in nuclear weapons) constitute the present danger. The present challenge involves reconciling increased nuclear energy generation with effective proliferation controls.

### I

#### **NUCLEAR ENERGY: THE CASE OF INDIA**

Coming specifically to the Indian dilemma, it should be noticed that, despite the tall claims of the Atomic Energy Commission (AEC), nuclear power generation is around 4,000 MWs at present, which is less than 3 % of the annual power generation. Incidentally, an annual target of 10, 000 MWs was set by the Sarabhai Profile (1970) for achievement by 1980. Official estimates remain sanguine, however, about the future availability of nuclear energy. Their estimates range from 60000 MWs by 2032 [Meera Shankar—the present Indian Ambassador in Washington]; 260,000 MWs by 2050 [Ronen Sen—her predecessor in Washington] and 455,000 MWs by 2050 Kakodkar—former Chairman of the AEC]. These are totally wild assertions.

Several reasons have been advanced by the apologists to

explain the slow growth of nuclear energy in India like financial constraints, public opposition due to environmental concerns, civilian nuclear technology becoming inaccessible after India became subject to global sanctions following its PNE in May 1974, and so on. A structural problem obtains from the primordial fear of nuclear radiation in the general population, which explains their opposition to establishing nuclear reactors or even opening uranium mines in their neighborhood. This fear will exacerbate due to the Fukushima nuclear disaster.

However, the main reason for the AEC's repeated failure to achieve even modest power targets is somewhat different. It relates to the AEC paying greater attention to the military aspects of the program, which enjoyed greater visibility and prestige. Besides, the AEC has generally been headed by nuclear physicists and not nuclear engineers—the former had a natural bias towards the military atom and the recognition that it promised. Consequently, the atomic energy program received much less attention.

Furthermore, the nuclear energy program in India is hamstrung by a fundamental technical defect. In brief, this program was conceived within the Bhabha three-phase plan, which has become part of the national hagiology. The Bhabha plan envisaged the initial establishment of Pressurized Heavy Water Reactors (PHWRs). The Pu-239 produced in them would be separated and used to fuel Fast Breeder Reactors (FBRs) that have the unique ability to produce more Pu-239 than they consume. Using this Pu-239 in thorium-based reactors would produce U-233 which could then be operated in a self-sustaining mode. Thus, the Indian atomic energy program is premised on FBRs.

But, FBR technology remains unsafe, and is much exaggerated. In fact, only Russia and India are plodding along with this technology, which has been given up by the United States, United Kingdom, France, Germany, United Kingdom and Japan. Incidentally, India's FBR program still remains a gleam in its eye. On ground, only its 15 MW Experimental Fast Breeder Reactor (EFBR) is operational. A 500 MW Prototype Fast Breeder Reactor (PFBR) was expected to come on stream in 2010, which has not yet happened. No information is available in the public domain on the safety record of the EFBR or its downtime and its actual performance. Hence, the viability of breeder technology in India needs an urgent peer group review, especially in the light of the Indo-US nuclear deal, which permits India to import natural and enriched uranium for its atomic energy program that was earlier forbidden.

The lesson to be drawn from the foregoing is obvious. India must exploit all available sources of energy i.e. coal, oil and natural gas; hydroelectricity; biomass; and non-conventional sources like solar, wind, tidal, geothermal, and so on. Regrettably, adequate attention is not being paid to the obvious need for conserving energy by improving the efficiency of electrical and other machinery, and curtailing transmission and distribution losses (read theft of electricity). The pricing mechanism also needs to be reviewed to minimize subsidies for politically favored sectors and cross-subsidized by other

sectors, which is bad economics and encourages wasteful use of resources.

Indeed, ensuring energy security is as much a matter of decreasing demand as increasing supplies, and is as much about governance as technology. Nuclear energy has to be factored into any energy mix for addressing India's energy security requirements. However, its significance cannot be overstated. Consequently fossil fuels [coal, oil, and gas], accounting for some 75-80 % of India's energy supply, will continue to dominate its energy security scenario in future unless some credible alternative sources like hydrogen are developed.

### **Nuclear Proliferation**

It was suggested at the start of this essay that complex international and internal factors shape national decisions to seek or abandon nuclear weapons. At the beginning of the nuclear age horizontal proliferation was deemed almost inevitable with the spread of nuclear energy. The production of fissile materials seminally affected this problem; hence it had to be brought under international control. The Baruch plan (1946) commended this solution; it also informed the Eisenhower Atoms for Peace proposal (1953), which did not discourage the exploitation of atomic energy, but wished to bring it firmly under international control. The International Atomic Energy Agency (IAEA) was chosen to administer these controls and safeguards. Another major development here was the passage, of the Nuclear Non-Proliferation Treaty (1967), which instituted a central bargain: the five Nuclear Weapons States (NWS) would disarm; in lieu, the Non-Nuclear Nuclear Weapon States (NNWS) would not arm, but they would be eligible to receive civilian nuclear technology under adequate safeguards and controls to prevent misuse.

Over time, all these elements of the central NPT bargain have been observed in the breach. The five NWS have clandestinely assisted their allies to gain military nuclear technology (China's assistance to Pakistan and North Korea is an open secret); several of the NNWS have clandestinely acquired military nuclear technology (the efforts in this direction by Iran and Iraq are also an open secret); and, NNWS seeking civilian nuclear technology have been provided or denied this cooperation depending on subjective political judgments. Ironically, several problems identified at the beginning of the nuclear age like establishing fuel banks, ensuring the strict enforcement of international safeguards and controls, and efforts to work towards renouncing nuclear weapons are still persisting.

Nuclear proliferation encapsulates both vertical and horizontal

***“India must exploit all available sources of energy i.e. coal, oil and natural gas; hydroelectricity; biomass; and non-conventional sources. Regrettably, adequate attention is not being paid to the obvious need for conserving energy.”***

proliferation, The greatest anxiety arise at present from nuclear weapons becoming available to irresponsible States and non-State actors, less euphemistically terrorist and extremist organizations like the Al Qaeda. Three distinct proliferation phases in the nuclear era are recognizable. The first phase (1945-1964) saw the emergence of the five Nuclear Weapons States recognized by the NPT, who heralded their entry into the Nuclear Club by exploding a nuclear device. They include the United States (1945), the former USSR (1949), United Kingdom (1952), France (1952), and China (1964). Both security and prestige considerations informed their decisions. The United Kingdom and France were motivated by prestige considerations; they believed that nuclear status would compensate for their loss of Empire after the Second World War. The United States was impelled by security imperatives to meet the threat from Germany, but later Japan during World War II; the USSR by the threat from the United States; and China by security threats from both the United States and the USSR.

The second phase (1965-1998) was marked by contrary trends. Israel, India and Pakistan emerged as crypto-nuclear states. They were unique, since they could deploy nuclear weapons at will, but found it politically expedient not to explode a nuclear device and establish their nuclear weapon status. However, they were enabled to establish a state of “non-weaponized deterrence” against their adversaries. A denuclearization process simultaneously occurred after the Cold War ended. South Africa dismantled its nuclear arsenal; Brazil and Argentina decided to mutually eschew their nuclear option. Belarus, Ukraine and Kazakhstan—former Soviet Republics—decided to denuclearize by returning the nuclear weapons positioned on their territory to (White) Russia.

Clearly, security imperatives informed the nuclear choice made by Israel, India and Pakistan, although the nuclear–scientific lobby in India and military nuclear lobby in Pakistan were very influential. Complex motives informed South Africa to dismantle its nuclear arsenal, but it is generally believed that fears of its falling into the hands of the (black) post apartheid regime were operating. Brazil and Argentina probably realized the futility of going nuclear and locking themselves in a nuclear embrace. So did the former Soviet Republics, but the effective control over these weapons positioned in their territories lay with Moscow. Their choice was also influenced by generous financial grants.

The third phase began with the Indian and Pakistani nuclear tests in May 1998, the steadily progressing nuclearization of North Korea (its two nuclear tests revealed its intentions but the jury is still out on their success) and Iran’s steady march towards deriving its nuclear option (again its intentions are clear, despite its on-again-off-again negotiations). The Indian and Pakistani motives were security driven, although ideological considerations were operative in India which had a right wing, Hindu fundamentalist party in power at that time. North Korea and Iran are basically impelled by security considerations. The United States had held out a nuclear threat against Pyongyang during the Korean War, and the United States has repeatedly threatened to attack Iran and its incipient nuclear program. An aspect of this third phase is the awareness

that non-State actors like al Qaeda have an interest in nuclear weapons, and in gaining access to fissile materials that could be fashioned into ‘dirty bombs.’

## II CONCLUSION

The foregoing briefly relates the parallel developments in the spheres of nuclear energy and nuclear proliferation. Nuclear energy will continue to expand at a steady, if not rapid, pace in China, India, and South Korea, but not in the developed world. It is not a Silver Bullet to resolve energy security problems of nations, but can form part of a total matrix of energy sources to be exploited. International efforts must be redoubled to explore the newer sources of energy, and to innovate for making the existing sources of energy more efficient.

It was argued earlier that a causal link does not exist between nuclear energy and nuclear proliferation. The evolving structure of the international system gives reason to revisit this assumption and go back to earlier verities. It is therefore arguable that the overt nuclearization of North Korea could lead to a domino effect in Northeast Asia (South Korea, possibly Japan, and Taiwan). Similarly, a nuclear Iran could result in the Gulf and Middle Eastern countries contemplating their nuclear option. These countries are assiduously seeking nuclear power reactors on the ostensible excuse that their oil reserves will deplete over time, and they need power for desalination and other purposes. A proliferation phase in this region, which harbors major Islamic fundamentalist groups (al Qaeda, Hamas, and Lashkar-e-Toiba), forebodes great dangers to international peace and stability.

These challenges for the horizontal proliferation regime will also exacerbate problems for the vertical proliferation regime. Article VI of the NPT casts an obligation upon the Nuclear Weapon States to reduce and ultimately eliminate their nuclear arsenals. The United States and Russia account for over 95 % of the world’s inventory, and have a greater responsibility in this regard. They had recently negotiated a New START agreement, which envisages their reducing their nuclear warheads to 1500 and launch vehicles to 700. But, China has urged them to further reduce their arsenals before it could join a nuclear disarmament process, without indicating what these new limits should be.

Besides, China, India and Pakistan constitute a nuclear triangle of baffling complexity; any increase in nuclear armament by one country would impinge on force level calculations by the other two. These differences between and among these de-jure and de-facto nuclear weapon states militates against their cooperating to deal with nuclear proliferation, evident from their opposing policies towards North Korea and Iran.

Ultimately, however, the problem of exploiting nuclear energy without exacerbating nuclear proliferation cannot be addressed without pursuing nuclear disarmament. Global zero may seem a gleam in the eye of idealists. But, a purely realist approach will only see the number of nuclear actors inexorably increasing, leading to a dangerous world with an uncertain future.

Special Report

# Security Net: A Scenario for Nuclear Risk Reduction in Southern Asia

**Lydia Walker**

*Research Intern, IPCS, New Delhi*

“Security Net” is a scenario for a future Nuclear Risk Reduction Regime in Southern Asia. It explores what such a regime might look like, how it might come into existence, what are its central challenges, and what might be its ramifications for nuclear proliferation and non proliferation policy in Southern Asia today.

This study examines the idea of a “Southern Asia” itself and considers the differences between the relationship of regional identity formation to nuclear non-proliferation in Southern Asia in comparison to Southeast Asia and Latin America. It then considers what sort of internal drivers, wild cards, or outside forces could create incentives for regional cooperation on Nuclear Risk Reduction in Southern Asia the future.

## I METHODOLOGY & SCOPE

This study uses the intuitive logics school of scenario building created by Pierre Wack at Shell Oil<sup>1</sup> and used by the US National Intelligence Council (NIC) in their Global Trends reports.<sup>2</sup> In intuitive logics, qualitative research replaces a quantitative model.

Scenarios are theoretical exercises in long-term forecasting. They can generate innovative thinking and expose new areas of consideration for seeming immobile situations. “Scenarios deal with two worlds, the world of facts and the world of perception. They explore for facts but they aim at perceptions ... Their purpose is to gather and transform information of strategic significance into fresh perceptions.”<sup>3</sup>

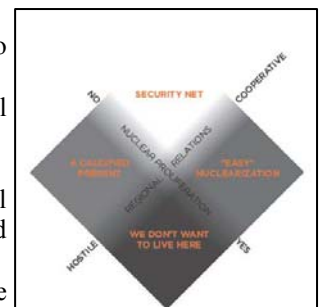
Often, scenarios are deployed in sets to show a range of possibilities. This study lays out a range of southern Asian nuclear scenarios and hones in on one, that of Nuclear Risk Reduction. Then it literally maps nuclear spatial politics in Southern Asia in order to give clarity to an often confusing set of relationships based on politics and technology, overt and covert programs, as well as speculative linkages. This scenario defines Southern Asia as South Asia (the former entity of British India) and China.

This scenario is a thought experiment designed to provide different angles of consideration to nuclear security in Southern Asia. It is not a series of predictions about what may or may not occur in the future. It is a narrative of a possible future one possibility among many.

## II SCENARIO CONSTRUCTION

Four different scenarios are derived from this graph, using nuclear proliferation and regional relations as basic drivers. From left to right, clockwise:

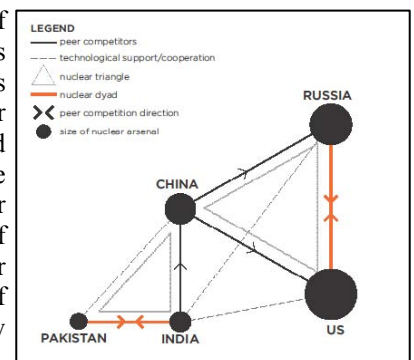
1. Calcified Present (hostile regional relations, no proliferation)
2. Security Net (regional cooperation, no proliferation)
3. Easy Nuclearization (regional cooperation, increased proliferation)
4. We Don’t Want to Live Here (regional conflict, increased proliferation)



This study focuses on the second scenario, “Security Net.” This is the best-case scenario. Positive scenarios are “hard cases” – seemingly unrealistic, they have the potential to generate novel political thought. Also, threat assessment by nature is pessimistic. This fondness for the worst case is not born out in prediction rates.<sup>4</sup>

## III NUCLEAR SPATIAL POLITICS

The above image is a simplified rendering of the complex relationships between nuclear powers in Southern Asia and their connections to the United States and Russia. Some its details are under dispute, like the size of the Pakistani nuclear arsenal.<sup>5</sup> The purpose of this diagram is to show how strength, threat, technology cooperation and assistance are relational, not finite concepts in Southern Asian nuclear politics.



Pictured is the “difficult” nuclear spatial politics of Southern Asia: The region has the nuclear pair of China-India, the nuclear dyad of India-Pakistan and the nuclear triangle of

China-India-Pakistan. This study differentiates between nuclear pair and nuclear dyad – a nuclear dyad is two nuclear countries that view their nuclear capabilities *directly* in relation to each other in a framework of deterrence, such as India-Pakistan and US-Russia - the strength of one arsenal correlates with perceived weakness of the other. A nuclear pair is simply the relationship between two nuclear nations while a nuclear triangle is the relationship between three. The sides and angles of the Southern Asian nuclear triangle are not equal. In the India-Pakistan nuclear dyad, Pakistan's arsenal is funded and technologically supported by China. In the India-China nuclear pair, India is concerned with Chinese nuclear weapons but China looks towards the US and Russia as "peer" competitors.

Added to these complex regional spatial politics, is the related nuclear triangle of the US-Russia-China. Currently, China views itself more in relation to the US Russia nuclear dynamic than it does in relation to the China-India-Pakistan nuclear triangle. This is a challenge for reciprocal nuclear risk reduction measures in the region of Southern Asia.

#### IV SOUTHERN ASIAN IDENTITY

Crucial to the development of a regional system, is a sense of regional identity and a shared belief that regional security is a common interest.<sup>6</sup> This requires the region's nuclear nations to become active participants in the challenge of nuclear risk reduction. How does such a shared identity grow? Why has Southern Asia differed from other regions in this regard?

Regional institutions develop for a number of reasons:

1. When the benefits of cooperation outweigh those of going-it-alone.
2. When conditions are favorable for over-riding the obstacles to cooperation.
3. When it is in the interest of a superpower to form multilateral (rather than bilateral) alliances within a particular region.
4. When there is an outside threat that is great enough to require cooperation.

The first of these conditions is not sufficient in and of itself to provide motivation for long-term cooperation and to override long-standing security issues. Regional collective identities matter because they provide the shape and character of the individual nations' interests.<sup>7</sup> Without a sense of common security goals, regional cooperation is extraordinarily difficult, if not impossible. Southern Asia is a region where superpowers have historically dealt with nations on a bilateral basis, where there is historic inter-state rivalry and armed conflict, and where – so far – no outside threat has provided enough incentive to surmount long-standing internecine insecurity.

There is an established literature on building regional identity in Southeast Asia.<sup>8</sup> Yet there is near radio silence on regional identity creation in Southern Asia as a political project and a dearth of secondary literature. SAARC (South Asia Association for Regional Cooperation) does its best, but its mandate does not include security issues, China is not a member, and some delegates from member states complain that

SAARC meetings denigrate into proxy in-fighting between small states on behalf of large states.<sup>9</sup> Even SAARC's Peoples Summit believes:

There are no strong mechanisms for promoting regional identity and regional cooperation. The socialization process should be transformed to think beyond the national level and enhance regional identity. Unless culture and thought, which at present remain under the hegemonic influence of Western intellectual tradition, are reformulated and brought to the reality of South Asia, *no measure of cooperation will succeed*.<sup>10</sup>

In this formulation, the million dollar question of what is non-Western modernization precludes a meaningful discourse on building a Southern Asian regional identity. However, answering that "million dollar" question should be under SAARC's purview. Instead, it is a conversation road-stop.

Another criticism of regional identity formation, whether in Southern Asia or elsewhere, is that without an accommodating, inclusive, and pluralistic society, the creation of a common regional identity remains an elitist political project and therefore impedes the construction of a shared (popular) identity.<sup>11</sup> This criticism has validity for regionalism as a popular project. However, Nuclear Risk Reduction by nature is an "elite," top-down proposition which requires the proportional cooperation of nations' security elites.

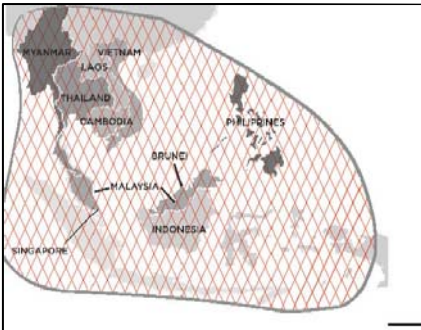
The most obvious insurmountables to regional identity in Southern Asia are the persisting instability between India and Pakistan and the small nation larger, more powerful neighbour tensions experienced by the region's smaller, non-nuclear nations. (Re)establishing regional economic connections in an era when globalization has crafted alternative trade frameworks is more easily said than done. There can be a kind of absolutism to the economic argument that economic growth and interconnectedness will facilitate political stability<sup>12</sup> which does not always take into consideration nations' refusal to open their borders to trade and transit. Geography is not economic (or political) destiny and current political tensions are not predetermined in shape or outcome. International markets opened up new patterns of trade which bypass historic regional economic linkages. However, just as historic economic connections changed over time, the current international workarounds for regional trade in Southern Asia are also not fixed.

In the difficult pursuit of regionalism, nuclear security is a promising place to start: It is limited enough in scope yet quite symbolic in action as nuclear weapons are high-status weapons and nuclear technology is a signal of modernization. Also, there is the precedent of Nuclear Weapons Free Zones (NWFZ) which are regional security regimes organized around the control of nuclear weapons. It is for this reason that this study looks towards NWFZ as historic examples of regional regimes designed to combat proliferation. While the nuclear "genie" is very much "out of the bottle" in Southern Asia, the concept of a regional framework developed to limit the risks associated with nuclear weapons is a transferable one from one case to another.



## V REGIONAL TEMPLATES

There are severe limitations in directly using non-proliferation “lessons” from one region and applying them to another. Some researchers look to the US-Russia Cooperative Threat Reduction (CTR) programs as a template for Nuclear Risk Reduction and Confidence Building Measures in Southern Asia.<sup>13</sup> While there are obvious reasons for this parallel – it is the largest example of proportional nuclear weapons reduction – the bilateral nature and small scope of US-Russian CTR programs create some limitations for their use in the context of Southern Asia. In addition, the theoretical use of US-Russia CTR programs in the Southern Asian context already has a deep and established literature.<sup>14</sup> For these reasons, this study draws on two examples of regional Nuclear Weapons Free Zones (NWFZ) in Southeast Asia and Latin America to highlight the regional aspects of these efforts.



Obviously, the Southern Asian context is very different from either Southeast Asia or Latin America, and a Nuclear Risk Reduction Regime is a different structure entirely from a NWFZ since it has no aspirations to end the presence of nuclear weapons in a region. This study uses the modality of a NWFZ not as a cookie cutter blueprint for anti-proliferation and disarmament policies in Southern Asia. Instead, it highlights the regional construction of a NWFZ and considers how the development of regional institutions centered on nuclear security, whether a NWFZ or a Nuclear Risk Reduction Regime, can provide valuable insights into seemingly immobile and intractable regional political situations.

The Treaty of Bangkok established a Nuclear Weapons Free Zone (NWFZ) in Southeast Asia in December 1995. Ten Southeast Asian nations signed a treaty which not only covered their regional land mass, but also the signatories’ territorial waters, continental shelf, and their exclusive economic zone.<sup>15</sup> Bangkok is the fourth and most extensive regional NWFZ created by treaty.

Bangkok was an iteration of ASEAN’s (Association of South East Asian Nations) continued attempt to strengthen regionalism in the face of the economic and security interests of great powers in its “fish pond.” Back in 1967, the preamble of ASEAN’s charter stated:

All foreign bases are temporary and remain only with the expressed concurrence of the countries concerned and are not intended to be used directly and indirectly to subvert the national independence and freedom of States in the area or prejudice the orderly processes of their national development.<sup>16</sup>

The regional identity of Southeast Asia was formed in reaction to foreign incursion. Part of the purpose of a NWFZ in the region was to stake out the boundaries within which nuclear powers – who are generally superpowers with extensive international interests – cannot venture with their nuclear weapons. The development of ASEAN and The Treaty of Bangkok’s NWFZ show several ways that a regional Southeast Asian identity was formed and transposed into a security framework:

1. ASEAN was formed as a modest bulwark against the intervention by superpowers during the Cold War. Certain states within Southeast Asia sought to limit military involvement of outside powers in the region. ASEAN has had ideological ties with the Non-Aligned movement.
2. The focus of ASEAN has been on economic interconnectedness. The declaration of Southeast Asia as an NWFZ grew out of efforts to facilitate economic interdependence.
3. The Bangkok NWFZ (as well its near contemporary, the NWFZ in Africa) was a product of the immediate post Cold War moment of international realignment.

The regional non-proliferation regime set up by the Treaty of Bangkok shows how the normative legacy of Non-Alignment politics, economic interconnectedness, and immediate absence of superpower conflict by stalemate can coalesce into nuclear security. Despite geographic proximity, Southeast Asia has had a very different path towards regional identity formation than Southern Asia. However, the development of the Bangkok NWFZ does offer some avenues of theoretical pursuit for Nuclear Risk Reduction in Southern Asia. It shows the connection between normative identity formation, economic interdependence, and role of superpower presence/absence.

The Treaty of Tlatelolco is the conventional name for the Treaty for the Prohibition of Nuclear Weapons in Latin America and the Caribbean. Drafted in 1967 and ratified in 1968, it created a NWFZ in Latin America.<sup>17</sup>

It is the first example of an international legal regional NWFZ. With the exception of Argentina and Cuba, by 1972 all of Latin America had signed on. By 1979, all Nuclear Non-proliferation Treaty (NPT) recognized nuclear states who held territory in the region ratified an additional protocol to the treaty. Argentina finally ratified (though it had signed on to the draft in 1967) the treaty in 1994. Cuba ratified in 2002. While Latin America is a very different region than Southern Asia for obvious reasons – an absence of nuclear weapons and the direct presence of a superpower are but two – there are several transferable concepts from the Tlatelolco framework:



1. Though the main purpose of Tlatelolco was to halt Brazil

and Argentina's proliferation ambitions, neither program ended immediately. And, while both countries – as the regional powers – were the guiding force behind the treaty, Argentina did not ratify the treaty until thirty years after the initial drafting.

2. Yet in that period, a set of nonproliferation norms for Latin America were created. Argentina, though it hadn't signed on to the treaty, invoked the treaty against the British during the Falklands War when the British (who had signed on to an additional protocol), allegedly sent a nuclear submarine into Latin American waters.
3. The US supported the treaty quietly. It signed on to an additional protocol, but did not use diplomatic or other pressure to generate compliance. Tlatelolco was not a creature of US creation.

In this way, the Treaty of Tlatelolco created a framework where long-term nonproliferation norms were instigated by the region's powers who did not necessarily immediately sign on to the treaty, or abide by its provisions – yet they invoked the treaty when it served their interests. Tlatelolco crafted a Latin American NWFZ through the direct efforts of rival powers Brazil and Argentina; with the tacit, hands off approval of the US; and with the active participation of the region's smaller, weaker nations.

A Nuclear Risk Reduction Regime and a NWFZ are very different in aim. Yet they are both regional security institutions with a mandate to control (to varying degrees) the use of nuclear weapons.

## VI

### NUCLEAR RISK REDUCTION IN SOUTHERN ASIA

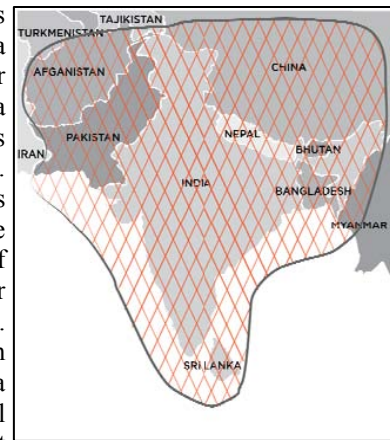
#### DRIVERS & WILDCARDS

How would a regional Nuclear Risk Reduction Regime in Southern Asia come into existence? This project identifies a collection of drivers and wildcards. Drivers are the forces that propel trends, similar to what historians call “structural” factors and political scientists call systematic explanations. They are “the elements that move the plot of a scenario.”<sup>18</sup> Drivers can be social, technological, economic, political, and environmental in form. For Nuclear Risk Reduction in Southern Asia, some driving forces would be increased economic interdependence or a change in trade patterns, the formation of a Southern Asian identity, and an effort to decrease the intervention potential of an outside power.

Wildcards are cataclysmic events that throw a spanner into predictable trends. The terrorist attacks of 11 September 2001 and the Global Financial Crisis are recent examples of wildcards which altered the political landscape in ways that have not yet completely unfolded. While a specific wildcard itself is statistically unlikely to happen, the occurrence of a wildcard is actually more likely than its nonoccurrence.<sup>19</sup>

In regards to wildcards, the unanswered question then becomes what, rather than if. Obvious wildcards for a Nuclear Risk Reduction scenario are nuclear related: Nuclear weapons falling into the possession of a non-state actor group, a nuclear accident at either a civilian or a military installation, the advent

of a new nuclear weapons state,<sup>20</sup> or even a detonation by a nuclear weapons state either as a test/show of strength or as an actual offensive move. All of these wildcards would elevate the immediate relevance of collective action for nuclear security in Southern Asia. The nuclear disaster in Fukushima is such a nuclear wildcard. It will have an as yet



undetermined impact on nuclear energy politics. Fukushima highlights the importance of tightened nuclear safety measures and may well heighten political controversy surrounding nuclear energy.

Some may advocate a disarmament approach to Nuclear Risk Reduction in Southern Asia.<sup>21</sup> This study, while it draws concepts from the regional development of Nuclear Weapons Free Zones, looks towards the creation and tightening of a regional security net of shared nuclear use norms and proportional arsenal reduction. It treats nuclear safety and security<sup>22</sup> as regional collective action problems and actively encourages the role of small, non nuclear Southern Asian nations in spearheading measures to address nuclear issues within a regional context.

Immediate pressures may drive national decision-makers to consider their own nation's security as a self-help project. However, increased economic interdependence – driven by modernization in technology, energy creation and transport – slowly weave a regional net of shared economic interests. At first, state governments negotiate bilateral agreements between individual states to develop local resources. Eventually a plethora of agreements overlay each other and begin to give way to multi-lateral cooperative pacts in the interest of efficiency.

Nuclear energy, while slow to gain traction, becomes an important part Southern Asia energy consumption due to global pressure to limit fossil fuel use and regional status preferences. Just as nuclear weapons possession came to be considered one of the markers of great political power, nuclear energy use becomes a sign of political modernization. Increased nuclear energy use coupled with the aftermath of Fukushima, makes nuclear security a concern for smaller, non-nuclear weapons states in Southern Asia. Nuclear energy to a lesser degree and nuclear weapons to a greater degree are political flash-points for safety and security issues. In addition, nuclear facilities are a small slice of the greater pool of modernization projects. It is for these two reasons – that nuclear facilities are dramatic and dangerous politics and that they are a small portion of state modernization projects – that nuclear security is fertile ground for regional cooperation.

A shared desire for nuclear power coupled with an increased fear of nuclear catastrophe and a desire to work around

## VII CONCLUDING SUMMARY



**“Security Net” focuses on nuclear security as a long-term regional project in Southern Asia.**

international institutional interference related to nuclear security could propel the slow, incremental tightening of nuclear cooperation in the region. In addition, the advent of another nuclear wildcard especially after the nuclear accident at Fukushima, could accelerate incentives for a regional cooperation on nuclear security in Southern Asia. Such a wildcard could provide evidence that all nations in the region have a stake in Southern Asian nuclear security.

### What might this “Security Net” look like?

It would have interlocking strands of accepted nuclear norms, limited and proportional arms control agreements, and standardized safety measures.

- Norms: Codification of nuclear weapons as *political weapons* – that is, weapons whose purpose is to protect the “hard shell” of a state’s “existential” sovereignty. In this way, nuclear weapons are no longer considered weapons of war-fighting. Instead, they are the ultimate, visible reminder of state sovereignty on parade.
- Arms Control: Along with an acceptance of nuclear weapons as political weapons, comes an effort to limit them to strategic use. Particular classes of tactical nuclear weapons could be limited and then eliminated.
- Safety Measures: Nuclear facilities (first civilian and then military) would adhere to a set of safety measures. This would demonstrate that nuclear safety is a shared, regional concern. Standards could be drawn up first, and verification mechanisms would follow. This aspect would be an ideal place for the region’s smaller, non-nuclear weapons states to take the lead.

Like many ambitious multi-actor projects, regional nuclear security in Southern Asia as narrated by “Security Net” articulates a change in perception: A change in perception for how the region’s states view nuclear weapons, how they view nuclear security, and even how they view themselves as a region. How to generate such “ideational change”<sup>23</sup> remains an unanswerable, a subject of much speculative meditation. Scenarios as thought exercises accept these limitations.

They seek to circumnavigate these difficulties by articulating a narrative of possibility, not a recipe for policy. The point of a scenario project is to generate creative thinking about political problems. The following is a brief overview which circles back to the possible current ramifications for the future narrative outlined in “Security Net.”

The world articulated by “Security Net” is a world where the nations of Southern Asia – including China – construe nuclear security as a pressing regional problem requiring a regional solution. In this world, regional identity and economic interdependence form a causal circle of incremental change over time. Nuclear security, as both a crucial, high-stakes issue with a particular, limited scope, becomes an ideal place for a regional security framework to form. Another nuclear-related wildcard, in addition to Fukushima, could catalyze regional nuclear security in Southern Asia, providing the impetus for a time lapse construction of “Security Net.” In both sequences – incremental and accelerated – the strands of regional identity and economic interdependence join up with shared nuclear norms, limited arms control agreements, and shared safety measures to form a net of regional nuclear security for Southern Asia.

This project purposely speaks in generalities about particular Southern Asian nations, their individual nuclear goals and capabilities, and their often charged interrelations. It does this in order to sidestep seemingly intractable political problems and look towards a future where nuclear security is considered a regional concern – not for altruistic reasons, but because long-term driving forces, perhaps catalyzed by a wildcard, *make* nuclear security a matter of regional alarm.

What does the future as articulated by “Security Net” have to say about today? Short of global disarmament, nuclear weapons are here to stay in Southern Asia. In fact, with an upsurge in nuclear energy production and the prospect of a horizontal (Myanmar?) and vertical (Pakistan) proliferation, the nuclear politics of the region may well grow in complexity and insecurity. This environment, overlain by increased economic interdependence makes Nuclear Risk Reduction a regional priority, not just a subject of bilateral negotiation between India and Pakistan. Considering nuclear security in Southern Asia as a future Southern Asian concern, may broaden the horizon of foreseeable policy options today.

## IX ENDNOTES

<sup>1</sup>Schwartz, Peter. 1996. *The Art of the Long View*. New York: Double day.

<sup>2</sup>US National Intelligence Council Global Trends Reports

<sup>3</sup>Wack, Pierre. 1984. “Scenarios: Shooting the Rapids,” *Harvard Business Review*, pg. 140

<sup>4</sup>Schwartz, Ibid.

<sup>5</sup>The size of Pakistan’s arsenal is classified information in Islamabad and a subject of debate. According to Arms Control Association, Pakistan’s nuclear arsenal is between 70 to 90 nuclear warheads (in contrast to India’s approximately 100 warheads according to the same organization). Available at: <http://www.armscontrol.org/factsheets/> Nuclearweaponswhohaswhat According to David Albright

(Institute for Science and International security), Pakistan's arsenal may include 110 warheads. Albright. 2010. *Peddling Peril: How the Secret Nuclear Trade Arms America's Enemies*. New York: Free Press. Recent US intelligence estimates as reported by *The New York Times* and *The Washington Post* (on 31 January 2011) posit similar numbers to Albright.

<sup>6</sup>Habermas, Jurgen. 2001. Max Pensky trans. *A Postnational Constellation: Political Essays*. Cambridge: MIT Press.

<sup>7</sup>Hemmer, Christopher and Peter J. Katzenstein. 2002. "Why is there No NATO in Asia? Collective Action, Regionalism, and the Origins of Multilateralism." *International Organization* 56(3): 600.

<sup>8</sup>Acharya, Amitav. 2000. *The Quest for Identity. International Relations of Southeast Asia*. Singapore: Oxford University Press. Jönsson, Kristina. 2008. "Unity-in-Diversity? Regional Identity Building in Southeast Asia." Working Paper No 29, *Centre for East and South-East Asian Studies*, Lund University, Sweden. Smith, Anthony L. 2004 "ASEAN's Ninth Summit: Solidifying Regional Cohesion, Advancing External Linkages." *Contemporary Southeast Asia* 26(3): 416-433.

<sup>9</sup>Informal conversation with Brig. Muhammad Iqbal, 2 December 2010, Centre for Land Warfare Studies, New Delhi.

<sup>10</sup>SAARC People's Summit. Available at: <http://peoplesummit.sapint.org/regional-identity> Emphasis added.

<sup>11</sup>Jönsson, pg. 24.

<sup>12</sup>For example, International Monetary Fund Director Dominique Strauss-Kahn's argument that war is "development in reverse" (23 October 2009). Available at: <http://www.imf.org/external/pubs/ft/survey/so/2009/NEW102309A.htm>

<sup>13</sup>Sethi, Manpreet. 2010. "Strategic Stability: Nuclear Confidence Building Measures and Risk Reduction Measures in South Asia." Centre for Land Warfare Studies, New Delhi.

<sup>14</sup>Krepon, Michael ed. 2004. *Nuclear Risk Reduction in South Asia*. New York: Henry L. Stimson Center Books/Palgrave MacMillan.

<sup>15</sup>Subedi, Surya P. 1996. *Land and Maritime Zones of Peace in International Law*. Oxford: Oxford University Press.

<sup>16</sup>ASEAN Documents Series: 1967-1988 (3rd edn.) 1988. p.27. Available at: <http://www.aseansec.org/1210.htm>

<sup>17</sup>Redick, John R. 1975. "Regional Nuclear Arms Control in Latin America." *International Organization* 29 (2). Redick. 1984. "Non-Proliferation and Latin America: Some Current Policy Options." Conference paper for Non-Proliferation: Attitudes and Motivations, *The Stockholm International Peace Research Institute*. Redick. 1995 "Nuclear Illusions: Argentina and Brazil." *The Henry L. Stimson Center*. Occasional Paper No. 25. Solingen, Etel. 2001. "Middle East Denuclearization? Lessons from Latin America's Southern Cone." *Review of International Studies* 27 (3)

<sup>18</sup>Schwartz, pg. 107.

<sup>19</sup>Tangredi, Sam J. 2001. "All Possible Wars? Toward A Consensus View of the Future Security Environment, 2001-2025," McNair Paper 63. Washington DC: National Defense Defense University.

<sup>20</sup>Besides the possibility of a nuclear Iran, there are some unsubstantiated reports that Myanmar has been making moves towards acquiring nuclear weapons although it is a party to the Treaty of Bangkok's NWFZ in Southeast Asia. Reports of this nature in *The Washington Post*, available at: <http://www.washingtonpost.com/wp-dyn/content/article/2010/06/03/AR2010060304859.html> And *The Telegraph*, available at: <http://www.telegraph.co.uk/news/worldnews/asia/burmamyanmar/7909774/Burma-is-working-on-nuclear-weapons-programme-experts-claim.html>

<sup>21</sup>Nuclear disarmament is not the focus of this project. However, Evans, Gareth and Yoriko Kawaguchi ed. 2009. *Report of the International Commission on Nuclear Non-proliferation and Disarmament*. Canberra: Paragon Press provides a comprehensive road map towards disarmament. Some of their prospective methods – institutionalized forms for collective security, verification mechanisms and safeguards related to the misuse of nuclear (weapons) materials and design – could function as Nuclear Risk Reduction Measures.

<sup>22</sup>For the purposes of this project, nuclear safety is protection from external accidents while nuclear security is protection from intentional use.

<sup>23</sup>Paul, T.V. 2011. "Building Sustainable Peace in South Asia." Presentation at The Institute of Peace and Conflict Studies, New Delhi. 20 January. Wendt Alexander. 1995. "Constructing International Politics," *International Security* 20 (1).

Opinion

## The Future of Nuclear Non Proliferation

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**W**hile the death of Osama Bin Laden closes one chapter of recent history against the global war on terror, the risk of terrorism merging with nuclear weapons poses the greatest threat today, even more starkly than a nuclear holocaust. Pakistan, representing the triangulation of a rogue military, terrorism (with suicide terrorism as a norm) and the world's fastest growing nuclear arsenal, remains the world's highest concern and the deepest source of anxiety.

Conversely, India as one of the three de-facto nuclear weapon powers, maintains an excellent record at adhering to international laws and global norms pertaining to nuclear weapons. In June 2008, Prime Minister Manmohan Singh restated India's policy as "fully committed to nuclear disarmament that is global, universal and non-discriminatory in nature" and that for India, "the only effective form of nuclear disarmament is global nuclear disarmament"; nuclear disarmament cannot be "regionalized."

India's principled opposition to the NPT is well known and has been often stated. India does not participate in the NPT preparatory or Review conferences. Besides being a discriminatory treaty with no clear balance of responsibilities between the nuclear haves and have-nots, the NPT has done comparatively little over four decades to further the cause of nuclear disarmament in the world. It has instead led to a vast vertical proliferation, which even decades after of the end of the Cold War, does not quite seem to go away. The New START is a welcome development, but it does not meet global aspirations and is of limited disarmament consequence. It is pertinent to ask at this stage whether it is the nonproliferation treaty or the nonproliferation regime which is in crisis.

Given its excellent nonproliferation record and the NSG approval to the India-US civil nuclear agreement, India will not have difficulty in the future to accede to the NPT as a nuclear weapons power and formally accept all the responsibilities that go with it. But in view of the country's security environment, joining the NPT as a non-nuclear weapons state is not an option that any Indian government will contemplate now or in the future.

Some creative thinking is required towards modifying the NPT to accommodate India, Pakistan and Israel in the system rather than keeping them outside. One possibility is to introduce a third category of "state with nuclear weapons" or "advanced states with nuclear technological capability" to be added in the NPT. In keeping with certain carefully considered benchmarks, such as nonproliferation track record, civil control over arsenals, nuclear doctrines and such, exceptions can be made. No treaty should be embedded in stone and as circumstances call, should to be amended, howsoever difficult the

process.

It is also time to consider fresh approaches towards global elimination of nuclear weapons. India is aware of the new proposals that are currently being debated and hurdles that they face. In a landmark declaration at the Conference on Disarmament (CD) in February 2008, India formally proposed two multilateral agreements and two global conventions in a detailed framework for nuclear disarmament and laid out a seven point agenda:

1. Reduction of the salience of nuclear weapons in security doctrines
2. Negotiation of an agreement on no-first use of nuclear weapons among nuclear weapons states
3. Negotiation of a universal and legally binding agreement on non-use of nuclear weapons against non-nuclear weapons states
4. Negotiation of a convention on the complete prohibition of the use or threat of use of nuclear weapons
5. Negotiation of a nuclear convention prohibiting development, stockpiling and production of nuclear weapons, moving towards a global, non-discriminatory and verifiable elimination of these weapons
6. Unequivocal commitment of all nuclear weapons states to reduce risks and dangers arising from the possibility of accidental use of these weapons
7. Adoption of additional measures by nuclear states to reduce accidental use.

In early May 2011, India's Acting Permanent Representative to the CD in Geneva reiterated India's strong support to the UNSC Resolution 1540 on preventing proliferation of WMD and their means of delivery. India is not yet a member of PSI as there are concerns about its consonance with international maritime law and the artificial distinction it makes with regard to rights and responsibilities of nuclear weapons states and non-nuclear weapons states. However, India has no problems with the purpose and the strategy of the initiative; and there is a growing belief that India should join the PSI and support its expanded mandate as envisaged by President Obama. This fits in very well with India's own concern over clandestine proliferation, especially in its own neighbourhood, which could facilitate the acquisition of nuclear weapons or fissile material by terrorist or a jihadist groups.

*Excerpts from a presentation made at the Conference on the Atlantic World and Rising Global Powers at Berlin, Germany on 15-16 May 2011 organized by the Council on Foreign Relations, USA and the Stiftung Wissenschaft und Politik, Berlin*

Opinion

# Revisiting the CTBT: The US Conundrum

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US President Barack Obama in his historic address in Prague in April 2009 laid down his administration's nuclear ambitions, including the ideal of an eventual global nuclear disarmament. While he conceded that it may not occur in his own lifetime, especially given the Republican victory, he has however continued to push forward for these ideals. This includes the support for contentious issues such as the Fissile Material Cut-Off Treaty and the Comprehensive Test Ban Treaty.

While the FMCT continues to be in a bedlam in the Conference on Disarmament, the CTBT is an area where the US can, and should unilaterally move forward. Obama's democratic predecessor Bill Clinton had to face an embarrassing defeat in his efforts to push forward the ratification of this treaty in 1999, and this weighs heavily on the minds of the disarmament pundits who wish to revive it. In fact any present attempts to re-visit the CTBT have been emphatically opposed by the Republican minority whip, Jon Kyl, who is quite influential in the Senate. However this should not deter the revisionists.

There still exists hope for the CTBT especially since the New START agreement with Russia was ratified by the Senate earlier this year despite Kyl's opposition to it. Obama's preference to go ahead with the CTBT in these difficult times will serve to strengthen US' geo-strategic interests worldwide. It will provide increased international leverage on NPT violators like North Korea and Iran, will help in pushing forward disarmament agendas with holdout states like India, Israel and Pakistan, and in improving relations with Russia.

For Obama, the need to push forward for ratification is also to be seen in the light of the urgency to boost his credibility, more so if he chooses to stand for re-election. Bearing in mind his promises in the electoral manifesto, President Obama has had very little to his credit in international relations. The only exception being the nuclear sphere where he has successfully held a Security Summit. This summit dealt with the non-state actors, brought into affect a new START agreement with Russia, revamped the Nuclear Posture and improved leverages against Iran's nuclear program.

Furthermore, for the democrats, the push through of a contentious but internationally important treaty, will lead to a sense of domestic confidence and optimism, particularly if it comes after a highly contested budget session. It will help to serve the US fiscal policy by reducing expenditure on weapons which have been repeatedly described as a futile investment. Even the revamped Nuclear Review Posture, which further raises the bar on authorizing the use of a nuclear weapon, makes them untenable in the long term and therefore

avoids further expenses associated with their testing, simulations and related exercises which will be beneficial to the US in the long term.

The Republican opposition to reviving the CTBT can be simplistically described as subscribing to an ideological opposition to a rival. However, the arguments given by opponents to the CTBT include apprehensions that the present US stockpiles are untested to augment American deterrence policy, and that the New START agreement would encourage rivals such as China to achieve nuclear parity with the US.

Opponents of the 1999 discussion are particularly concerned that the current monitoring mechanisms are not fool-proof and therefore the verification clauses in the treaty need to be strengthened before the US can consider revisiting the treaty. Jon Kyl has even cited the views of Paul Robinson, chairman emeritus of Sandia National Laboratory, who had testified before Congress that the reliability of US nuclear weapons still cannot be guaranteed without testing them properly, despite more than a decade of investments in technological advancements.

Nonetheless, significant strides have been made forward in monitoring mechanisms, including addition of new sensors and augmentation of existing ones in operation by the US to counter such arguments. A look at the recordings made by a number of monitoring stations of the two North Korean tests in 2006 and 2009 attest in favour of the new sensors. The yields provided were on the scale which

opponents believed would not be detected. To further strengthen the argument in favour of the CTBT, Thomas D'Agostino, the US National Nuclear Security Administration chief, who is responsible for the integrity of the nuclear stockpile, said "we have a safe and secure and reliable stockpile. ... There's no need to conduct underground (nuclear) testing" in an interview to Arms Control Today.

Though proponents of actual testing express misgivings about the data collected from simulations, especially those based on tests last conducted as early as two decades ago. But it is imperative to keep in mind that nuclear weapons plutonium is not affected by the aging process for 85 years or more. Moreover, significant strides made in the US Stockpile stewardship address concerns of weapons longevity. Additionally, with the advent of the Stockpile Stewardship program, advances have been made to replace only parts as and when necessary. These measures should go a long way in addressing concerns relating to the fears of untested stockpiles. Based on these facts, the Senate should reconsider the debate on the CTBT and push for its ratification at the earliest.

Opinion

## Iran and Libya: Chasing the Bomb

Ruhee Neog

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A nuclear deliberations impasse between the P5+1 and Iran was reached in January of this year. Iran has made its intentions evident. It will not abandon its nuclear programme, as demonstrated by its recent nuclear agreement with Zimbabwe, until various conditions are met, which the P5+1 are unwilling to concede. Then there is the issue of an intervention spurred by questionable motives currently underway in North Africa. It would be wise to remember that Libya renounced its weapons programme in 2003, in return for various security guarantees. While not directly connected, these instances are relevant because of their possible bearing on Iranian denuclearization. One may ask: What effects, if any, will these developments have on Iran's alleged pursuit of the bomb and the stalemated nuclear negotiations? Will Iran hasten the acquisition process? Or will it rest somewhat assured that its supposed weaponizing potential will help secure a bargain with the US without having to physically acquire nuclear capability?

Events witnessed in Istanbul during negotiations between the P5+1 and Iran were rather bleak, and prognosticated this analysis. Iran was caustic in its pronouncement: The negotiating states wanted to dictate terms to Iran, instead of engaging in dialogue, which was wholly unacceptable to them. Iranian 'prerequisites' were the lifting of sanctions and a recognition of its right to enrich uranium. Without these it declared there would be no movement. The P5+1 negotiators were hoping to achieve a compromise on issues such as a new nuclear fuel swap agreement, previous instances of which had failed to see the light of day. The Iranians wanted the freedom to enrich uranium for peaceful purposes, as stipulated in the NPT, and removal of targeted UN sanctions, before commencing discussion on other issues. Given the parallel agendas of both sides, it is no wonder that a stalemate was quite effectively reached. If anything, these talks reinforce the notion that that Iranian denuclearization is an unrealistic aim.

In March this year, *The Daily Telegraph* reported Iranian plans for importing uranium ore from Zimbabwe, a reiteration of the stance expressed in Istanbul in January. The report derived from leaked IAEA testimonials, which suggested that a group of Iranian foreign and trade ministers secretly visited Mugabe's regime to cement the deal, in the wake of a trip by Iranian engineers who were sent to assess the veracity of Zimbabwe's uranium deposits. Sanctions against both countries were condemned by their respective representatives as indicative of the hegemonic intentions of the US. On the other hand, those opposed to the move emphasized the dangers posed by a sub-culture of mutually beneficial alliances between pariah nations. By ignoring the sanctions imposed on it, Iran chose to stick a symbolic middle finger in the general direction of the West.

It is noted with consternation that these events unfold against the backdrop of the international community's incoherent intervention in Libya. Iran, it can be said with certainty, is quietly watching. The Libyan intervention is significant because the display of military capabilities is not confined to the narrative of Libya alone. It is undoubtedly also a provocation; a warning of possible responses to sustained intransigence by 'rogue' states. As an ultimatum, therefore, it could spark off a spectrum of reactions in Iran, all of which have the potential to reach the same conclusion:

- Fear of similar repercussions may lead to either an increased willingness for real dialogue over its nuclear programme or accelerated efforts to acquire a nuclear weapon.
- Derision for military maneuvers if the mission in Libya falters, which could consequently lead to renewed confidence in bending the international community to its will. Again, this may or may not involve a greater push towards nuclearization as a pressure tactic.

Thus, both fear and confidence, two dissimilar emotions, could reach the same end: a reinvigorated push towards the acquisition of a nuclear weapon, perceived as the only bargaining tool capable of detaining military activity and winning compromises from the international community. The likelihood of this argument gaining primacy is not small and the argument could run thus: "Gaddafi was made to give up Libyan nuclear assets in exchange for the end of international isolation, and look what happened to him."

In its capacity as an internationally appointed 'rogue' state, Iran and its nuclear politics have a disquietingly regular habit of grabbing headlines. This time though, with Japan and Libya vying for analytical space, Iran's outstanding issues have been temporarily relegated to the backburner. However, its spectral presence in all strategic calculations cannot be dismissed lightly. If getting Iran to give up its nuclear ambitions is unrealistic and if the Libyan crisis only strengthens Iranian pursuit of the bomb, the order of business has to be reprioritized. What about rapprochement along the lines of limited uranium enrichment in Iran in return for closer IAEA inspections, followed by discussions on a fuel swap agreement? It is certainly an idea worth considering. The four UN sanctions against Iran which demand an immediate halt of uranium enrichment, until it answers all questions regarding weaponization efforts, is another issue that can be pursued after some form of détente is achieved. It cannot be expected to occur if both sides maintain an immovable stance.

***"Both fear and confidence, two dissimilar emotions, could reach the same end: a reinvigorated push towards the acquisition of a nuclear weapon."***

## Opinion

# India's Moral Nuclear Behaviour: Rhetoric or Reality?

**Alankrita Sinha**

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India's nuclear behaviour is often deemed seemingly unpredictable. First there was the case of the 'Peaceful Nuclear Explosion (PNE)' in 1974, at a time when Nehruvian idealism still found an esteemed position in the dismissal of many a realpolitik decision. This was then followed by the formal acknowledgement of India's power as a state possessing nuclear weapons in 1998, when only a decade before the Rajiv Gandhi Action Plan had put forth a clear-cut plan that would have eventually led to universal nuclear disarmament by 2010. These contradictions have only highlighted the ambiguity in India's nuclear behaviour and put a question mark on the ulterior motives that guide it. Moreover, the debates that have attempted to solve this puzzle have often limited themselves to two major concerns that drive India's behaviour: National security and energy. However, in their own capacities they have often left out a cardinal element, that of morality.

The strand of thought that focuses on morality has covertly found a way into the justification and explanation of India's nuclear behaviour, and even now succeeds in defining the debates that shape it. In India, there are three major strands that form the base of debates surrounding its nuclear behaviour; those stemming from concerns about national security, international regimes and nuclear energy. First, the contradictions within the national security aspect can be highlighted by delving into the doctrines of credible minimum deterrence and no first use. India's insistence that it needs to maintain a 'credible minimum deterrence' in order to buttress its national security, and at the same time uphold the doctrine of 'no first use', is coloured with undertones that depict issues of moral responsibility. This is indeed an attempt to ensure credibility of not only its nuclear deterrent but also its moral foreground wherein abstinence from first use (even in a threatening situation) is aimed to take the sting out of actual possession.

Secondly, India's relationship vis-à-vis nuclear regimes, especially the NPT, have been forever wrought with many paradoxes. In this case, the narratives on morality are more subtle, though definitely traceable, as on one hand India purports to support the cause of universal disarmament, and on the other it insists on maintaining a nuclear deterrent itself. Moreover, its reluctance to join the NPT as a non-nuclear weapons state is based on the premise that the NPT perpetuates superficial discrimination between the haves and the have-nots, thus raising fundamental questions over the 'righteousness' of this regime. Another dimension that highlights

India's 'moral' dilemma is the escalating concern over proliferation and nuclearization (more nuclear reactors for civil as well as military purposes), which has been directly proportional to the pressure on India by the international community to enter into the folds of international nuclear regimes, a step which India has been reluctant to take. In a sense then, India's claims to support the new disarmament momentum initiated by Obama's Prague speech in 2009 while enhancing deterrence, has entailed frequent friction between international expectations, national security concerns and issues of morality and justness.

A third case in this debate revolves around India's position on the need for nuclear energy. Imperative to this point is India's effort to decrease its reliance on fossil fuel to meet the energy requirements of an ever-growing population without increasing its carbon footprint. Its absolute opposition to the idea of joining the NPT as a non-nuclear weapons state in order to avail assistance in its civil nuclear ambitions has often proved to be a roadblock, one which has been eliminated by the recent NSG waiver, and professed nuclear

***“India's insistence on 'credible minimum deterrence' in order to buttress its national security, and at the same time uphold 'no first use', is coloured with undertones that depict issues of moral***

cooperation with states like the US and France. Interestingly, the main bargaining chip in these collaborations has been India's credibility as a 'responsible and moral' actor. More interesting is the fact that India has played this chip many a time in order to obtain what it desires. Fundamental to this assertion is the question of whether the image of India as a moral, responsible actor is more than just a mere disguised justification on its end to achieve what it aspires. And if this is indeed true, it is crucial to understand why the response of the international community has been affirmative as far as India's nuclear aspirations are concerned.

Answers to these questions do not assert a clear-cut distinction between the ideas of 'moral responsibility' as a rhetoric or reality in the shaping of India's nuclear behaviour, rather they are concepts that are overlapping and have been internalized by India's strategic community, perhaps a mere 'means' to achieve the desired 'ends'. So on one hand, India has sought to seek credible minimum deterrence and nuclear energy requirements (while abstaining from international nuclear regimes like the NPT); on the other, these very aspirations have been facilitated by India's crystal clear record as a responsible actor, perhaps even a 'moral' one. It is therefore clear that India's realpolitik endeavours, guised in moral terms, have often blurred the lines between rhetoric and reality.



## Opinion

# Does Myanmar have Nuclear Ambitions?

**Siddharth Ramana**

*Research Officer, IPCS, New Delhi*

There are increasing demands in Washington for a review of Myanmar's nuclear programme. Concerns relate to a possible similarity with the militaristic undertones of the North Korean and Iranian nuclear programmes, which threaten Western interests in the region. New Delhi should monitor Myanmar's nuclear progress because Indian interests would also be affected by its nuclear ambitions.

A rationale for Myanmar's nuclearization lies westwards; with developments in Iraq and Libya indicating that Weapons of Mass Destruction can provide a deterrent capability against Western hegemony. The governing military junta would be concerned about a similar fate, especially owing to continued opposition from Western capitals, and the country's attractive energy-rich natural resources. Therefore, to establish a military nuclear programme, it would have to emulate other Asian nuclear powers by going for covert militarization vis-à-vis an overt nuclear energy programme.

Alternatively, this may be a grander Chinese proliferation ploy by covertly encouraging a nuclear Myanmar as a proliferation surrogate, other examples of which are North Korea, Pakistan and Iran. Such a tactic would be useful in ensuring survivability of regimes which are deemed favourable to Chinese interests. This would further Asia's negative role in bucking the trend in global nuclear nonproliferation.

According to Myanmar's defectors speaking to the *Sydney Morning Herald* (1 August 2009), Myanmar is presently developing two nuclear sites, one under international scrutiny, known as the Myaing reactor, located in the Magwe division, and another secret facility inside a mountain at Naung Laing in northern Myanmar. These reports are consistent with other reports revealed in leaked American diplomatic cables dated August 2004, suggesting that nearly 300 North Koreans are facilitating this effort. The latter was established in cooperation with Russia in 2002, while the former, with assistance from North Korea and Iran.

Myanmar is a signatory to the Nuclear Nonproliferation Treaty. According to the *Washington Times* (14 January 2011), Myanmar has ignored IAEA letters asking for a review of facilities in the country.

Myanmar's interest in nuclear proliferation reportedly began with a tryst in 2002. The *Sydney Morning Herald* reported that members of the AQ Khan proliferation network visited the country. According to Western diplomats, former deputy foreign minister Kyaw Thu had visited Iran in 2007 to pursue nuclear cooperation in an effort

however to bolster Myanmar's nuclear capability (*Asia Times*, 24 May 2007). The same year that diplomatic ties with North Korea were restored. This is significant since both Iran and North Korea have advanced their nuclear enrichment programmes and also have the ability to launch nuclear-capable vectors.

What works in Myanmar's favour is that it may not need to rely on international nuclear fuel supplies, with the country's Ministry of Energy having identified five areas with confirmed deposits of low-grade uranium. These are at Magway, Taungdwingyi, Kyaukphygon (Mogok), Kyauksin and Paongpyin (Mogok). Additionally, reactor-grade uranium was being mined near Lashio in northern Shan State. It is argued by Desmond Ball, a regional security expert at the Australian National University, and Phil Thornton, a Thailand-based Australian journalist, that cooperation with North Korea and Iran is being pursued under a 'fuel for technology' programme.

Myanmar is entitled to civil nuclear cooperation under its international treaties; however, the energy situation in Myanmar does not make for a compelling case. Myanmar exports natural gas and allied products. According to the US Energy and Information Administration, Myanmar produces about 1.792 million short tones of coal, of which it used 0.322 for domestic use, and its gas production stood at 408 billion cubic ft, while it used only 115 billion cubic ft of gas. Other reports indicate that the percentage loss of electricity in distribution stood at an alarming 30 percent, with almost no use of coal in their energy sector.

These figures suggest that instead of investing in nuclear technology, the Myanmar government would be well-advised to improve its distribution network and invest in traditional energy resources, both of which have been largely overlooked. It is for these reasons that Myanmar's quest for nuclear energy and its evasion of IAEA inspections raise questions about its nuclear intentions.

Neighbouring states will be concerned about these developments, which would entail complications in trade and bilateral relations arising from resulting international sanctions. This directly concerns India, since its energy interests are in competition with China. A comparable equation is seen in China's gains as a result of India's response to Iran's nuclear programme. Consequently, Chinese opposition to Western interests also impinges on extended Indian interests. For these reasons, Myanmar's nuclear ambitions need to be closely followed by New Delhi.

**“What works in Myanmar's favour is that it may not need to rely on international nuclear fuel supplies, with the country's Ministry of Energy having identified five areas with confirmed deposits of low-grade uranium.”**

OpinionTowards an Indo-Pak Nuclear Lexicon - IV  
Minimum Nuclear Deterrence**Tanvi Kulkarni***Research Officer, IPCS, New Delhi*

The three Asian nuclear weapons states – China, India and Pakistan – have adopted the doctrine of minimum nuclear deterrence to project their nuclear weapons policy. The term ‘Credible Minimum (Nuclear) Deterrence’ (CMD) is now used as a brand-name for the Indian Nuclear Doctrine, advertising three features of a nuclear weapons-empowered India: security with a thrust on deterrence, a responsible nuclear weapons state and commitment to global nuclear disarmament. Indian thinking on minimum nuclear deterrence is neither original nor exclusive. While it is argued that India’s nuclear weapons programme was always guided by the concept of minimum deterrence, it is difficult to trace when exactly this term entered the Indian lexicon, both within and outside the official discourse. The staunch advocacy of a minimum deterrent posture by India’s nuclear strategy gurus, K Subrahmanyam and Gen K Sundarji, has influenced the official line on this issue in India.

Indian nuclear policy imbues the term minimum with a meaning beyond the numeric context - minimizing usability through the No First Use (NFU) and non-use against non-nuclear weapons states, a de-alerted and de-mated warhead status, minimizing the financial, human and social costs of a nuclear exchange, and absolute civilian control over the nuclear force. The minimum deterrence posture is influenced by the reality that India does not possess the capacity (in terms of fissile material, number of reactors or the level of technology) to indulge in nuclear adventurism of the maximalist-type. More importantly, for India’s policy-makers, minimum deterrence is closely associated with moral standing - that of a ‘reluctant’ nuclear power which exercised its nuclear option only when ‘forced’ by security circumstances. Moreover, maintaining the smallest possible nuclear force is a practical demonstration of India’s commitment to nuclear disarmament. Doctrinal declarations regarding nuclear weapons are also politico-psychological tools of deterrence; hence a unilateral moratorium on testing would also reinforce the ‘moral’ dimensions of minimum deterrence.

Minimum Deterrence has ultimately to do with ‘numbers’ (of warheads, delivery systems and fissile material stockpiles). Safety, security, survivability and an effective second-strike capability are the pre-conditions for a minimum deterrent. The ‘numbers’ labyrinth involves complex calculations based on a state’s capabilities and resources, and an assessment of those available to the adversary. The exact number and quantity of weapons and fissile material that India possesses is not public knowledge, hence the Indian analyst is left to make ‘guesstimates’ ranging from Subrahmanyam’s ‘60 deliverable

warheads’, Sundarji’s ‘90-135 fission devices’ to Bharat Karnad’s ‘300 to 400 warheads based on ‘thermonuclear deterrence’.

How terminologies are constructed is important. Loading ‘minimum’ with a prefix like ‘credible’ dilutes the concept of minimum since what is credible may not be the minimum and vice versa. However, some experts believe this is not defeatism, since it allows the deterrent to remain dynamic and elastic, and respond to changes in India’s strategic and security environment. Jaswant Singh explained that for India, ‘adequacy’ frames ‘credible’ and therefore ‘defines our minimum’. The difference between Credible Minimum Deterrence and Minimum Credible Deterrence is not simply one of language but of posture. The former implies a deterrent which is of the smallest possible value (minimum) and yet the minimum must remain ‘credible’. But a Minimum Credible Deterrent would associate minimum with credibility and not with the deterrent. The Indian Nuclear Doctrine envisages a minimum deterrent in tandem with maximum credibility.

***“‘Credible Minimum (Nuclear) Deterrence’ (CMD) is used as a brand-name to advertise three features of a nuclear weapons-empowered India: security with a thrust on deterrence, a responsible nuclear weapons state and commitment to global nuclear disarmament..”***

Have we got our terminology right? ‘Minimum’ deterrence, based on the smallest strategic nuclear force that can deter an attack or the threat of an attack by a nuclear weapon-armed adversary, seals the lower limits of the arsenal, indicating that any number below this

limit would endanger deterrence. Herman Kahn’s term ‘finite deterrence’ 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 - India’s growing nuclear arsenal reflects how dynamically the term ‘minimum’ is used. 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 this term in our lexicon.

If the nuclear deterrent is to be kept at a minimum level, there is greater incentive for arms control, disarmament and confidence-building between India, Pakistan and China, while they adhere to this policy. If numbers do not matter and even a single nuclear weapon can constitute minimal deterrence, there is a need to introspect whether India’s policy gives leeway for the arsenal to increase. Greater official clarity on what constitutes the ‘minimum’ deterrent is required; else the policy will remain a mere political slogan in the region.

Opinion

## On Indo-African Nuclear Trade Facilitation

**Siddharth Ramana**

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Prime Minister Manmohan Singh's visit to Africa in May 2011 was heralded as an impetus to Indo-Africa trade, which has touched US\$30 billion a year. As future Indian investments in Africa will also be focused on energy resources, it is important to explore the role of nuclear fuel reserves in furthering Indo-Africa relations.

To fulfill its nuclear fuel requirements, which have been hindered by its non-acceptance of the NPT, India has signed individual agreements with France and Russia, among other countries. To diversify sources of nuclear fuel, India is also actively engaging with Africa, which is known to have 18 per cent of the world's known recoverable uranium resources. Most of the operational mines are located in Niger, the Congo, Namibia, and South Africa.

Africa's importance as a nuclear fuel source is further highlighted owing to reservations of key members of the NSG in engaging in nuclear trade with India. South Africa is the only African member of the NSG, which makes it easier for India to access nuclear fuel from the country. Since the 2008 Indo-US civil nuclear agreement, India has signed a nuclear fuel supply agreement with Namibia, while South Africa, Gabon, Malawi and Tanzania have expressed their interest in inviting Indian investments in their nuclear mines.

The absence of formal Indian governmental investment in these mines has not hindered private players from furthering their economic interests. Presently, two Indian firms -Taurian Resources and Earthstone FZE (owned by Non-Resident Indians) are operating in Niger. Taurian's mining tracts alone hold at least 30,000 tonnes of uranium. Presently, the only Indian governmental undertaking to be involved in scouting for uranium assets is the National Aluminum Company Ltd, which is trying to obtain allotment of some leases for uranium in Namibia.

India's investments in South-Africa's nuclear mining sector hold a number of benefits, including also a possible collaboration with South African nuclear reactor producers, in developing the innovative pebble-bed reactors for India. China's Institute of Nuclear and New Energy Technology of Tsinghua University is already working in collaboration with Pebble Bed Modular Reactor Ltd of South Africa to further develop the system. Nuclear investments in South Africa have an added benefit for the gold industry in India since uranium mineralization in South Africa occurs along with gold deposits.

For India, investment in the nuclear field will also adhere to its principle of capacity-building of African economies as it will help these countries develop their own mining capabilities, in addition to

encouraging the growth of the local economy. This was seconded by Tanzania's Prime Minister, Mizengo Kayanza Peter Pinda, who spoke of the need for "Good friends like India to invest in this area." For Africa to invest in their own nuclear renaissance would require US\$2 billion to US\$3.5 billion per reactor, in addition to the mining costs and related expenses, which are beyond the reach of many African countries. Therefore, investments made by countries such as India help these countries economically. For example, recovery in mining helped Namibia's economy grow an estimated 4.2 per cent in 2010.

What are the major challenges for India to achieve its energy related objectives in Africa? Africa is a signatory to the 1996 African Nuclear Weapon Free Zone Treaty. While it awaits complete ratification, its rules hinder transferring fuel to India without it bringing comprehensive or full-scope safeguards on all its nuclear source materials and associated facilities.

***"As future Indian investments in Africa will also be focused on energy resources, it is important to explore the role of nuclear fuel reserves in furthering Indo-Africa relations."***

Second, while there is political support for Indian companies to invest in Africa's nuclear sector, there are pockets of opposition towards exporting nuclear fuel. For example, South African officials have argued that uranium should be exploited for the benefit of their country rather than for the benefit of foreign nations. Opposition can also come from Western countries opposing some regimes in Africa. For instance, Zimbabwe, which is believed to have rich uranium deposits, is ostracized by the international community owing to the land policies of its leader, Robert Mugabe.

Third, the security climate in many African countries with nuclear mines makes investment a highly risky affair, which escalates costs and deters investments. Examples of gunmen targeting French nuclear company AREVA in Niger, and WikiLeaks cables describing security in Congo's nuclear sites as 'non-existent', discourage nuclear trade.

Fourth, Indian interests in Africa will be hampered by its rival, China. China's deep pockets and undemocratic functioning trump India's slow bureaucratic handling of such issues. China's opposition to India's NSG membership can also be tied to efforts to hamper India's access to nuclear fuel.

India should augment diplomatic presence in the continent, encouraging further Africa-India joint ventures, and build a strategic environment with friendly African states, especially through cooperation with the Indian Diaspora in these countries.

## Opinion

# Crying Wolf: Al Qaeda and the Nuclear Threat

**Alankrita Sinha**

*Research Officer, IPCS, New Delhi*

The threat of nuclear terrorism has been around since the advent of the nuclear age, though it transformed into a real possibility only after the 9/11 attacks by the al Qaeda on the US mainland. This threat of nuclear terrorism has been used by the US to galvanize the global war on terror by asserting that the al Qaeda could attempt to inflict irrevocable damage on its adversaries. However, the credibility of the nuclear threat posed by the al Qaeda seems to be uncertain. The main argument in favour of this assertion is that this narrative has been fuelled by al Qaeda operatives to a larger extent than even the US itself. This argument may seem far-fetched; however if one evaluates it in the light of ‘terrorism as strategy’ to obtain defined socio-political goals, its implications become clearer. The central argument in this article is that nuclear terrorism is a ‘high risk-low probability event’, which is consciously promoted as part of al Qaeda’s overall strategy to gain mileage by violent attacks and the creation of ‘fear-psychosis’.

### **Al Qaeda and Nuclear Terrorism: Evidence on a Platter?**

Evidence that claim al Qaeda’s nuclear ambitions as reality are abundant. According to a recent Telegraph article (<http://www.telegraph.co.uk/news/worldnews/wikileaks/8472810/Wikileaks-Al-Qaeda-plotted-chemical-and-nuclear-attack-on-the-West.html>), “Khalid Sheikh Mohammed, the 9/11 mastermind was involved in a range of plans including attacks on US nuclear plants and a ‘nuclear hellstorm’ plot in America.” In another revelation, a Libyan detainee, Abu Al-Libi, hinted that the al Qaeda possessed a nuclear device. These revelations echo the general hysteria of an imminent threat of nuclear terrorism and its guaranteed use by these ‘irrational’ elements.

However, it is interesting to note that this narrative has been constructed by the al Qaeda more than the US. In fact, al Qaeda’s supposed intent has been constructed from the information gathered through interviews and interrogations of its operatives, plus declarations on its own website. This form of information, which often finds its way back to the al Qaeda as the original source, has been utilized by the US and likeminded states to shape the narrative on nuclear terrorism. Former US president George W Bush’s 2003 address to UNGA is an example of how al Qaeda’s declared intent was officially internalized by UNSC Resolution 1540. The question which naturally follows then is why the al Qaeda is playing an active role in promoting its own notoriety, and attracting an array of international backlash. The answer lies in its aims which are facilitated by the strategy it employs.

### **Al Qaeda and Nuclear Terrorism: Means to an End**

‘Terrorism’ is a strategy used by non-state actors to gain their objectives and overcome the power asymmetries that exist between a non-state actor and a powerful state. More importantly, the aim of any act of terrorism is to gain socio-political leverage by resorting to violence. Thus, terrorism is definitely not ‘apolitical’ but is inherently political. Here, a violent act is symbolic in nature, wherein creating panic is as important as the violent act itself. The al Qaeda has used the threat of nuclear terrorism to the same effect.

Hence, al Qaeda’s overall strategy has utilized elements of both an operational strategy as well as a declaratory one. Whereas its operational strategy seeks to use terror tactics like violent attacks and suicide bombings to destabilize its adversary through bruises, not necessarily fatal; a declaratory strategy either precedes or follows such an act with a ‘declaration’ to show its resolve to inflict more

pain. Simply put, actual use of force forms a part of its operational strategy, while the ‘threat’ to do so is its declaratory one. Thus, al Qaeda’s operational strategy is to use force to facilitate the achievement of its aims. The constant use of violence through terror attacks, especially since 9/11, has operationalized this strategy. The Madrid train bombings in 2004 and the ones in London in 2005, amongst many others, are cases in point. Its declaratory

strategy has been used to facilitate and substantiate its operational strategy. This essentially means that if the al Qaeda has an operational strategy of using violence to gain socio-political leverage (like any other terrorist group), its declaratory strategy seeks to induce and maintain the fear thus generated over time. Hence, the image of the al Qaeda having acquired nuclear technology or fissile materials is a part of its declaratory strategy of sustaining fear-psychosis.

### **Al Qaeda and Nuclear Terrorism: Incredible Credibility**

The delineation of al Qaeda’s strategy provides an important insight into whether its nuclear threat is credible. This article argues that it is not. The idea of ‘nuclear terrorism’ only forms the basis of a refined ‘declaratory strategy’ of the al Qaeda to sustain fear. At the operational level, however, the use of Radiological Dispersal Devices (RDD) or ‘dirty bombs’ by al Qaeda seems redundant. Conventional methods at the operational level are enough to achieve its ends, in tandem with a credible declaratory strategy, which its narrative on ‘nuclear terrorism’ fulfils.

Opinion

## Nuclear Disarmament Post Prague: Understanding Indian Perspectives

**Pradeepa Viswanathan**

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**U**S President Barack Obama's Prague speech (April 2009) gave impetus to the renewed effort on global nuclear disarmament, led by the 'nuclear quartet' and the Global Zero movement. What has been the focus of the Indian nuclear debate since Obama's Prague speech and other efforts towards global nuclear disarmament? The Indian debate could be divided into three questions: Is a nuclear weapons free world (NFWF) in India's security interest? If the United States and China sign and ratify the CTBT (Comprehensive Test Ban Treaty), will India be forced to follow suit? If India becomes a member of the NPT, will it seek to further its global status vis-à-vis the other de-facto nuclear states?

Although there have been serious reservations in India following Obama's speech, the issues dwelt on in the speech have found reverberations in the Indian debate, which seeks to address the implications of Obama's proposed agenda. They are: one, to devalue the significance of nuclear weapons in the US national security strategy; second, the conviction to ensure ratification of the CTBT, and third, to strengthen the nonproliferation regime, coupled with efforts to bring the de-facto nuclear states within its fold.

The Indian perspective on disarmament is not homogeneous or coherent, as has been portrayed by the Indian nuclear doctrine (Article 8.1). Indian thinking on the issue is fragmented, and divided between the realists and the idealists: the former argues for the continued existence of 'nuclear weapons for deterrence' and the latter affirms India's 'commitment to universal, non-discriminatory nuclear disarmament'. Two strands positioned diagonally and inter-related with the realists and idealists are the nationalists and the pragmatists, according to Dr Rajesh Rajagopalan, Professor of International Politics at JNU.

Of the three questions posed above, the first can be answered affirmatively as different strands of the Indian debate converge on the existence of nuclear weapons for political utility aimed at deterring its regional rivals - China and Pakistan. The Indian nuclear weapons programme has, according to authorities, been directed against China. Hence, in the event of India not facing any serious 'existential insecurities' from China given the latter's No First Use, and from Pakistan given the superiority of India's conventional military, a NFWF is in Indian interest. However, realists, primarily from a military background, such as Indian Army Chief General Deepak Kapoor and Brigadier (Retd) Gurmeet Kanwal, point towards the possibility of a two-front war in this situation, waged simultaneously with China and Pakistan and fatal to India's position. A differing element of realist thought has been put forward by Prof Rajagopalan,

who has linked the presence of nuclear weapons with India's inability to react to Pakistan's constant provocations. Idealists, followers of the Gandhian and Nehruvian legacies, would visualize a NFWF as a symbol of India's cultural and non-violent past, while pragmatists (K Subrahmanyam, for instance) would link it to the present revival of interest by major powers in nuclear disarmament, and its impact on India's global position.

The response to the second question should be linked to the voluntary moratorium on nuclear testing which India assumed for itself following the tests of May 1998, and the not-so recent controversy voiced by scientists K. Santhanam and Ashok Parthasarathi about the failure of the 1998 fusion tests. Against this background, signing the CTBT either as replication (after the US and China) or as adhering to the promises made by India during CTBT negotiations could be in India's interest. India, by being a party to the CTBT, would not only signal the credibility of India's minimum deterrent but would also help in divorcing itself from the '1998 tests as failure' claims.

However, the realists and the nationalists, with one overlapping the other in most cases, have come out strongly against the treaty. Bharat Karnad, a nationalist, in this author's view, has given weight to Santhanam's charge by linking it to Indian Prime Minister's zero resistance to Obama's nonproliferation policy push, inclusive of signing the CTBT. Lt General VR Raghavan, a realist, has linked the issue of

signing the CTBT to its correspondence with India's national interest.

The third question also elicits a diverse response from Indian thinkers. India, despite not being a member of the Nuclear Non-Proliferation Treaty (NPT) has earned the position of a de-facto, reluctant and responsible nuclear power. Being 'reluctant' is premised on its policy of No First Use, and being 'responsible', on the back of the Indo-US civil nuclear cooperation deal and the NSG waiver. Former Indian Ambassador to the UN Conference on Disarmament Arundhati Ghose categorically states that nobody in India is in favour of signing the NPT, so much so that there is the lack of a clear consensus regarding the government's stand on nuclear disarmament as well. There is a consensus nevertheless between the various strands of the debate on the refusal to sign the treaty in its present form which requires India to join as a non-nuclear weapon state (NNWS).

The Indian debate reflects both areas of convergence and divergence. Further development on any of these will have serious repercussions for both India's stand on nuclear disarmament as well as its overall global standing. India's commitment towards nuclear disarmament cannot be read in isolation; it is inextricably linked with global aspirations for a world free of nuclear weapons.

***“ The Indian perspective on disarmament is not homogeneous or coherent. Indian thinking on the issue is fragmented, and divided between the realists and the idealists.”***

## Opinion

# Nuclear Safety: The Fukushima Conundrum

**Alankrita Sinha**

*Research Officer, IPCS, New Delhi*

What we cannot see, nor understand, instigates more violent a response than any other. Adding weight to this hypothesis is the current chaos regarding the need for nuclear energy. Nuclear energy as an optimal alternative for fossil fuel-generated power has now come under global scrutiny as efforts to contain radioactive contamination at the disaster-hit Fukushima Daiichi nuclear plant in Japan fall short.

Nuclear safety at power plants embody three primary questions: How safe are the reactor designs? How effective are the emergency response mechanisms? And lastly, can the safety measures combat the repercussions of unprecedented events? Deliberations on these primary questions have consciously shaped nuclear safety mechanisms, especially since reactor accidents at the Three Mile Island in 1979 and Chernobyl in 1986. However, events at the Fukushima Daiichi nuclear plant have once again urged the international community to calculate the benefits of nuclear energy under the lurking shadow of a probable nuclear accident.

Amidst varied speculations, two main strands of explanations for the nuclear mayhem at Fukushima prevail. According to the first strand, the reactor design of the Mark I (Boiling Water Reactor) vessels have come under severe criticism for their single circuit mechanism which introduces the primary coolant (water) into the reactor core and then relies chiefly on its primary containment vessel (made of steel and concrete) to mitigate radiation exposure to the environment in case of any reactor accident. Concerns related to this reactor design stem from the probability of a core meltdown increase if cooling systems fail and the likelihood of the zirconium cladding (fuel assemblies and spent fuel) coming into contact with oxygen, amplifying the chances of hydrogen generation (resulting in an explosion), a situation currently unfolding at the Fukushima Daiichi nuclear plant.

The second strand focuses significantly on the emergency preparedness and response mechanisms. In Fukushima Daiichi nuclear power plant, the coolant pumps, regulated by an on-site generator would have ensured cooling of the reactor core after the control rods were inserted fully to cease nuclear fission right after the earthquake. However, when the tsunami destroyed these on-site generators, the coolant pumps fell back on battery generated power which ran out soon thereafter causing a furore to bring in mobile generators. It is this time gap between the switch from battery backup to mobile generators that has been speculated as the precipitating factor leading to the Fukushima nuclear accident. The point to be

noted is that although the Fukushima nuclear plants had a multi-layered safety mechanism in place, operational difficulties catalyzed the mayhem.

It is important to once again turn towards the three fundamental questions regarding nuclear safety that formed the base of the deliberations in this article. The first question raised concerns about the safety of the type of reactor designs installed. In this regard even the IAEA asserts that the reactor designs should be such that they ensure that the nuclear installations are suited for reliable, stable and easily manageable operation, with its prime goal aimed at the prevention of nuclear accidents. However, the case of Fukushima Daiichi and that of Chernobyl add weight to the claim that in addition to safe reactor designs, operational verification and consistent assessment procedures cannot be ignored.

The second question dealt with the efficacy of emergency response mechanisms at nuclear installations. Nuclear installations have an array of overlapping safety measures to provide optimal protection against any untoward event. However, an inference drawn from the

***“Nuclear safety is not an absolute term; rather it is one that is evolving and requires constant upgrades along with the realization that the human factor is an important aspect of nuclear safety.”***

Fukushima Daiichi case stipulates that despite having multiple back-up systems in place, operational inadequacy catalyzed escalation. This incident draws attention to what the IAEA identifies as the ‘systematic consideration of the man-machine interface’ wherein human factors form an important aspect of the

development of operational requirements.

The third question deals with the viability of the safety measures against the probability of unprecedented events. While selecting a particular location for installing a nuclear plant, the history of the seismic activity particular to that region along with the region’s propensity towards natural disasters form a key factor which affects the final decision. Thus, most nuclear plants are built in a way so as to endure natural disasters. The case of the Kakrapar nuclear plant (which was hit by an earthquake in 2001) and that of Kalpakkam (which withstood the 2004 tsunami) in India demonstrate the above. However, in the occurrence of an unprecedented event, reactor designs and emergency mechanisms along with the efficacy of operational measures (that of the optimal manning of technical apparatus) dictate the turn of events.

It should be remembered that ‘nuclear safety’ is not an absolute term; rather it is one that is evolving and requires constant upgrades along with the realization that the human factor is an important aspect of nuclear safety. More importantly, nuclear safety is also one that deserves a second chance.

## Seminar Report

# India and Nuclear Disarmament The Challenge of International Regimes, Nuclear Renaissance and Security

*Report of Conference held on 28-29 March 2011*



**N**uclear disarmament and non proliferation are now the base of all major debates relating to nuclear weapons and energy politics. This March, IPCS with the support of the Ministry of External Affairs (MEA), organized a one and a half day Conference on India and Nuclear Disarmament: The Challenge of International Regimes, Nuclear Renaissance and Security. Five major themes were discussed - overview of the global nuclear disarmament scenario, India and international regimes, India and the fissile material control, nuclear renaissance and nuclear safety and security. The keynote address of the conference was delivered by Professor Muchkund Dubey, former Indian Foreign Secretary. Drawing upon the history of the disarmament momentum, Prof Dubey called for an idealistic rather than realist approach to the issue. For India, Prof Dubey suggested three steps: support Obama's vision of a nuclear weapons-free world, mobilize like-minded countries for the goal while emphasizing the paradigm shift in security scenario and then negotiate for global nuclear disarmament within the UN General Assembly and Conference on Disarmament.

### I

#### **An Overview of the Global Nuclear Disarmament Scenario**

Globally some still believe that a limited number of nuclear weapons are required which complicated implementation of the NPT. It is necessary to evaluate whether nuclear disarmament is a moral imperative or a military necessity and to conjoin the quest for global zero with steps that will devalue nuclear weapons from military strategy.

### II

#### **India and International Nuclear Regimes**

International regimes are important in the sense that they work towards controlling access to technologies but they have been floundering. For India, membership is important to help protect us from future evolution of the regimes, access to technology and achieving self-reliance. It remains to be seen on how India prioritizes its membership list and how the international community deals with India.

### III

#### **India and the Fissile Material Control**

India has always supported the FMCT. It is feared that the FMCT immunizing the P-5 states is fundamentally discriminatory. For India this coupled with Pakistan's fissile stock expansion is a cause for concern.

### IV

#### **Nuclear Renaissance**

In the face of increasing climate change nuclear power will always be on the table. While incidents like Fukushima will cause doubt, other significant alternatives are hard to see. To effect a direct link between nuclear energy and nuclear proliferation is problematic, as this is based on a complex matrix. The Indian nuclear programme is modest and there exists very little information in the public domain about safety records, actual production and downtime of Fast Breeder Reactors (FBRs). In light of the Indo-US nuclear deal, there is a pressing need to conduct a peer group review of this technology.

### V

#### **Nuclear Safety and Security**

Nuclear safety applies to the transportation of nuclear materials, nuclear power plants and the use and storage of nuclear materials for medical, power, industry, and military uses. The Incident and Emergency Centre and Safety and Security Coordination Centre under the IAEA works towards nuclear safety. With the IAEA as the sole authority, the nuclear energy industry lacks sufficient oversight. The IAEA recommends safety standards, but member states are not required to comply, and it is also weighed down by checking compliance with the NPT, which is dominated by the P-5. States possess their own institutions to oversee and regulate nuclear safety. As a suggestive measure, safety audits beyond the nuclear industry should also be conducted, such as that of medical and educational establishments. There is also a need to redefine the mandate of the IAEA so that it can better police nuclear power plants worldwide. For the prevention and mitigation of nuclear disasters and to ensure the safety of nuclear reactors, a variety of measures must be implemented:

- Monitor surrounding areas, increase patrols, augmenting security forces, declare no-fly zones above sensitive locations
- Follow specific SOPs during the transportation of radioactive material
- Install micro bomb detectors in public spheres like airports
- The public community ought to be made aware of the implications of such disasters
- Proper training in handling detection and protective equipment, decontamination procedures, first-aid to radiation victims must be imparted to agencies such as the NDRF, Home Guard, search & rescue team and NGOs.
- Specialized courses for the orientation of trainers
- First-aid to Radiation casualties
- Hospital preparedness

# India's Nuclear Doctrine

## Towards a Revision and an Alternative Blueprint

### *A Nuclear Security Programme Task Force*

A draft of India's 'Nuclear Doctrine' was publicly released a year after the Pokhran II nuclear tests on the 17 August 1999 and formally adopted on 4 January 2003. The official doctrine was meant to be a dynamic document periodically adapting to emerging threats and realities and therefore providing scope for review.

While Indian academia and strategic community continues to produce abundant literature scrutinising and criticising the doctrine, there seems to be no sign of an official review taking place to suit the transformations in India's strategic and security environment.

The Indian nuclear deterrent has been ineffective against terrorist and sub-conventional attacks which have increased in numbers and intensity since the end of the century. In South Asia, it has had an unintended effect vis-à-vis Pakistan; India's vast quantitative and qualitative conventional military superiority being made redundant and its basic parameters challenged by sub-conventional tactics.

The very definitions of nuclear deterrence, credible minimum deterrence and no-first-use in the Indian context await a thorough re-examination.

To identify and construct alternative strategies to the Indian doctrinal issues, the Institute of Peace and Conflict Studies has constituted a Task Force of experts from the academia, bureaucracy, military and strategic community.

#### **Objectives**

This project aims to critique the existing nuclear doctrine, revise it to suit the new developments in the last decade; and more importantly, to present an

alternative blue print of what could India's nuclear doctrine.

Towards achieving the above, the project lays down the following objectives:

- To assess the current Indian security environment and re-examine these in the context of India's present Nuclear Doctrine
- To take a fresh look at the fundamental assumptions underlying the current Indian position on nuclear deterrence.
- To explore doctrinal ideas that could safeguard the Indian position in a changing security and threat environment.
- To put forward alternatives/ revisions to the Indian nuclear doctrine.

Over a series of meetings, the Task Force will objectively look into the current doctrine, discuss background papers prepared by the NSP research team, deliberate and come up with a concrete and practical set of recommendations that better serve Indian nuclear policy makers.

#### **Task Force Members**

1. Prof PR Chari (Chairman)
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5. Mr NS Sisodia
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