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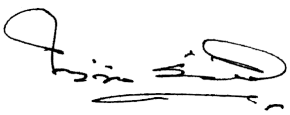
EDITOR'S NOTE

This issue marks the 8th year of the publication of *AIR POWER* journal. We are grateful to our readers and contributors for their unstinted support over these years and are confident that we will continue to receive it in the future also. These years have been witness to many changes in aerospace power in India. Firstly, after decades of neglect, the armed forces in general and the Indian Air Force (IAF) in particular, started paying serious attention to utilisation of outer space for national defence. The Centre for Air Power Studies was in the forefront in terms of analytical studies on space, many aspects of which were written about in this journal. Incidentally, the first ever study on offsets in defence acquisitions was also done in the Centre for Air Power Studies and followed up with more detailed studies in sync with the government's procurement policies and procedures which then had to undergo nearly annual revisions.

In a broader context, we have been witness to the transformation of the IAF during these years, which promises to pick up greater momentum in the coming years and decades. At the same time, the international situation now entails ever more uncertainties and challenges than a decade ago. Pakistan is on the tipping point — or as Ahmad Rashid says in the title of his new book: "On the Brink" — of greater instability as a consequence of continuing failure by the ruling elite, civilian or military, to pay attention to its own interests and the interests of the people of Pakistan. We are witnessing the first occasion of a large number of (Hindu) Pakistanis visiting India for pilgrimage but not wanting to go back. How long would it take for large enough groups of Muslim Pakistanis, especially the Mohajirs (refugees), to follow suit, especially since most have relatives living in India? And what

will be New Delhi's options in these circumstances? I am not suggesting an exodus like that in 1971. But we need to watch events in the next two years or more when Pakistan will come under greater pressure due to its legacy strategies. The world is watching, waiting and discussing Af-Pak in 2014; but we need to reverse that order and give a lot more thought to Pak-Af in the future.



INDIA-CHINA RELATIONS: PROBLEMS AND PROSPECTS

KANWAL SIBAL

China's extraordinarily rapid rise in the hierarchy of global power is raising concerns about its future policies. Opinion is divided over whether China will increasingly assert its power in disruptive ways or will act more responsibly as its own stakes in the international system grow. Arguments can be made for both views, though emerging signs suggest that China's self-assertion is becoming an unpleasant reality, whereas the expectation that it will work for, and within, a global consensus remains more a matter of hope.

A rising China presents both a threat and an opportunity. The dilemma for India, the US, Japan, the major European countries and others is how to find a balance between engaging China to build on the positives and constraining it to ward off the negatives.

China's economic and commercial expansion is making it a crucial country in global trade and financial flows. The opportunities provided by the huge and growing Chinese market cannot be ignored by governments and corporations. At the same time, with recession and unemployment in the Western countries, concerns about China's mercantilist approach, its

Shri **Kanwal Sibal** was India's Foreign Secretary and served as Ambassador to Russia, France, etc. The article originally appeared in *Force* Magazine (Vol.9, No.3, November 2011) and is reproduced with permission.

A rising China presents both a threat and an opportunity.

Intellectual Property Rights (IPR) violations and resort to unfair competition are growing. The accumulation of huge foreign exchange reserves by China has led to demands by the West of financial rebalancing, revaluation of the Chinese currency and a shift in China's export led strategy towards stimulation of domestic demand. At the same time, with the Eurozone in crisis, China is being wooed to invest in European securities to alleviate the sovereign debt crisis there.

China's growing military strength is a natural fall-out of its phenomenal economic growth in the last thirty years. The weight of the People's Liberation Army (PLA) in decision-making in the country is causing muscle-flexing by China sooner than expected. The political fiction of China's peaceful rise is being exposed by its aggressive maritime claims in the South China Sea as well as stepped up claims on Indian territory, causing great anxiety in its neighbourhood.

India, with geographical contiguity with China since its occupation of Tibet in 1950, is directly affected by the various dimensions of China's rise. Its dilemmas are somewhat sharper than those of others because of this contiguity and the nature of the issues involved in the relationship.

India's China problem began with its failure to properly assess the security implications of the takeover of Tibet in 1950 by Maoist China. For the first time in history, a political and geographical buffer between China and India was being removed. In the absence of a formally demarcated border in the western sector in Jammu and Kashmir and China's position on the McMahon Line in the east, its occupation of Tibet should have warned us of the dangers ahead.

Within 12 years of its entry into Tibet, China imposed a border conflict on India, whereas without territorial contiguity, the two countries had no conflict between them for thousands of years. In fact, they interacted culturally very productively over centuries through the spread of Buddhism in China. The Indian and Chinese civilisations even marked the wider space between them without conflict or rivalry – the culture of Southeast Asia – and even gave this region the name of Indo-China.

The 1962 border conflict came as a political shock to India as India had bent over backwards ever since its own independence and the Maoist revolution in China to reach out to the Communist regime and accommodate it bilaterally and regionally, whether by immediately recognising it, supporting its rightful entry into the United Nations, recognising Tibet as an autonomous region of China or holding China's hands at Bandung and helping to alleviate the fears of the Southeast Asian countries of the Communist takeover of this large country.

China's unilateral action in altering the ground situation by constructing the Aksai Chin road in Ladakh prompted India to hedge against further encroachments.

India made a crucial mistake in signing the 1954 Trade Agreement with the Tibet region of China that accepted, in effect, China's sovereignty over Tibet, without linking this vital concession to either a settlement of the boundary with Tibet or at least an agreement on the framework of a settlement. India should have anticipated that sooner or later, China would extend its physical control upto the geographical frontiers of Tibet as it perceived them or as they suited its strategic needs.

China's unilateral action in altering the ground situation by constructing the Aksai Chin road in Ladakh prompted India to hedge against further encroachments and *fait accomplis* by extending its presence and authority in remote areas hitherto left unoccupied. Its strategy failed with the Chinese decision to "teach India a lesson" in the 1962 border conflict which scarred India politically, militarily and psychologically.

The border issue is at the core of India's mistrust of China and the uncertainty about its future intentions. That two large rising countries should have an unsettled 3,000-km plus long border between them is a recipe for instability, tensions and even conflict. China is deliberately keeping the border issue unresolved so that it can continue to serve as a pressure point on India. It has kept changing its position on possible solutions, entailing India into interminable discussions of principles and guidelines that it interprets as suits its interests.

Any realistic solution to the border issue has to be based on the ground realities. As the long border is not permanently manned, each side has its own view of the border areas it actually controls and this generates periodic tensions. The understanding reached between the two sides some years ago to exchange maps of their respective perceptions of the Line of Actual Control (LAC) in order to identify the physical extent of the disputed areas was suddenly terminated by the Chinese side without explanation. During Prime Minister Vajpayee's visit to China in 2003, India proposed a "political solution" to the issue, to which end Special Representatives(SRs) of the two countries were nominated and given a mandate to establish a set of guidelines (which they have done) for proceeding towards a resolution. The SRs have met **15** times without any real breakthrough. On the contrary, the Chinese have exploited the opening given to them to demand transfer of inhabited Indian territory – the Tawang tract – not actually under their control, to China for "political" reasons. **China has, in effect, hollowed out the purpose of setting up the SR mechanism by expanding its agenda beyond the border dispute to the "strategic" relationship between the two countries. Meanwhile, in efforts to stabilise the relationship, the two sides have agreed to a hot line between the two leaders and a new mechanism at the Foreign Office level to contain any escalation of incidents at the border. India and China have also agreed to maritime cooperation in the Indian Ocean area, with piracy in mind.**

In 1962, China withdrew from Tawang and the rest of Arunachal Pradesh largely to what is the McMahon Line, thereby *de facto* accepting its validity. In the western sector, it did not go back to the pre-1962 line and retained the fruits of its aggression. If it needed to hold Tawang for religious or security reasons or felt that its legal claim was rock solid, it would not have withdrawn, to demand 50 years later the cession of Tawang, which exposes China's chicanery. China can, if it wants, solve the border issue on the same basis as it has done with Myanmar, Russia as well as with the Central Asian countries, with very nominal territorial adjustments.

The extent of Chinese cynicism is reflected in its specious claim on Tawang because of its Tibetan links and the fact that one of the earlier Dalai

Lamas, an institution that it has tried to destroy politically, was born there. Its pretense that it raises the Tawang issue in deference to Tibetan sentiments flies in the face of the Dalai Lama's public position that Tawang belongs to India, as well as the 2008 Tibetan revolt against China's rule. The current incidents of self-immolation by Tibetan monks in the larger Tibetan region testify to the deep alienation of the Tibetan people with Chinese rule. Instead of seriously negotiating with the Dalai Lama to resolve the festering issue of denial of the political and cultural rights of a distinctive people and the suppression of their separate identity, the Chinese are using Tibet as the platform to make territorial demands on India.

Current incidents of self-immolation by Tibetan monks in the larger Tibetan region testify to the deep alienation of the Tibetan people with Chinese rule.

Unfortunately, India is unwilling to politically back the Dalai Lama out of concern for the repercussions of such a policy on India-China relations. There is no international pressure either on China to negotiate with the Dalai Lama. China can revile him as a "splittist", even when he has publicly reaffirmed on various occasions his acceptance of Chinese sovereignty and has limited his demand only to real autonomy. An honourable deal between China and the Dalai Lama is good for China, Tibet and India-China relations.

With China's unwillingness to settle the border issue and our incapacity to force the issue, India has tried to stabilise the situation on the border as much as possible through the Agreements on Maintaining Peace and Tranquillity and on Confidence Building Measures in the 90s. These have contained but also frozen the border problem to India's disadvantage. The *status quo* favours the side not anxious for change. India wants peace on the border but also wants a border settlement. It suits China also to have peace as it defuses the border issue politically and militarily for the period China needs to consolidate its rise while giving it a free hand to settle Tibet internally.

If China raises territorial issues with India provocatively, it is because China has the confidence of a stronger hand. Militarily, China has an

Rather than work to create a favourable political atmosphere for resolving boundary differences, China has poisoned it by asserting its claim over the whole of Arunachal Pradesh as a matter of principle and on Tawang in particular.

advantage on the border because of the easier terrain on its side and vastly better infrastructure that now includes a railway line to Lhasa for easier and quicker movement of troops and war material. In the western sector, it holds a line beyond its own claims. In the eastern sector, it withdrew voluntarily in 1962 to its present position and now claims more territory as part of "meaningful" territorial adjustments. It plays the Tibet card against us without any complex, as all its claims on us are on Tibet's behalf. It is undeterred by the fact that its own position in Tibet is contested by the Dalai Lama and the Tibetan people.

Unlike Pakistan's position vis-a-vis us, India has not made the resolution of the border dispute a pre-condition for normalising bilateral ties with China. This gives China reduced incentive to reach a settlement. While we may see our approach as mature, constructive and contributing to peace, the Chinese could easily view it as yielding and conciliatory. China, thus, profits from our diffidence, believing that time is on its side. Its posture on the border keeps us off-balance politically and militarily, while imposing economic costs on us, all of which retards our nation building effort.

Periodic reports of China making incursions into our territory raise jitters in India, recalling the trauma of 1962. To defuse the political fall-out, the government defensively claims that the incidents are confined to areas where the two sides have differing perceptions about the LAC. The rational approach of delineating the respective perceptions on the map, identifying the pockets of overlapping claims and then proceeding to find a solution has been rejected by the Chinese. The "political" approach proposed by India in 2003 has perversely allowed China to increase its appetite by claiming territory not under its control, with the result that the Special Representatives are not able to move forward. During his visit to India in December 2010, ostensibly to defuse mounting tensions, Premier

Wen delivered the hard message that it may not be possible to ever resolve the boundary issue fully.

Rather than work to create a favourable political atmosphere for resolving boundary differences, China has poisoned it by asserting its claim over the whole of Arunachal Pradesh as a matter of principle and on Tawang in particular. The airing of this claim on the eve of President Hu Jintao's visit to India in 2006 showed China's scant regard for ground realities as well as Indian political sensitivities. China has upped the ante by broadening its bilateral differences over Arunachal Pradesh by raising them in a multilateral forum like the Asian Development Bank by objecting to the bank financing a small irrigation project there.

India's belated decision in the face of provocative Chinese territorial claims to improve the infrastructure in the border regions, activate airfields, position advanced aircraft as well as augment ground forces, have aroused reactions from Chinese analysts and newspapers. Even though it is claimed that opinion in China is no longer monolithic, such articles cannot appear in defiance of Party or governmental thinking. Some condescending commentaries have appeared in the Chinese press warning of a repetition of 1962 if India continues to provoke China by asserting its sovereignty over Arunachal Pradesh. Even the break-up of India into several states has been advocated. Such writings have not appeared in China's state controlled press for years and some observers do not rule out China fomenting some border trouble, if only to deflect attention from mounting internal problems. If India has increased its military capacity along the border compared to the past, it is essentially defensive in character and calculated to avoid a repetition of 1962.

The water issue between India and China looms as a major point of contention in the future, given China's plans to build dams on the Brahmaputra in Tibet and divert its waters to the water deficit northern part of the country in what will be a colossal engineering feat. China's forays into the Indian Ocean, its efforts to establish port facilities in key strategic points there which later can be upgraded to naval facilities, its plans to obtain access to the sea through Myanmar and Pakistan in order to partially

China deals with Pakistan Occupied Kashmir(POK) and the Gilgit-Baltistan(GB) area as if Pakistan's sovereignty there is undisputed and secure.

resolve its "Malacca dilemma", are all issues with a bearing on India's security.

Pakistan has been a willing pawn in China's hands to thwart India's ambitions and keep it boxed in South Asia. Without being seen as confronting India directly and generating an atmosphere of open hostility – which does not suit its strategy of presenting its rise as peaceful – it lets Pakistan do this. By making Pakistan nuclear and giving it weapon delivery capability, China has neutralised India strategically within South Asia itself. Pakistan has been given the means to continue its politics of confronting India without India being able to retaliate militarily even though it enjoys conventional military superiority.

By building up a countervailing military power in India's neighbourhood, China has used Pakistan to prevent India from exerting its leadership role even within South Asia. China opposed the India-US nuclear deal on the ground that it was discriminatory towards Pakistan. The depth of its strategic commitment to Pakistan is demonstrated by the fact that contrary to its Nuclear Suppliers' Group (NSG) obligations, it has announced the decision to build two additional nuclear power plants in Pakistan. It wants to give Pakistan the benefit of international civilian nuclear cooperation without going through the NSG process and without imposition of non-proliferation conditions on it, even though that country has become the hot-bed of terrorism, Islamic extremism and clandestine nuclear proliferation. It is widely suspected that civilian nuclear cooperation with Pakistan is a convenient cover to continue assisting it in its strategic programmes.

While indirectly questioning India's sovereignty over Jammu and Kashmir (J&K) by issuing stapled visas to residents of the state or those associated with it officially (a practice China states it will discontinue but the political point has already been made), China deals with Pakistan Occupied Kashmir(POK) and the Gilgit-Baltistan(GB) area as if Pakistan's sovereignty there is undisputed and secure. It is getting involved in massive road

building and hydel projects, disregarding Indian objections. India cannot but see the increased Chinese footprint in Pakistan Occupied Kashmir, which includes the Northern Territories, as a threat of military encirclement in J&K, especially as India and China are already in confrontation in the Aksai Chin area. Our Army Chief has publicly expressed concern about the presence of 3,000 to 4,000 Chinese, including People's Liberation Army (PLA) troops, in POK.

With energy security and the unrest in Sinkiang in view, China has begun to look at this territory illegally occupied by Pakistan with even greater strategic interest than before.

With energy security and the unrest in Sinkiang in view, China has begun to look at this territory, illegally occupied by Pakistan, with even greater strategic interest than before. Uighur separatists can be kept under a watchful eye from there, while through Gwadar, oil and gas from the Gulf can be transported to bordering Sinkiang. China can link up its interests in Afghanistan too through this contiguous area. China would, therefore, want Pakistan's hold over this region consolidated, economically and legally.

While massive infrastructure projects help achieve the former goal, questioning and contesting India's legal status in J&K serves the latter objective as it puts India on the defensive and erodes its *locus standi* in challenging Pakistan's illegal possession of POK and GB. With its new stakes in mind, China aims to become an inescapable factor in any India-Pakistan final settlement of the Kashmir issue, with the objective, in such an eventuality, of denying India any future role in Pakistani held territory.

Moreover, by entrenching itself in this region firmly, China would want to be able to protect its strategic investment in it, should the Pakistani state slide increasingly towards failure. China would not make such large investments in POK if it did not intend to eventually protect them diplomatically and, if required, militarily. China protests if international institutions fund even minor development projects in Arunachal Pradesh on the ground that it is "disputed" territory, but does not apply its own logic to the development projects of the magnitude that it is funding in POK.

With its increased political, economic and military weight, China is stepping up its presence in countries around India. In Afghanistan, China intends investing heavily in the mineral sector and a railway link. It is likely to accept an opening to the Taliban as an insurance for the stakes it is developing in Afghanistan within the framework of its strategic relations with Pakistan.

China has used a judicious mix of propaganda about Indian hegemony, the natural sense of insecurity of small countries under the shadow of a large one, religious and ethnic differences as well as economic and military assistance to add to pressures on India from within the region. In Nepal, it is becoming more assertive in demanding equal treatment with India in terms of our respective treaties with that country. With the Maoists now a powerful political force in Nepal, and given their ideological compulsion to be seen as drawing Nepal closer to China, coupled with their periodic statements calculated to inflame public opinion against India, the political terrain has become more favourable for China. This can only make India's task in handling Nepal more difficult.

China's position in Bangladesh is entrenched. Even Sheikh Hasina's friendly government would see it in its interest to maintain close ties with a rising China and the benefits that can bring, including giving India an incentive to woo Bangladesh more. China has earned the gratitude of the Sri Lankan government by supplying it arms that helped in defeating the Liberation Tigers of Tamil Eelam (LTTE). Sri Lanka, along with Myanmar, Bangladesh and Maldives, are targets for China's naval ambitions in the Indian Ocean area to protect its vital lines of communication through these waters. The so-called "string of pearls" strategy, with commercial goals in view in the short term and military goals in the longer term, includes construction of new port facilties in select countries. To promote these objectives, China is bound to step up further its engagement with these countries, especially with increasing material means at its disposal, posing further challenges to India's interests in its neighbourhood.

China's penetration of Myanmar, its expanded presence in Iran and economic domination of Central Asian countries, all present a regional

scenario for India that would limit India's future margin of manoeuvre, politically and economically.

China's policies and conduct tax the Indian government's effort to temper domestic reaction and maintain a friendly posture towards its northern neighbour. There is some disconnect between the government's positive, and even exonerating, discourse on China and the general public sentiment towards that country. The government may be right at one level to pursue an accommodating approach as India cannot afford to have tense borders with both China and Pakistan. If China needs peaceful borders for pursuing its development goals, India needs them even more. We have two inimical neighbours who are collaborating to contain India strategically. Tensions with at least one of them have to be reduced to the extent possible so that the military, political and economic burden on India is lightened. The government has allowed economic contacts to develop with China to the point that the country has become our largest trading partner in goods. China has exploited this Indian compulsion by pursuing a policy of containing India under cover of engagement, of touting a strategic partnership while gravely undermining us strategically, of inducing us to accept politically that it does not pose a threat to us and yet threatening our territorial integrity as well as our vital interests in our neighbourhood. If India's soft policies on China continue, China can conveniently treat India as a tactical piece in its larger design of deflecting concerns about its frenetic rise as a formidable power.

China obviously does not see the need for combining our respective strengths to alter the global landscape to our advantage. China wants to keep India under pressure.

The settlement of the border issue would open doors wide for an across the board cooperation between the two countries, but China obviously does not see the need for combining our respective strengths to alter the global landscape to our advantage. China wants to keep India under pressure, give itself space to browbeat it when required and put it in a position where it has to appeal to Chinese goodwill for securing its international ambitions as

was the case when India sought China's support in the NSG for international civilian nuclear cooperation and for its bid for permanent membership of the UN Security Council. China wants to slow down as much as possible India's rise to regional and global status.

Many arguments can be made in favour not only normalisation of relations between India and China, but a strong *entente* between the two. Imagine the two most populous countries in the world, with two-fifths of humanity between them, growing energetically at close to double digit figures, integrating themselves rapidly with the global economy, with increasing claims on the world's resources to fuel their future growth, having a community of interest in tackling the problems at the forefront of international concern – environment, climate change, terrorism, religious extremism, pandemics, UN functioning, etc – working in tandem on the global stage. This would shift the global balance of power decisively towards Asia. But Sino-Indian differences have greater debilitating effects on India as compared to China as the gap in our respective national power has widened. China can offer economically more and it can intimidate more. It has a certain vision of its own preeminence and the romantic notion of two Asian giants working together to change the global landscape appeals little to the authoritarians in Beijing.

China's handling of its differences with India makes sense from the Chinese point of view. It has the upper hand on the border and its military infrastructure there is far superior. It already possesses large swathes of Indian territory. The economic gap between the two countries, already huge, is growing. China's economic integration with the world is far deeper than India's, giving others much greater stake in it as compared to us. It has successfully contained India by bolstering Pakistan against us with nuclear weapon and missile technology transfers. It has insidiously used other neighbours to prevent India from consolidating its leadership in South Asia. If it settles the border issue with India, it will release India from a two-front bind, supposedly expose Pakistan to increased Indian pressure at a time when it has become more vulnerable, lose leverage with other neighbours of India who will move into the Indian orbit more decisively and free India

to pursue its regional and global ambitions more confidently. This would inevitably be at the cost of China's preeminence in Asia and at the global level. China may think it has more to gain than lose by a policy of thwarting India even as it engages it.

India has to play a sophisiticated game of hedging its bets against China in a pragmatic manner.

India too is engaging China but lacks the resolve to look for options for containing it. We cannot seek to contain China alone. We can, of course, build up our military strength, especially our strategic capability against China. This, in time, will help to "contain" Chinese ambitions. But we need to immediately join hands with others who too fear China's rise and the resurgence of nationalism in the country.

China reacted strongly to the attempt some years ago to build a quadrilateral arrangement among Asian democracies – India, Japan, Australia – along with the US, with Singapore thrown in. Australia retreated quickly, followed by Japan. President Obama has begun to talk of a better geo-political balance in Asia. India has to play a sophisiticated game of hedging its bets against China in a pragmatic manner. Apart from strenghtening relations with Japan, South Korea and Vietnam, India has to reinforce its Look East Policy as much as possible. Increased cooperation with the US Navy in the Indian Ocean would be part of containing the disruptive consequences of a rising China that is territorially expansionist and one that is at times accused of having a 19th century balance of power outlook.

Formulating a policy towards China that finds the right balance between engagement and resistance is not easy. We are obliged to engage with China as it is fast on the road to becoming the world's number two power. The balance of power in Asia has already shifted towards it in significant measure in the last couple of decades. Its inroads into the Gulf area, Africa and Latin America are now giving it a higher global profile. It has become the world's biggest exporting country; it has accumulated huge financial surpluses which it is using to secure access to raw materials across the globe, those that it needs to fuel its future needs. Its spectacular economic growth

continues even as the advanced industrial countries are in the throes of a serious economic depression, tilting global financial power in its favour, especially as the US' financial health has become unduly dependent on China's investment of its surpluses in US securities. It is not surprising that China's position as a global manufacturing hub and its export over-drive have had a sizeable impact on neighbouring India too as China has become India's largest trading partner in goods.

As part of its engagement strategy, India holds a regular high level political dialogue at the bilateral level, including a bilateral strategic dialogue of sorts. India also engages with China in multilateral groupings such as the Russia-India-China dialogue and the Brazil-Russia-India-China-South Africa (BRICS) dialogue. **The most recent BRICS Summit was held in New Delhi in March this year. At this summit, consensus could be reached by India, China and the other three countries on greater representation of emerging and developing countries in global governance, and concern was shared about the economic and financial policies of developed countries spilling over negatively into the emerging market economies. The slow pace of International Monetary Fund (IMF) quota reforms was criticised. The creation of a new development bank for infrastructure projects in BRICS and other developing economies was discussed and an agreement on extending credits in local currency under the BRICS Interbank Cooperation mechanism was reached. All these are initial steps to obtain a greater say in managing the global financial system and diluting the supremacy of the dollar, even as it is clear that progress on this will be slow and the biggest beneficiary will be China. Regrettably, Chinese reticence explains the absence of support from this group for India's (and Brazil's) candidature for permanent UN Security Council (UNSC) membership. This reflects the as yet unsettled political equations within the group that will detract from its global impact.**

At the East Asia Summit and Association of Southeast Asian Nations (ASEAN) linked forums like the ASEAN Regional Forum (ARF), India and China are working together without mutual grating. China now has observer status at the South Asian Association for Regional Cooperation (SAARC),

notwithstanding our past paranoia about China's intrusions into our geographical space. Peace and tranquillity on the border are being maintained despite periodic testing of our nerves by the Chinese in "disputed" areas along the Line of Control (LoC). Bilateral Confidence Building Measures (CBMs) now include limited joint military exercises. The two countries cooperate on climate change and World Trade Organisation (WTO) negotiations.

Peace and tranquillity on the border are being maintained despite periodic testing of our nerves by the Chinese in "disputed" areas along the Line of Control (LoC).

China has become India's largest trading partner in goods, with bilateral trade reaching **over $70 billion in 2011** and expected to reach $100 billion by 2015. The economic dimension of the relationship has acquired a new dynamic with the institutionalising of a strategic economic dialogue between the two countries **– the second round of which will be held this year – a**nd the setting up of a Chief Executive Officers' (CEOs') Forum. China has become a powerful player in two vital sectors of the Indian economy – the power and telecommunications sectors – despite security concerns. India wants to have a manageable relationship with China.

India-China trade relations have expanded phenomenally in recent years, raising hopes that such increase in mutual stakes may help resolve outstanding political differences. This proposition has to be persuasively tested because the virtual economic and financial fusion of the US and Chinese economies has not ended serious political differences between the two, nor has the massive Japan-China economic relationship softened the undercurrents of Chinese hostility towards Japan.

In our case, although bilateral trade has reached an impressive figure, the ballooning trade deficit ($20 billion) with China imposes a limit on trade expansion unless the trade becomes more balanced, which would mean China giving more opportunities to Indian companies in its home market. Pro-China economic lobbies in India have, however, emerged: with an economic giant rising next to us, there are those in India who advocate an enlightened policy of taking maximum advantage of this development

China is better organised, more puposeful in formulating policies and implementing them, and much less constrained by domestic public opinion.

for sustaining our own growth rates, with the least amount of restrictions consistent with basic security.

In many areas of manufacturing, China can now provide world class equipment – in the power and telecommunication sectors, for instance – at much lower prices compared to Western equipment. But there are security concerns about sourcing telecommunication equipment from China, though the pro-China business lobby in India feels that such concerns are exaggerated. There is wariness about allowing Chinese companies to operate in "sensitive" areas, whether those close to our borders or near military centres and installations. China's practice of using its unskilled and semi-skilled labour to undertake projects abroad has run into problems in India. The mounting trade deficit with China is becoming unsustainable, more so as China restricts opportunities for our Information Technology (IT) and pharmaceutical companies in its domestic market. China's dumping practice is another source of irritation in relations. Its effort to corner a sizeable chunk of the Indian market through artificially low priced products is threatening competition and endangering domestic industry. China's interest in a Free Trade Agreement (FTA) with India is not looked at positively by us.

China's strategy of integrating its provincial economies with neighbouring regional economies, and creating the infrastructure to make this possible, presents problems for us. China can strengthen its market presence in our neighbourhood at our cost, besides becoming a magnet for our own border regions.

At the international level, it is easier to work out cooperative strategies in climate change or WTO negotiations, for instance, because there is no direct clash of interests – on the contrary, both countries can exert their joint weight to counter pressures from advanced industrial economies. But such cooperation in specific areas should not make us lose perspective on the total content of our relations.

China, as things are, is India's adversary, even if at government level, we avoid characterising our relations with our powerful neighbour in these terms. On the face of it, India has all the attributes to be in the same league as China, whether it is physical or demographic size, skills or civilisational depth. But China has outstripped India as a rising power, and the gap already existing between us will continue to grow in at least the decade and a half ahead. China is better organised, more puposeful in formulating policies and implementing them, and much less constrained by domestic public opinion.

Militarily, China has developed capacities that we will find difficult to match. China has rivalry with the US in mind, and the sinews it develops to pursue that will take care of any developing Indian challenge. No doubt China does not currently have access to Western conventional defence technology because of an arms embargo imposed by the Western countries on it after the Tiananmen events. It is not able to secure from Russia the kind of platforms and weaponry that Russia readily supplies to us. But it has developed an indigenous defence production base that is impressive. In ballistic missile and nuclear weapon technologies, China has forged ahead of India decisively.

India has taken a substantial step forward in acquiring a credible nuclear deterrent capability against China with its successful Agni V test on April 19. The Indian press played up unnecessarily the China dimension of this missile, provoking Chinese press reactions to the effect that China was much ahead of India in missile capability and warning India not to be arrogant, apart from seeking to incite Western opinion against Agni V by suggesting that India was downplaying the actual intercontinental range of the missile. The reaction of the Chinese government has been unusually sober, emphasising the cooperative nature of the India-China relationship and shared interests.

Agni V should have in reality caused no surprise to the Chinese as India has been transparent about its Agni missile programme and the planned range of 5,000 km. India is also developing a sea-based long range missile for its nuclear powered submarine under development. China, in

The US has lauded India's non-proliferation credentials and underlined its no first use policy, which would suggest that India's missile advance is actually seen as serving US interests too, in creating a better Sino-Indian strategic balance.

any case, possesses missiles with even longer range. Earlier, it was India that was vulnerable to Chinese missiles and now the reverse will be true, creating a better balance in deterrence.

The US reaction to Agni V reflects the new quality of India-US bilateral relations. In the 1990s and early 2000s, the US was pressing India to curb its missile programme because it was seen as destabilising. The thinking today is entirely different. While avoiding any specific disapproval of India's step, the US has lauded India's non-proliferation credentials and underlined its no first use policy, which would suggest that India's missile advance is actually seen as serving US interests too in creating a better Sino-Indian strategic balance in the years ahead.

Even if China has a headstart over India, and in terms of "national power," is much more potent, India's steady economic rise, its human resource, the dynamism of its corporate sector and the size of its domestic market are elements playing in its favour. India too has weathered the current global slump well. Indeed, India and China are seen as two countries that the global economy counts on for easing the strains of the ongoing economic depression by their continued growth.

India is planning to spend huge amounts in the coming years on infrastructure development, an area in which it has been deficient so far. This will erode the advantage China has at present with its highly modern infrastructure. As labour costs in China go up, and other aspects of doing business in China begin to weigh more in the calculus of foreign investors such as absence of a well defined legal system, violation of Intellectual Property Rights (IPR), lack of sufficient access to China's domestic market, etc. attention will move increasingly towards India, especially if India begins to address those physical and procedural deficiencies that discourage the inflow of foreign investment in large

volumes. Countries like Japan, which are the biggest foreign investors in China are now looking at India.

China's export led growth model is considered unsustainable in the long run. The question is: to what extent can China control the transition to a different model without serious internal disruptions? China's mercantilist approach does not endear it to other competing countries. The West has begun to see China's rise with mounting concern. These international sentiments play in India's favour. As a democratic country, with ways of doing business the West finds more congenial, and with financial and managerial experts ensconced in Western corporations, banks and financial institutions who can mediate business and investment between India and these countries, India's growth is seen with less trepidation. In certain sectors of the knowledge economy, we have a headstart over China and this advantage we will enjoy for some time. Experts are generally agreed that by about 2025, as China's economic growth slows down and ours accelerates, the existing gap between the two economies will get very substantially reduced. At the same time, India's hunger for raw materials, especially energy resources, will pit it increasingly against Chinese competition in the years ahead. Our political leadership tries to minimise the prospects for such future rivalry by stating diplomatically that there is enough space for both India and China to grow without treading on each other's toes.

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In China, a politically closed system works alongside an open economic system. Political dissent is smothered, but not economic enterprise. China accepts that the West can help in the modernisation of its economy, but must not ask for the modernisation of its politics. Its politics must cling to an outdated ideology, though its economics can be heartlessly pragmatic. How can this kind of a contradiction endure in a country that is set to become the number two power in the world? When the rest of the world cedes so much space to China peacefully, it is not unreasonable for it to

expect a reassuring change in how China governs itself and how it relates to its external environment.

Given China's size, its view of itself in historical terms, its claims on India, on Taiwan, in the South China Sea, its rancour against Japan, etc, its rise has wide regional and international implications. While a policy of containing China would be imprudent, it cannot be given a free hand in Asia. Other players in the region have to caution China about the political and other costs of seeking domination. Any initiative to that end serves India's interests even as its engagement with China continues. However, engagement does not mean acquiescence to Chinese hegemony in Asia.

China is manifestly a revisionist power that, to begin with, wants to change the status quo in its periphery where it has the capacity to make its power felt more immediately. It has begun to flex its muscles, most notably, in the South China Sea, over most of which it now claims sovereignty. It is locked up in maritime disputes with Japan, Vietnam, Malaysia and the Philippines over the Spratly and Paracel Islands. It has upped the political and security ante by unilaterally declaring the South China Sea as constituting its core national interest. Its claims are based on its own version of history and legality, which, of course, is contested by its other maritime neighbours.

In the South China Sea, China has larger strategic goals. It has so far been bottled up in these waters by the chain of islands ringing it in the east – Japan, Taiwan and the Philippines. It cannot be a major naval power if it remains so confined. The blue water navy that it is developing needs unhindered access to the Pacific as well as the Indian Ocean, both to protect its vital trade and energy life-lines as well as to challenge the sway the US Navy enjoys over these oceans, the Pacific in particular. China has plans to operate a number of aircraft carriers, the first of which has begun sea-trials. It is expanding its conventional and nuclear submarine fleet and modernising its destroyer and frigate fleet.

China must be able, initially, to deny the US the level of domination it has so far exercised in the South China Sea. The assertion of its claims in the South China Sea is a foretaste of its larger naval ambitions. As China's military

power grows, the balance with the US and its allies in the region will change automatically, making its neighbours more vulnerable to Chinese pressure and emboldening it to become more demanding. Already, the US is concerned about the capability China is developing to target American aircraft carriers with anti-ship ballistic missiles, as that will make it more difficult for the US to deploy its assets close to the Chinese Mainland. Consequently, the deterrence balance in the Strait of Taiwan will change.

China's position on India's cooperation with Vietnam in the so-called disputed areas contradicts flagrantly its policies in that part of the Indian state of Jammu and Kashmir (J&K) under illegal Pakistani occupation, exposing the often unprincipled and bullying nature of its postures.

Most recently, India has had a taste of China's claims in the South China Sea when its naval ship moving along the Vietnamese coast was warned by radio to stay away from Chinese waters. More seriously, China has objected to Indian oil exploration projects in two Vietnamese blocks by calling countries to refrain from oil exploration in maritime areas offered by Vietnam in the South China Sea on the ground of its "indisputable sovereignty" there. India has rebuffed these objections by stating that its cooperation with Vietnam or with any other country is always as per international laws, norms and conventions. India has also reiterated its position that it "supports freedom of navigation in the South China Sea and hopes that all parties to the dispute would abide by the 2002 declaration of conduct" pertaining to it. At the recent East Asia Summit, India has joined others in expressing concern about China's claims in the South China Sea interfering with the freedom of navigation. The Indian Prime Minister, in his talks with the Chinese Premier, has also stood his ground on our right to pursue our commercial interests jointly with Vietnam in the area of oil exploration. **Our Foreign Minister has again reiterated that the South China Sea is not the property of any one nation and is an international waterway, inviting criticism by the Chinese spokesman.**

China's position on India's cooperation with Vietnam in the so-called disputed areas contradicts flagrantly its policies in that part of the Indian state of Jammu and Kashmir (J&K) under illegal Pakistani occupation, exposing the often unprincipled and bullying nature of its postures. In J&K, in an area which has seen actual military conflict, where a ceasefire is holding even though Pakistani-backed efforts to infiltrate terrorists continue, China has already undertaken strategic projects and is now believed to have signed up for a variety of infrastructure projects totalling US $10 billion. China has argued that these projects do not pre-judge the status of the territory which has to be resolved between India and Pakistan.

During his visit to India in 2010, President Obama had exhorted India not only to Look East but also to Engage East, in line with the wishes of Asian countries to see India playing a more active role in the region. Now the call is for India to Act East. India is cautiously responsive to US calls because it wants to avoid the risk of sharpening misunderstandings with China that developing joint strategies with the US may produce, only to find the US and China reaching bilateral understandings over India's head as situations evolve.

The US' relationship with China is far more developed and mutually dependent than the India-US relationship, though the conflictual elements in the US-China relationship are much more present than in US relations with India, whether now or in the future. The US continues to hope that China will evolve and the potential clash of interests can be avoided. There is a counter-intuitive willingness to accept China's responsible behaviour, the legitimacy to some extent of its paranoia and the development of its military power to protect its globally spreading economic interests. American China watchers, thus, send mixed signals about the implications of China's rise.

India queries the relaxed view the US takes of the China-Pakistan nuclear cooperation. The US has chosen not to oppose expanded China-Pakistan nuclear trade in violation of China's NSG obligations. Some US specialists explain that the US did not want to throw the gauntlet at China on this issue as it wants China's cooperation in dealing with the nuclear challenge from Iran and North Korea. US experts, in fact, claim that China and India

are responsible nuclear powers, unlike Pakistan and North Korea. This is offensive to Indian ears as India considers China's transfers of nuclear and missile technology to Pakistan as the greatest threat to its security, transfers that the US has deliberately kept below its radar screen.

The US wants India to focus on the China threat in East Asia by prodding India to Act East, whereas for India the more immediate and pressing Chinese threat is in South Asia. The US, however, remains either silent on this threat or actually distorts reality by projecting China as a responsible player in South Asia with which the US could work to promote regional peace and stability. If India had concluded that the Bush Administration's endorsement of this position and that of the Obama Administration earlier in its tenure had been repudiated, it was mistaken, as Admiral Willard, the US CINCPAC Chief has spoken the same language again, even as he has referred to the reality of China's developing the capacity to target moving US aircraft carriers up to 2,000 miles away with anti-ship ballistic missiles.

India and the US are far from developing any shared view on China's stepped up claims on Arunachal Pradesh, the expansion of its military infrastructure in Tibet, its river water diversion plans there, its strategic moves in Myanmar and Pakistan to gain access to the Indian Ocean, the future of the institution of the Dalai Lama, etc. India's territorial integrity is under threat from China and Pakistan combined, but, unlike in the case of China where the US endorses the principle of China's territorial integrity, there is no similar expression of support for the territorial integrity of India.

While China's rise is a threat that has to be addressed constructively, it also has to be considered that China too has its options curtailed because of the export dependence of its economy. It needs world markets for maintaining its growth rates as well as internal political stability in view of the social fractures caused by grossly unequal distribution of wealth between the urban and rural areas that has accompanied the phenomenal expansion of its economy in the last decade in particular. To achieve their goal of modernising the Chinese economy and achieve middle-income status, the Chinese leaders claim they need a couple of decades more of peace.

China has moved ahead very fast in tying up international resources while India has lagged behind. There is no collision yet with China but this could occur as India steps up its efforts.

During this period, however, while maintaining the fiction of its peaceful rise or development, China can build up its military power steadily. With every passing year, the options available to others to restrain China would become fewer and the *fait accomplis* being established under their very noses would have to accepted. Western democracies, unlike China's closed door political system, have electoral cycles, public expectations and, most importantly, the bottom-lines of their corporations that make them more disposed to make concessions to China under the convenient garb of investing in peace and stability.

China presents the biggest strategic challenge to India in the years ahead. In Asia, India and China are the biggest countries geographically and demographically. On the face of it, rivalry and competition between the two seem inevitable. The two countries are rising at the same time, although China's rise began more than a decade before India's and it has been faster. There is now a considerable gap in the economic and military strength of the two countries, and this gives China more options on the international stage and an upper hand for the time being in its dealings with India.

With such large economies registering sustained high growth rates, with India growing at high single digit figures and China enjoying double digit growth, access to resources has become important, and this importance will increase in the years ahead. China has moved ahead very fast in tying up international resources while India has lagged behind. There is no collision yet with China but this could occur as India steps up its efforts.

As India catches up with China in rates of economic growth, as many studies show it will in a decade or so when Chinese growth levels are expected to go down, China's sense of rivalry with India is likely to become sharper. For the time being, China considers the US as its principal rival for power, undoubtedly in the Asian region, if not beyond. This implies that China is taking for granted its leadership of Asia. In such a scenario,

China will resist any effort by India to contest its primacy. China's current disregard of India as a serious challenger is an indicator of its regional outlook. When India is seen as becoming one, China's thinking and intentions in relation to India will be stress-tested.

China's rise is a reality that India and others have to deal with. The challenge has to be met without confrontation or appeasement.

Notwithstanding globalisation and interdependence that call for cooperation rather than confrontation and a search for win-win situations rather than zero-sum games, rivalry for power is unavoidable between states. China is particularly problematic on this score because it is nursing historical grievances and is territorially expansionist. Lack of democracy in China makes the situation more difficult for other countries in the region and beyond as the Chinese decision-making process remains opaque and public sentiment about policies pursued by the government is difficult to assess.

China's spectacular economic growth cannot but be accompanied by growing military strength. China can well argue that its expanding international interests require it to develop the means to protect these interests by deterring interference by others, as otherwise it will always remain vulnerable to external pressures. Under cover of this rational argument, China can expand its military strength, as it is in the course of doing. It has powerful nuclear and missile capability, with more potent missiles being tested. It seems on course to build a blue water naval capability for force projection and to be able to protect its long lines of communication stretching across the Indian Ocean. It has now ample financial resources for expanding its military budget. Its growing military power has already begun to cause concern.

As part of its hedging strategy, India holds regular naval exercises with the US in the Indian Ocean as a joint affort to protect the sea-lanes of communication. Combined naval exercises are held with the US and Japanese Navies too, the strategic import of which could not be lost on the Chinese. We now have a strategic dialogue with Japan. India has agreed

to a India-US-Japan trilateral political dialogue. We are stepping up our relationship with Vietnam.

China's rise is a reality that India and others have to deal with. The challenge has to be met without confrontation or appeasement. India must create space for itself to target China's sensitive spots, even as we engage the country, the strategy that China follows towards India. The ultimate answer for India's China challenge, of course, is to develop its own economic and military sinews as rapidly as possible, as well as strategies of cooperation with the US and others concerned about China's muscle-flexing in the future, while, at the same time, maintaining its independence of action.

For all the reasons, outlined earlier, our dilemmas in dealing with China are particularly acute. As modern nations, India and China have different conceptions about their international role. The two countries have marked differences in temperament and outlook, and these have a bearing on the future. Unlike the Chinese, we are not a competitive people, we do not think in grandiose terms, we are not power conscious, we are tolerant of dissent, we are less dominated by the state, and we are not as regimented and disciplined. Our dilemmas with China, apart from stemming from power equations, reside also in differences of mentality.

QUALITY FUNDAMENTALS IN SUPPORT OF AIR POWER

P.V. ATHAWALE

Most executives are of the opinion that the term **'quality'** has relevance only for design, development, production, repairs and logistics support activities. Nothing can be farther from reality than such a misconception about the limited applicability of 'quality'. Can't we say that quality (flight safety) matters far more directly in flying operations than all the work on the ground? It certainly does, with any activity related to men or machines that go up in the air as compared to all other ground systems. Quality does matter to administration, finance, resource planning and human resource development and training in equal and significant measure. The concepts have, however, evolved around manufacturing or technical processes. Therefore, **the one key element** in discussions on maintenance paradigms has to be **'quality'**.

Inspection in the military has been such a preoccupation that all other means and methods seem to converge onto this last act to get the desired quality output **for fear of inspection**. Confining ourselves to maintenance, let us remind ourselves that quality cannot be enhanced by predominantly increasing inspection. Quality is holistic, it cannot be achieved in patches; quality is *not an add-on* that can be injected into an aircraft at the *tyre-check point*. It is also not quite something which can be meticulously adhered to inside a cockpit or a lab while being lackadaisical in all other disciplines. **Quality relates to 'character'**—*it's a way of life!*

Air Marshal **P.V. Athawale** PVSM, AVSM, VSM (Retd), former AOC-i-C Maintenance Command is a Distinguished Fellow at the Centre for Air Power Studies, New Delhi.

Let us remind ourselves that quality cannot be enhanced by predominantly increasing inspection.

Sow a thought and you reap an action
Sow an act and you reap a habit
Sow a habit and you reap a character
Sow a character and you reap a destiny
— Ralph Waldo Emerson

In the 1990s, Base Repair Depots (BRDs) had started certification to the ISO 9000 Quality Management System (QMS) standard. The leadership had considered it necessary to establish processes conforming to the international standard and especially to certify through external audit because BRDs carried out factory-like technical activities of repairs/overhaul and indigenised manufacture for substitution of parts. It could be argued that the factory-like working by BRDs in no way qualified only BRDs, leaving out all other maintenance activity in the Air Force. But, BRDs were the right place to begin. By 2005 or so, most large BRDs were ISO certified, which was a distinct *mark of pride* for the top management. However, a few years later, a review indicated that a well meaning initiative had drifted away from its objective. The QMS had remained far from being integrated in the depots' vital activities like production, indigenisation and supply chain management. Except for the *'ISO 9000 Certified'* statement of pride, the QMS served little purpose or value addition to the main tasked functions of a depot. By now Air HQ and HQ Maintenance Command (MC) together envisioned a lean engineering project at 11 BRD to realise the passionate goal of production process optimisation. The BRD/MC team, working with the consultants from the Indian Institute of Technology (IIT), Kharagpur, soon realised that it was not a one-time effort and that 'lean engineering' could also fall into the large pile of overheads to perform without a value addition to the fundamental production process. All this was not because either the *QMS* or *lean* was not worthy, but due to the fact that we had an exceptional ability to *adopt new methods without changing*; the new schemes soon transformed into *'data fields'* for inclusion in impressive quality performance reports. Instead of keeping quality and lean efforts isolated from the main process as overheads, or, on the other extreme dumping these

worthy measures, we considered it appropriate to *revitalise quality management to realign with the main functions of each BRD.*

We are indeed obliged to Col B.J. Singh for the revival of quality culture in BRDs and its spread across the Equipment Depots (EDs), which were till then considered separable from quality.

The thrust to redefine QMS found unprecedented support from the large working level staff, thanks to our consultant. Long ago, I had an opportunity to take *quality lessons* from **Col B.J. Singh**, a retired Corps of Electronics and Mechanical Engineering (EME) officer, who very kindly consented to be with us to infuse *'quality passion'* among our men and women, which he so aptly called *'junoon'*. We are indeed obliged to him for the revival of quality culture in BRDs and its spread across the Equipment Depots (EDs), which were till then considered separable from quality. Personnel from all branches and trades got into the act of identifying and redefining processes within their own areas. As we identified and zoomed into individual process flow charts, we found it amazingly simple to visualise potential areas for optimisation, even without the aid of any technique. The *'quality charged'* lot could then move on to the extension of 'lean' implementation from 11 BRD to all the other depots.

EVOLUTION OF QUALITY AND THE MILITARY

Craftsmen in 13th century Europe had unions called guilds. These made rules for product and service quality, on the basis of which the inspection outcome was used as a benchmark. This product inspection approach continued through the industrial revolution; the process getting included only by the beginning of the 20th century. The military began dominating the quality domain by the end of World War II. However, product inspection of virtually every piece in due course gave way to inspection of smaller quantities using sampling techniques. Later, prompted by the Japanese movement, *'Total Quality Management (TQM)'* began in the USA. TQM stressed on organisational process improvement through people rather than inspection. Thus, the product oriented and inspection dominant reactive approach made way for proactive process orientation. The theme behind the shift was that if processes were well

defined and controlled, the product quality could be reasonably assured. The ISO 9000 series of process oriented standards were first issued in 1987.

With this shift to process orientation around the world, various inspection agencies shifted their focus from inspection to Quality Assurance (QA). In India, however, the defence establishments changed mainly in semantics as the names of Inspectorates were changed to Controllerates of Quality Assurance. With inherent inertia, we continued our **emphasis on inspection**. It would not be out of place to pause and ponder upon the reasons why Inspector General (IG) changed to Director General (Inspection and Safety) [DG (I&S)], but did not transform into a Quality Assurance and Safety Agency.

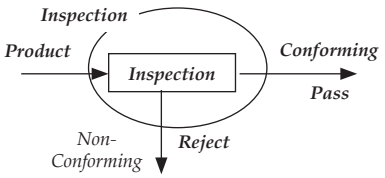
It is important to understand that quality assurance is inclusive of inspection. While **mere inspection is wasteful,** QA assures that the processes and their interfaces are well tuned within a defined **Quality Management System** to assure quality. Adequate inspections are carried out at relevant points, reducing waste (rejections) as well as the overall quantum of inspection. Unfortunately, immersed in complicated definitions, one doesn't quite comprehend what QA is. As a result, in our domains, QA and inspection are commonly misused as synonyms as we hope to solve every problem with enhanced inspection. I have yet to come across as simple an illustration as made by Col B.J. Singh to explain the terms **Inspection**, **Quality Control** and **Quality Assurance—**such that one never forgot the importance of QMS. Thanks to him, I explain below.

GAPS AND SHORTFALLS IN OUR SYSTEM

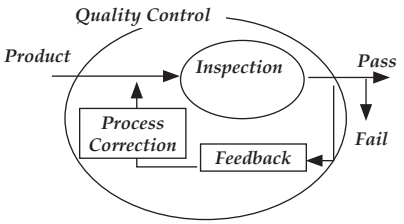
Since ancient times, military requirements have led technological developments, resulting in the strong fixation of the military with product specifications. The onset of the Information Age reversed this trend. Only as an exception, a few critical technologies' development is now initiated for military use. Otherwise, most technological developments in the commercial domains and especially those related to information technology have distinctly gone ahead of military requirements. And yet, while writing the Services Quality Requirements (SQRs), we surprisingly get tempted to define specifications unique to our requirements rather than picking them up Commercially-Off-The-Shelf (COTS) wherever

possible. Despite this product fixation, however, we have been inherently process oriented. During ISO certification of most depots, the external auditors often said that our processes and procedures were already so well defined that these needed to be only well documented and compiled together with the necessary records for certification. In comparison, before getting introduced to the process approach, the civil industry hasn't been backed by a set of procedures like the armed forces. Our Standard Operating Procedures (SOPs), Station Standing Orders, Air Headquarters (HQ)/ Command HQ/ Station/ Squadron and Flight Orders, Technical Orders, Administration Instructions, etc. have been exceptionally well conceived. Despite such strength of well defined SOPs, *orders and instructions*, it is surprising that **a strong inspection fix keeps us away from process visualisation**.

Fig.1



Inspection checks for conformity to specifications – passes the conforming product and rejects the non- conforming one.



We begin to control quality when the outcome of inspection is used to provide a feedback to enable correction to processes in line before inspection

We assure quality when we envelop the Quality Control within a well defined Quality Management System. The QMS defines processes and the stated norms according to which the quality would be assured. Beginning with quality policy, quality manual, identification and definition of processes, control of documents and records, customer related processes and feedback, demonstration of continual improvement and audit are important parts of the QMS.

Do we then have gaps in our otherwise self-perceived process approach to doing quality work? Let us look at a few real examples to appreciate the need for a review:

- The Air Officer Commanding-in-Chief (AOC-in-C) wishes to issue a directive. The staff puts up a draft with the last line stating **"This supercedes all previous instructions on the subject"**. On a query, the staff cannot put up any such instructions for reference. The issuing authority itself does not know how many instructions exist on the subject. But, *it is considered safe to put up that last line, just in case. . .*
- As a follow-up of an accident, the Service Maintenance Staff Officer (SMSO) of an Operational Command sends a directive to the Chief Executive Officers (CEOs) of concerned bases to *issue technical orders* to direct technicians to **carry out an existing order more meticulously**.
- There are severe technical problems with older types of MiG-21 aircraft. One major cause of engine problems is believed to be the lack of 'fuel discipline'. **More severe inspection** is suggested to the top management as the remedy for fuel problems.
- An Op Command's Maintenance Instructions are issued under the authority and signature of the AOC-in-C. The next month, a few corrections are issued under the signatures of the SMSO. A few minor corrections are further issued under the signatures of the Chief Engineering Officer (C Eng O) of the Command. The corrections do not even indicate approval of the AOC-in-C.
- During inspection visits, Commanders are shown the duties and responsibilities of the workers down to the level of Corporals. The workman's appropriate fit in the functional process and interface with the other processes are seldom verified.
- The AOC-in-C's aircraft lands at Kanpur. After the AOC-in-C departs, the aircraft is towed to Hindustan Aeronautics Limited (Transport Aircraft Division) [HAL (TAD)] for repairs. On the way, the wing tip bumps into a wall and gets damaged.
    - After the aircrew leaves the aircraft, the ground crew asks the station duty crew to tow the aircraft to HAL (TAD) for repairs that were

pre-planned but the duty crew was not informed.

- Duty crew personnel later said that they had no experience in towing aircraft as visiting AN-32s were looked after by 1 BRD and the other aircraft, including AVROs, were never required to be towed. In such unforeseen circumstances, usually the captain, along with his air and ground crew, should have taken control, with further assistance from the station duty crew.
- This was the AOC-in-C's aircraft, so no questions were asked. The in charge (I/C) Duty Crew went along with the ground crew to get the aircraft towed by the on duty Civilian Motor Transport Driver (Civ MTD), who incidentally was not certified to tow aircraft. *Everyone went along without anyone taking charge*!
- *There was no incharge*; the duty crew was helping the command freight ground crew, who were, in turn, helping the duty crew, and the Civ. MTD was helping the general cause without being trained and experienced.
- *The Court of Inquiry (C of I) found no one to blame*, till reassembled by the orders of HQ MC.

- A Head Up Display (HUD) is despatched from an ED to a Wing. The HUD gets damaged in transit, with a knob visibly broken on the front panel. A Discrepancy Report (DR) is raised by the Wing. *After five years of processing, the case is referred to the AOC-in-C for the first time, seeking recommendations for write-off action* of tens of lakhs of rupees for repairs. He is advised of the following facts.
  - The equipment was packed (not known whether correctly or not) in the original packing case.
  - There was no evidence, but the consignment might have been trans-shipped on the way without care, although the transporter was contractually bound for it.
  - Although the receiving station had raised a DR, one couldn't be sure that the damage did not occur on receipt there.
  - There was no other trace back. It was suggested that after five years, even if the AOC-in-C so desired, a trace back effort would be futile.

- Therefore, it was recommended that *no one was to blame*, and the only corrective action visualised was to get better packing cases designed by HAL.

- Locally made (crimped using original Russian connectors) hydraulic hoses by a BRD for MI-8 helicopters prematurely leak in the field. The BRD confirms faulty fabrication:
  - On posting out of previous workmen, the procedure for fabrication was not well understood by the changed set of workers.
  - The process sheet was found to be not foolproof, for unambiguous understanding.
  - The BRD identifies the faulty batches delivered and informs all users.
  - The top management raises the question, "**Who inspected the hoses***?"*
  - Despite several reminders from the BRD and HQ MC, the Op Commands could not get their stations to confirm accounting and return of unused hoses from the faulty batch.
  - Without a positive check of all faulty hoses recovered, one was never sure that someday a hose from the old stock would not be used.
- An arrester barrier net is flown out of the ED to a Wing for immediate replacement after the existing barrier net is damaged due to engagement. When the wooden drum is opened, rats jump out of the drum. Parts of the net are also visibly termite eaten. Another piece is picked up from a station, which had received the same recently from the ED. The condition of this net is as bad as the earlier one.
  - The stores I/C had written a letter some time ago to the Quality Assurance Service (QAS) for inspection of packing cases.
  - *The C of I finds fault with the Aerial Delivery Research and Development Establishment (ADRDE)* concerning the design and material used for packing. They also find *lacunae in contracting by Air HQ*, but find *no one to blame* within.
  - When a reconvened inquiry finds the stores I/C to blame, the senior staff at the Command opines that the working level staff was being singled out for blame.

- A new check is introduced for R-29 engines at 200 hrs, to be carried out at a BRD. The availability of packing cases is inadequate for transporting the required engines from the operating Wings to the BRD. Various actions of placement of orders for new cases are reported. But, the Command staff is unable to make an assessment of the optimum number of packing cases that should have existed in the system. Such an assessment for any fleet seems too mathematical for the staff that comprises erstwhile instructors at the College of Defence Management (CDM). With a small unforeseen variable thrown in, the *situation could be repeated with any fleet any time*!

All the above examples appear to be simple and stupid, with straightforward answers. But, these incidents would be repeated if we don't look at process corrections.

- While working towards improving productivity (serviceability) and quality during the 'Year of Maintenance', the senior staff gives an impression that people are working hard in *an ongoing process*. The problems are elsewhere! Everyone in different formations is dissatisfied with someone else who is not chipping in with the effort. *The problem is always elsewhere – the man in front is never to blame*!

The only real mistake is the one from which we learn nothing

— John Powell

All the above examples appear to be simple and stupid, with straightforward answers. But these incidents would be repeated if we don't look at process corrections. Is there really a plethora of instructions and workers not sure about how many are applicable? Further, are all instructions doable? Is every process well defined, especially at interfaces with external elements? And, finally, *do we have relevant records to provide convenient trace back at all times without having to assemble Cs of I to take statements on oath?* Yes, we do have large gaps, but these are quite manageable because we have great people within a disciplined environment. A sincere review of not only the BRDs

and EDs, but also the field maintenance and logistics functioning would be necessary. Just that fundamental effort in realignment will transform us into an organisation with an excellent quality management approach.

OPTIMISATION PHILOSOPHIES

During the quality initiatives, the biggest challenge was to tackle with the participants' loss of focus on the programme due to misinformation or lack of knowledge about various optimisation methods. Misconceptions like "*We can't leave it to the depots to decide what to do and how far to go, they need to be given a GOAL*", "*ISO 9000 is not good enough, we need TQM*", "*Accuracies like in the 6-Sigma approach are essential*", and "*Everyone is going in for 'LEAN' and we are stuck with ISO*", etc. were commonly going around. Half knowledge is more dangerous than nothing at all and one is bound to come across various views without great commitment on the part of those making the comments. My professor at IIT, Kharagpur, maintained that to be a great programmer, one needed to understand the nuances of at least six programming languages before starting work in any one of these. Similarly, I think that a maintenance man develops best background knowledge through awareness of different quality approaches before following one chosen path or a combination of these.

A QMS comprises the *organisational structure*, *processes* and *resources.* All QMS models have advocated transparency and sustainability to provide enhanced quality and customer satisfaction. A few other popular philosophies are essentially optimisation methods for production or business processes. One or more of these approaches used to complement each other rather than one having to replace the other can bring great results. Therefore, I wish to briefly introduce many approaches together before concluding with recommendations for our actions.

TOTAL QUALITY MANAGEMENT

Total Quality Management (TQM) is an organisation-wide effort to improve quality. It is an approach where all members of an organisation participate in improving processes, products, services and the organisational culture.

TQM has been influenced by many great leaders while its core has the **Deming System of Profound Knowledge**, which stated the following four requirements for managers:

- **Appreciation of a System:** Connecting customers, suppliers and producers.
- **Knowledge of Variation:** Statistical sampling.
- **Theory of Knowledge.**
- **Knowledge of Psychology:** The human nature.

  Deming presented fourteen key principles, for quality transformation.
- Create **constancy of purpose** aimed at product and services improvement.
- Adopt the **new philosophy**. Leadership for change.
- **Cease dependence on inspection** to achieve quality.
- **End** the practice of business on the **basis of a price tag**. A single supplier with a long-term relationship of **loyalty and trust** to minimise cost may be the answer.
- **Improve constantly** and forever.
- **Training on the job**.
- Institute **leadership** and **supervision to help people** and infrastructure.
- **Drive out fear**.
- **Break down barriers between departments**.
- **Eliminate slogans**, exhortations, tall order for zero defects.
- **Eliminate work standards** and numerical goals. **Substitute with leadership**.
- Change **sheer numbers to quality**. Institute pride of workmanship.
- Institute a vigorous programme of **education and self-improvement**.
- **The transformation is everybody's job**.

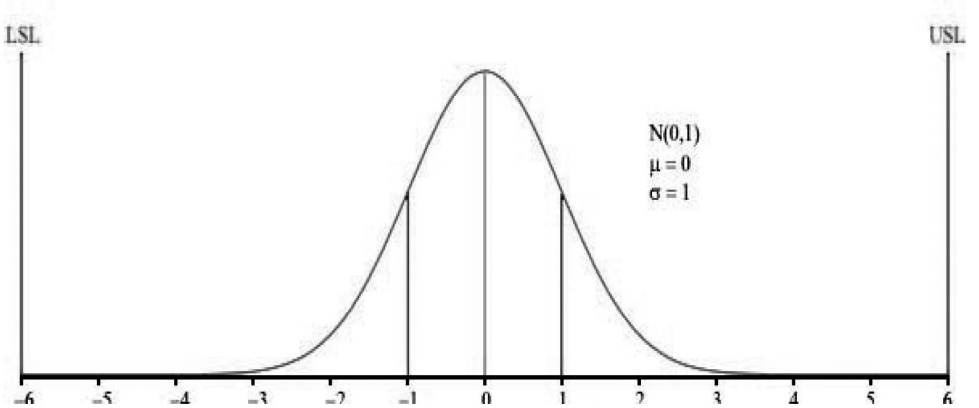
Deming believed that a transformed individual will set an example, be a good listener, teach others and move ahead without the burden of the past.

SIX SIGMA

Originally developed in 1986, Six Sigma has been a registered trademark of Motorola Inc. Motorola set a goal of "six sigma" for all its manufacturing operations. Minimising variability and defects in manufacturing and business through *identification and removal of the causes* is the aim. People within the organisation, empowered through management and statistical training as "Black Belts", "Green Belts", etc. catalyse the execution.

A defined sequence of steps is followed with quantified financial targets. Statistical modelling is the basis of the six sigma process approach in which 99.99966 percent of the products manufactured are statistically expected to be free of defects (3.4 defects per million).

Fig 2



The fundamental theme is that if one has six standard deviations between the process mean and the nearest specification limit, as shown above, *practically no items will fail to meet specifications*.

The process measure is the number of standard deviations between the mean and the nearest specification limit. As the standard deviation increases, or the process mean shifts away from the centre of the tolerance, fewer standard deviations will fit between the mean and the nearest specification limit. The result would be increasing the likelihood of items outside the specification, evaluated as a lower sigma process.

The processes usually do not sustain the measure in the long term. As a result, the number of sigmas that will fit between the process mean and the nearest specification limit may reduce with time. To account for this drop, an empirical 1.5 sigma shift is introduced to indicate that a 6 sigma process would be only 4.5 sigma in the long term. Accordingly, a popular definition of a six sigma process is one that produces 3.4 defective parts per million opportunities.

Inspired by Deming's Plan-Do-Check-Act cycle, six sigma projects follow methodologies known by the acronyms DMAIC and DMADV.

- DMAIC (Define, Measure, Analyse, Improve, and Control) is used for projects aimed at improving an existing business process.
- DMADV (Define, Measure, Analyse, Design, and Verify) is aimed at creating new product or process designs. The DMADV project methodology is also known as DFSS ("Design for Six Sigma").

LEAN ENGINEERING

Not everything that can be counted counts, and not
Everything that counts can be counted

— Albert Einstein

The term '*LEAN*' was coined in the late 1980s by Jim Womack's team at MIT to describe *Toyota's business*. The theme has been of maximising *customer value* while minimising waste. In other words, this would mean *creating more value for customers* with *fewer resources.* A popular misconception, like in all other quality concepts, exists with lean, that it is suited only for manufacturing. Lean is not a cost reduction programme. Lean applies in every business and process and resides in the heart of an organisation. The word transformation or lean transformation is often used to characterise a company moving from an old way of thinking to lean thinking. A long-term perspective and perseverance are required for a complete transformation on how a company conducts business.

People, technology and systems are the three entities worked upon in the lean approach. People are educated, involved and motivated through

'total employee involvement', 'control through visibility', 'housekeeping' and 'total quality focus'. 'Small lot production', 'set-up reduction', and 'fitness for use' are focussed upon while maintaining structured flow. 'Preventive maintenance', 'supplier partnership', and 'pull systems to seek material only when needed to produce' ensure a balanced flow.

Lean is primarily identification and removal of waste—so that everyone becomes more productive, efficient, result oriented and customer focussed. This is carried out by the following steps:

- 5 S for housekeeping: Sort, Set, Shine, Standardise, and Self-discipline.
- Flow Kanban: Produce only what is needed by the next person in the chain or customer.
- Visual controls e.g. a chart showing current status vs. scheduled.
- Job standardisation with defined procedures and standards to ensure repeatability.
- Attempt 'set up' reduction after a job, before starting the new job.
- Continual improvements through reiteration of the above steps.

The seven wastes identified for reduction are:

- Motion
- Transportation.
- Waiting time.
- Overproduction, in excess of customer requirements.
- Processing time.
- Defects, scrap and rework.
- Inventory.

An honest review of the current situation is made before adjustments to address inefficiencies one by one. Changes are made only after verification of every incremental step. Lean engineering and lean manufacturing are not exactly the same, even though both share concepts and aim at improving efficiency. Lean manufacturing is a proven process used to increase the production efficiency of a manufacturing shop through inventory control and production process improvements. On the other hand, engineering doesn't have an inventory, but has a number of customers ranging from the shop floor to purchasing to the end customer.

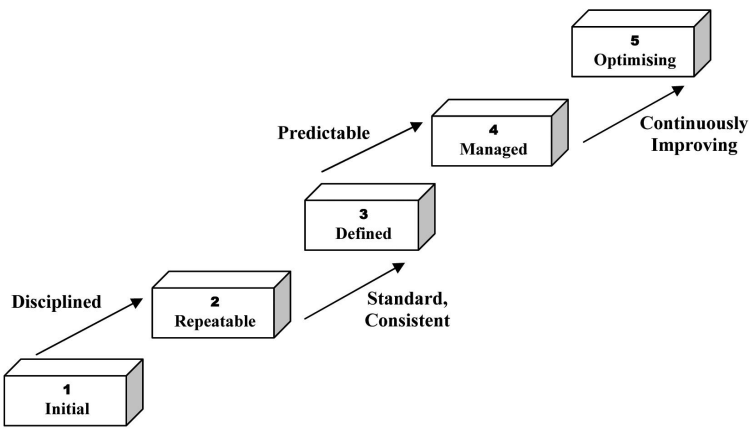
CAPABILITY MATURITY MODEL (CMM)

Watts Humphrey developed the **Capability Maturity Model (CMM)** on the surmise that organisations mature their processes as they solve problems in stages. CMM is an evolutionary process model for software development designed by Carnegie Mellon University originally for assessing the ability of government contractors' *processes* involved in a software project. *Although specific to the software engineering field,* CMM is used in many other areas like system engineering, system acquisition, project management, risk management, human resource management, etc. CMM is built around five basic characteristics viz. *maturity levels, key process areas, goals, common features and goals.*

Maturity levels indicate predictability, effectiveness, and control of an organisation's software processes, maturity level 5 being the best.

- **Level 1.** The *initial* starting point. It may be chaotic, ad hoc and marked by individual heroics.
- **Level 2.** The process is adequately documented to promise *repeatability*.
- **Level 3.** The process is *defined* and broken down to the level of work instructions.
- **Level 4.** The process is quantitatively managed.
- **Level 5.** *Defect prevention,* conscious process optimisation/improvement and change management are ensured.

Fig 3: Processes at Different CMM Levels



Key Process Areas (KPAs) identify a group of activities to be performed for achievement of goals. KPAs are further characterised by goals, commitment, ability, measurement and verification.

Goals of a key process area denoting intent and scope provide for a measure of achievement. Goals accomplishment is an indicator of the capability the organisation has established at that maturity level.

Common Features like commitment to perform, ability to perform, activities performed, measurement and analysis, and verifying are used for implementation.

Key Practices are methods which contribute most effectively to the implementation of the KPAs

THEORY OF CONSTRAINTS

The **Theory of Constraints (TOC)** was professed by Eliyahu M. Goldratt as an overall management philosophy. First in 1984, with a book titled *The Goal,* he illustrated how an organisation makes efforts, and progresses in achievement of its goals. Then, in 1997, through his book *Critical Chain,* he professed the theory before publishing an extension to the concept in 1999.

Goldratt maintained that *the goal* of a business company *itself is to make money*. All other objectives are derived, directly or indirectly. Variations in measures of **throughput**, **operational expense** and **inventory** are used by the Theory of Constraints to evaluate and control organisations. In the military domain, identification of *war preparedness as the goal seems simple*. But, its *measure of accomplishment is extremely complex*. Therefore, war preparedness has to be further sub-divided into visible and measurable objectives.

As per TOC, "*any manageable system is limited in achieving more of its goals by a very small number of constraints*", and that "*there is always at least one constraint*". *A chain is no stronger than its weakest link.* Constraints could depend upon equipment, people or policies and could be internal, e.g. lack of production due to inadequately trained manpower, or external, e.g. lack of the Original Equipment Manufacturer's (OEM's) support. The TOC recommends identification of the constraint and organising support of other elements around it through the following actions:

- Identification of the constraint, *resource or policy.*
- Decision on exploitation of the constraint to *get the most capacity out.*
- Subordination of all other processes to *align the whole system or organisation to support the decision made above*.
- Elevation of the constraint through *other major changes required to break the constraint*.
- To reiterate the above steps, if the constraint has moved. And to avoid inertia becoming a constraint.

In the military domain, identification of *war preparedness as the goal seems simple.* But, its *measure of accomplishment is extremely complex.* Therefore, war preparedness has to be further sub-divided into visible and measurable objectives.

TOC follows the assumption that *with one constraint in the system, all other parts of the system must have sufficient capacity to maintain pace* with the work at the constraint and to catch up with delays, if necessary. Buffers are used in the process to protect the constraint from variations in the rest of the system. Buffers before the constraint safeguard the constraint from starving while those placed downstream prevent blockage of the constraint's output.

The following types of plants are classified:

- **I-plant:** This has a straight sequence of events (one-to-one). Every entity has one input and one output. The slowest operation is the constraint.
- **A-plant:** The general flow is many-to-one, like the final assembly. The main problem is in synchronising.
- **V-plant:** The general flow is one-to-many, the example being one raw material or a sub-component going into many product lines. "Robbing" is the main problem, where one process comfortable with the supply has material but the one starving does not. Sometimes, post preprocessing even rerouting without significant rework may not be possible.
- **T-plant:** Many-to-many relationship. The sequential flow like an I-plant later splits into many assemblies. Most manufactured parts are used in multiple assemblies and nearly all assemblies use multiple parts.

Accordingly, T-plants suffer from both synchronisation as well as robbing problems.

The *recommended supply chain logistics is like our FSS and ARS*. Inventory is held at an aggregation point near the source. Initial buffers are established, and replenishments are made only when the inbound quantity plus the quantity on hand is less than the buffer size.

Finally, the theory of constraints does *not look at only the engineering* processes. All business processes, including *marketing, sales, design and development, acquisition, internal/external supply chains, budget and finance* assume significance for meeting the **overall goal**.

A SYSTEMS VIEW: THE FIFTH DISCIPLINE

Peter M. Senge has introduced "The Art and Practice of the Learning Organisation" in his book *The Fifth Discipline.* He calls an entity "A Learning Organisation" where people continually endeavour to learn together to accomplish results and create a new reality; an organisation where collective aspirations and desires are nurtured. In a sense, we could possibly relate it to a self-evolving organisation.

The book deals with the subject through tools and prototypes that help in identification of problem areas which he calls "learning disabilities". The simplicity of the solutions' approach then presented through handling of the underlying structures is such that the reader ends up saying *"I knew it!"* The five disciplines of "the learning organisation" explained are:

- **"Systems Thinking":** We may call it the BIG picture; systems thinking is at the core of this philosophy. The need for a systems view, an integrated approach and the distortions created by a disconnected 'my view alone' have been emphasised and reiterated.
- **"Personal Mastery:** What we simply call professional ability has been explained with subtle difference as individual ability and hunger for continually enhancing one's own knowledge and acumen, and especially the preparedness to learn under any situation.
- **"Mental Models":** Deeply embedded images of experiences have an impact on our thinking and assumptions. These mental fixes are

required to be discovered to free our minds from them to enable rational thinking. The author has called it "turning the mirror inward".

- **"Building Shared Vision":** Shared vision has been explained as something beyond a "Mission Statement" made by the top management. We may use the analogy with the Commander's intent. Building a shared vision enables the organisation's people to identify and pursue it as their own rather than one being directed by the leader.
- "**Team Learning":** Genuine analysis and examination by the team together; this way, synergising the team's intelligence and output well beyond the individual sum.

All the above mentioned routinely appear in many a leadership book and paper. But, a vital point of difference here is the emphasis on the *systems thinking as the dominant discipline*, around which all the five disciplines are put together. Systems has to integrate all the other disciplines. And, therefore, this has been called **"The Fifth Discipline"**.

Some of the hurdles in progress, called "*learning disabilities*" are exceptionally well explained by Peter Senge.

- **"I Am My Position":** People tend to see their responsibilities restricted to their domains. They do not identify themselves as a part of the bigger organisation, considering areas outside their own as beyond their sphere of control, well detached from them.
- **"The Enemy Out There":** There is always something or someone else to blame.
- **"The Illusion of Taking Charge":** Being aggressive in actions does not mean being proactive.
- **"The Fixation of Events":** Adverse effects happen rarely as a result of sudden events. These are usually a result of gradual changes in processes or environment.
- The parable of the "**Boiling Frog"** is that we get used to gradual degradation.
- The **"Delusion of Learning from Experience":** We rarely experience the consequences of our own actions in time.
- The "**Myth of the Management Team"** is that a management team or a

Solutions often shift problems from one area to another within the system. A different set of people inherit new problems, making it difficult to detect or trace back to the original problem.

task force representing an organisation's different functional areas would study and resolve cross-functional problems. We never admit that we don't know the answer.

The 11 Laws of the Fifth Discipline appear to be self-explanatory and simple common sense.

- **"Today's Problems Come from Yesterday's Solutions:"** Someone other than the one who solved an earlier problem, inherits the problem, resulting in this new problem. Solutions often shift problems from one area to another within the system. A different set of people inherit new problems, making it difficult to detect or trace back to the original problem.
- **The Harder you Push, the Harder the System Pushes Back:** The compensating feedback comes into effect, not permitting the desired benefits. An example could be a contract with the OEM for the overhaul of a significant number of engines overhaul because of lack of spares with the BRD. An undesired and unexpected outcome is that the OEM gets tempted to throttle future spares supply, hoping to get further overhaul contracts.
- **Behaviour Grows Better Before it Grows Worse:** The solution often looks for immediate results to please the boss rather than comprehensive merits. When the problem returns after a few years, the original problem solver as well as the then boss, both would have moved away.
- **The Easy Way Out Usually Leads Back in:** Familiar solutions generally lie in the comfort zone of acceptance by everyone. Even worse is the case that we tend to push harder on the same path when problems persist.
- **The Cure can be Worse than the Disease:** Casually arrived at non-systemic solutions are ineffective, also making local people incapable of solving their own problems.
- **Faster is Slower:** An attempt to go faster than optimal usually gets roadblocks, as is often experienced while short circuiting procedures in procurement. Procedural lacunae later result in inappropriate vendor

proposals and retendering. Similarly, shortening some maintenance tasks has usually been seen to result in rework.

- **Cause and Effect are not Closely Related in Time and Space:** Taking the other way for granted, most of us begin looking for the cause within the same time and space zone; or we look for results of reforms in the current zone. Impatience makes solutions which don't show a direct relationship unacceptable. An example would be tightening the noose around the technician's neck for reuse of seals (correctly assessed by him as worthy of reuse) instead of solutions for improving the Automatic Replenishment Supply (ARS) system.
- **Small Changes Can Produce Big Results:** The "Trim Tab" is the best example. However, the fact is that the *points with high leverage are usually not quite obvious*. There can't be a simple rule to teach, but a look into fundamental structures rather than events is necessary.
- **You can Have Your Cake and Eat it Too—but Not all at Once:** The systems view may bring a new realisation. *Higher quality does not have to necessarily cost more.* Well structured maintenance and training activity on *'Maintenance Days'* does not result in lost time, but, on the other hand, increases quality and productivity.
- **Dividing an Elephant in Half Does not Produce Two Small Elephants:** Issues at hand related to the organisation as a whole are to be seen regardless of the boundaries. The three branches, Operations, Maintenance and Administration, cannot be seen as three isolated organisations for optimisation.
- **There is no Blame:** There is no "you" and "me". You and I are part of a one system. *The solution always starts with me* and lies in understanding and complementing the strengths and weaknesses of each other.

ISO 9001

The ISO 9000 series is one of the most widely implemented of all QMS regimes. The family of standards has been developed to **apply to all types of organisations** regardless of function, size, and whether it is in the private, or public sector. ISO 9001:2008 is the standard against which organisations

can be certified—although **certification is not a compulsory requirement of the standard.** As per the **standard, the organisation itself may audit, invite its client to audit** or engage an **independent quality system certification body** to certify conformity to ISO 9001:2008.

ISO 9000:2005 describes the fundamentals and vocabulary of QMS and the terminology and the ISO 9004:2009 standard **explains how organisations can use a quality management approach to achieve** sustained success. And, ISO 9001:2008 specifies requirements of a QMS, which an organisation needs to demonstrate. **The gist of requirements of the standard in plain language can be expressed as follows:**

- The quality policy is a statement by the management about the business aims linking its plans with the customer. The quality policy is communicated throughout the organisation and understood by one and all.
- The organisation identifies and documents business processes, drawing up the interfaces clearly.
- *Procedures and work instructions* for different levels of work within the main process and sub-processes are defined and documented.
- Procedures for *control of documents and records are defined.*
- The organisation defines methods of identifying customer requirements, and further communicating with the customer about the product quality feedback, complaints, contracts, etc.
- *Plans* are charted for the development of a new product, its test requirements at each stage.
- The organisation defines procedures to deal with non-conformance, whether due to internal or external elements.
- The QMS is *periodically audited* for effectiveness by an external auditor. The QMS effectiveness is also regularly evaluated through *internal audits*. Consequent *corrective actions* are undertaken and recorded along with the results of such actions.
- The organisation makes a demonstrated effort in making continual improvement in its performance. The actions and results are recorded.

The essentials of ISO 9001:2008, as per various clauses of the standard, again in plain language, are described below:

- To develop the QMS, i.e. establish, document, implement, maintain and improve the organisation's process-based QMS.
- To document the QMS, i.e. develop documents and ensure that these reflect and respect the organisation's function and how it is performed, prepare QMS manual, control QMS documents, and establish QMS records.
- To show commitment to quality through support to development, implementation and continual improvement of the QMS.
- To focus on customers and enhance customer satisfaction by ensuring that customer requirements are identified and met.
- To support quality policy by ensuring that the policy serves its overall purpose, is clear about requirements to be met, has a commitment to continually improve, supports quality objectives, is communicated down the line, and is reviewed periodically.
- To support and establish quality objectives, and make sure that these are affective.
- To plan establishment, documentation, implementation, maintenance, and continual improvement of the QMS.
- To allocate QMS responsibilities and authorities.
- To provide required QMS resources.
- To provide necessary infrastructure.
- To ensure product realisation requirements by controlling customer related processes, identification of unique product requirements, communication with customers, product design and development, purchasing and purchased product, production and service provision, monitoring and measuring equipment.
- To establish monitoring and measurement processes.

A typical soldier would doubt the applicability of QMS, which refers to customer, cost and profit, as we are not a business organisation. The point is that we have a customer unlike any civil agency – it is that man or woman who picks up an aircraft to fly a mission on complete trust. A customer is also the operations planner whose plans depend on an expected material resource. The cost benefit would be obvious as the operational

availability of systems increases with reduced waste of effort as well as resources. *The most important aspect usually missed out by critics is that ISO 9001 does not restrict us from using different methods as well as looking at all areas of functioning including operations and administration with a process approach.* Many organisations would like to think of themselves as unique. A small "Mr. and Mrs." enterprise, a multinational manufacturing company with service components, a public utility, or a government administration, all so different from each other can establish their QMS as per ISO 9001:2008 requirements. The standard only lays down the requirements, and leaves open the flexibility and scope of implementation. The flexibility provided by ISO 9001 transforms it into very simple implementation with a provision for continuous improvement. The whole theme can be understood in just a few lines:

Say what you do, Do what you say
Record what you do
Check for results, Act on difference
Do better today than you did yesterday

THE COMMON PRECEPT

A few quality management models, a couple of production or business overall optimisation theories and the ISO 9001 standards have been briefly described in the preceding text so as to create a mental picture with different views. A common precept in all these that may be noticed by the reader is that *every method highlights the process approach* either directly or in a subtle way, dealing with processes without using that term. Once the processes are identified and well defined (also interactions among them), visualisation of inadequacies, cause and effect becomes simple. The *combination of all the processes is, in fact, the system*, and therefore, the systems view is all important in any treatment of contributing elements. We may understand and appreciate the virtues of different optimisation philosophies, but we need a QMS to link all the methods used within a framework where conformance requirements are understood and complied with at working levels.

There is never one perfect solution approach to a problem. Therefore, a wider view enables us not to force one method on a problem at hand. While we are free to choose the most suitable method, we need to be careful not to wander around without focus. The ISO 9000 series of standards have been so well drafted as to not bind the implementing organisation with any specific philosophy or method. A small organisation may choose to rely on pure common sense in optimising processes identified under the QMS established in conformance of ISO 9001. In comparison, a complex organisation may work around one or more of the concepts like lean or TOC for optimisation of different processes. Different methods can be wonderfully accommodated within the framework of conformance to ISO 9001. It is for this reason that I consider ISO 9001 to be the **'outer cover'** of the whole quality effort, which has a well laid out standard for definition and conformance to *policy, objectives, procedures, work instructions, work records, management reviews, statistical evaluation and continual improvements,* etc. At the core of different processes, a specific methodology can be implemented in great detail.

I do believe that the ISO certification by an external agency would *not be necessary* **for Indian Air Force (IAF) units, field stations or BRDs alike. It would be far more effective if the DG (I&S) issues his own standard through** *adaptation of ISO 9001* **to our specific needs.**

In fact, I do believe that the ISO certification by an external agency would *not be necessary* for Indian Air Force (IAF) units, field stations or BRDs alike. It would be far more effective if the DG (I&S) issues his own standard through *adaptation of ISO 9001* to our specific needs. I wish to call it the **Air Force Standard (AFSTAN)**. Inspections by the Directorate of Air Staff Inspection/Directorate of Maintenance Inspection/Command Air Staff Inspection/Command Staff Inspection (DASI/DMI/CASI/CSI) should be carried out to verify conformance to AFSTAN, the QMS, which would automatically ascertain optimisation of all material and human resources towards fulfilment of operational objectives.

To conclude, the following action points would be in order:

- Create an outer cover of a standard for the QMS, be it ISO 9001 or our own DG (I&S) approved AFSTAN.
- Identify all processes within the main process (i.e. a department's main function). *Define* these processes with *as much clarity and simplicity* as possible.
- Pay special attention to identification and definition of *interfaces* among processes.
- Optimise processes using suitable methods.
- For every process, create a *convenient display system*, which would indicate status and current bottlenecks. Appropriate design will ensure transparency for management to intervene without waiting for reports and review.
- Create records (formats) at appropriate places or events; especially at hand-shake points between two sets of workers, two processes or two departments. These records should be meaningful, easy to inspect and readily available for trace back without conducting Cs of I.
- Be conscious of the need to **reduce inspection while enhancing the quality**—meaningful record-keeping and inspection in stages will reduce net inspection requirement.
- **Involve workmen** in the above steps through to the writing of procedures, work instructions and work records—only workmen are capable of doing it.
- Create constant awareness about quality by regular talks/ discussions. **Create a 'junoon' yourself**, beginning with you.
- Hire a consultant if necessary.
- **Define orders** with great care so as **to not create a plethora, which nobody can remember**.
- **Remove fear** from the minds that someday an unknown existing instruction would be pulled out to show non-conformance. Provide for an authenticated easy reference list of all applicable orders. An example is the 1st Command Maintenance Instruction for every year to list out all applicable instructions on date.
- Exercise caution about **detached solutions** bringing short-term gains

but **enhancing problems elsewhere** in the system.

- Use simple mathematics where possible for analysis and estimation. The results are easy to understand and the effect of minor changes in variables convenient to visualise.
- *Promote systems' thinking*. Identify yourself and your function with the BIG picture. Align functioning with the purpose of your Air Force, Command, Station, Squadron, Flight, Section and your team.
- The problem may be elsewhere, but *'what have I done to solve it?'* needs introspection first. Suggest before asking for comments.
- Identify the *internal customer* and work towards his satisfaction without regard to branch, trade, rank and appointment.

My message is:

Quality consciousness has to reside within the core of our being
And not put on as an overall before beginning work
Display that character and core with pride
And instill and appreciate the same in fellow workmen

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1. Eliyahu M. Goldratt and Jeff Cox, "The Goal" A Process of Ongoing Improvement.
2. Eliyahu M. Goldratt, "The Goal II" It's Not Luck.
3. Eliyahu M. Goldratt, "Theory of Constraints".
4. Peter M. Senge, "The Fifth Discipline" The Art & Practice of The Learning Organisation.
5. "ISO 9001:2008" issued by the International Organisation for Standardisation.
6. "ISO 9000:2005" issued by the International Organisation for Standardisation.
7. "ISO 9004:2009" issued by the International Organisation for Standardisation.

INSPIRATION

1. *Col B.J. Singh* (Retd) for the *'junoon'*.
2. *Fellow engineers, technicians* and *logisticians,* especially at Maintenance Command and its depots.

SOCIAL ACCEPTANCE OF NUCLEAR POWER IN INDIA

SITAKANTA MISHRA

"Science, technology and society constitute a dynamically interactive triad" influencing each other in significant ways.[1] The body of scientific knowledge that a society assimilates determines its technological prowess, and technological innovations, in turn, generate new social contents. The three, therefore, are not passive partners but the question is regarding whether society always responds wisely to the scientific march and whether the evolution of technology is committed to the sustainability of society. Nuclear technology seems to be standing at the societal crossroads today. Many countries such as Taiwan, India, China, Sweden, the USA, etc. confront social acceptance as the key issue when they try to expand or restart their nuclear plant operations. However, in very few countries have the anti-nuclear activists succeeded – not in America, France, Britain, South Africa, Brazil, Russia, South Korea, Sweden, China or Canada. And, it is expected that they will not prevail in Japan either. Germany is a dramatic exception.[2] However, there have been cases in Australia and the US where near-complete reactors have been halted by the weight of public opinion. Will India join this list?

Scepticism over nuclear energy in India in the aftermath of the Fukushima disaster in general, and the anti-nuclear protests at Kudankulam and Jaitapur

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1. Vinod Gaur, "Why this Seminar?", in Vinod Gaur, ed., *Nuclear and Public Safety* (New Delhi: Indian National Trust for Art and Cultural Heritage, 1996), p. xi.
2. John B. Ritch, "Will The Nuclear Power Industry Regain Public Trust?", *Forbes India Magazine*, December 29, 2011.

How smoothly are the issues involving project induced displacement and rehabilitation, and the necessity of harnessing nuclear energy sorted out?

in particular, seems symptomatic of the lasting predicament of "how much risk society is willing to accept to realise the promise of emerging technologies" at a certain point.[3] Misperceptions leading to anti-nuclear sentiments in India have certainly risen over a period of time. Sensing the enormity of discontent, the Government of India and the nuclear agencies now seem to have embarked on a mission to allay the fears about nuclear power plants.[4] However, the assumption that there will be a linear progression from public education to public understanding, further to public support for, and social acceptance of, nuclear projects needs careful planning and introspection.

BASICS OF SOCIAL ACCEPTANCE

In India, a modicum of resistance by the public around some nuclear facilities could be seen since the 1980s. However, during the last few years, with the expansion of the nuclear energy programme and setting up of new nuclear facilities, the anti-nuclear sentiments of the local population and civil society groups seem to have intensified. If positively interpreted, now a context has been created by the localised opposition to nuclear power in India, which the nuclear establishment and the government must utilise to put across the correct information.

First, how early is the benefit of "nuclear to rural" (population) that constitutes 68.84 percent of India's population, achieved?[5] Also how smoothly are the issues involving project induced displacement and rehabilitation, disaster preparedness, safe decommission of nuclear

3. Rick Borchelt and Kathy Hudson, "Engaging the Scientific Community with the Public", at, http://www.scienceprogress.org/wp-content/uploads/2008/06/print_edition/engaging_scientific_community.pdf, p. 81
4. The Nuclear Power Corporation of India Limited (NPCIL) and Department of Atomic Energy (DAE) in a special scientific meet on "Occupational Health Safety" organised at the World Trade Centre recently, are trying to reach out to the people.
5. R. Chidambaram, "India's Technology Needs: Nuclear to Rural", Second Darbari Seth Memorial Lecture, 2003, Energy and Resources Institute (TERI), New Delhi, August 26, 2003.

residues, and the necessity of harnessing nuclear energy sorted out? Of course, the concerns of the public are valid and, after all, while spending public money, public accountability must be accepted. In a sense, the sensibilities of society must be kept alive to help the authorities arrive at rational judgments and judicious courses of action.[6] However, the people's right to information on matters relating to their safety, though paramount, should not be based on whims.

Considering the manner in which nuclear power is presented to the public – a complex technology that has centralised control and a potential for a high consequence even in the event of a single failure – the issue of public acceptance remains conspicuous. In fact, the problem has been acute from the very beginning of the nuclear age.[7] The fundamental question remains as to "why the public holds views of nuclear-related risks different from the people working in the field of nuclear safety"?[8] The reasons could be lack of appropriate information dissemination or misinformation overdrive on nuclear-related issues by the network of actors that govern social acceptability of nuclear power.

First, nuclear technology, compared to other technologies, elicits an extraordinary level of concern because of the characteristics of the hazards it poses. The nature of nuclear technology itself is complex with emission of invisible radiation and, to that extent, the media always presents the worst case scenario. Consequently, the public's concept of risk is heavily influenced by the imagination of consequences of catastrophic accidents, and is built on values, attitudes and sets of attributes which are different from those of the policy-makers and nuclear experts.[9] Therefore, each time a problem related to nuclear technology arises anywhere, a section of the media and some civil society groups draw parallels to India's programme. They tend to forget that the nuclear risks, to a great extent are location-, and

6. Gaur, n. 1.
7. Tamaki Ipponmatsu, "Public Acceptance: A Japanese View", http://www.iaea.org/Publications/Magazines/Bulletin/Bull142/14210091218.pdf, p. 12.
8. M.A. Meyer, "The Nuclear Community and the Public: Cognitive and Cultural Influences on Thinking About Nuclear Risk", in D.A. Copinger, ed., "General Safety Considerations", *Nuclear Safety*, vol. 37, no. 2, April-June 1996, p. 97.
9. Joop Van Der Plight, "Public Attitudes to Nuclear Energy: Salience and Anxiety", *Journal of Environmental Psychology*, no. 5, 1985, p. 90.

The Nuclear Safety Authority is not answerable to the government's ministers, but, as part of the French state, answers to the French Parliament.

technology-specific. The public panic, based on the idea that 'nuclear activity anywhere is a threat to humanity everywhere' seems to be misplaced and overemphasised, and, in the process, the specificities of nuclear projects are overlooked. Hence, any public acceptance programme must take into account the process of the formation of the people's attitude towards nuclear energy that is assumed as a function of beliefs about the possible consequences of its use.

Second, the stature of the organisation that promotes nuclear energy, the organisation that oversees and regulates the nuclear projects and, above all, the image of the incumbent government and its leaders that formulate nuclear policies matters the most in building public confidence. The integrity of the nuclear regulatory structure, while ensuring safe performance of the industry, helps in shaping confidence and a positive attitude among the public. Every country which relies on, or plans to rely heavily on, nuclear power has to put in place a firm and independent regulatory structure to ensure that the use of nuclear materials and facilities is consistent with the protection of public health, safety, environment and national security.

For example, countries like France, the USA and Canada have relied heavily on nuclear power but their regulatory laws and structures are certainly more stringent and independent. The French safety regulatory practice is considered one of the best in the world. A distinguishing feature of the French regulation is the legislative emphasis on the associated acts under transparency; public communications are institutionalised through structured clauses, rules and procedures. Under the Act on Transparency and Security in the Nuclear Field (TSN Act, 2006), the Nuclear Safety Authority is not answerable to the government's ministers, but, as part of the French state, answers to the French Parliament. The US Nuclear Regulatory Commission with the Advisory Committee on Reactor Safeguards was constituted under the 1972 US Federal Advisory Committee Act that ensures transparent, unbiased and stringent regulation. The Canadian

Nuclear Safety Commission (CNSC) established by Canada's Nuclear Safety and Control Act (2000) is an independent federal government agency that reports to the Canadian Parliament through the Minister of Natural Resources in the Cabinet. Comparatively, India does not have such legislations and autonomous agencies endowed with regulatory powers.

If societal consensus on "the benefits of nuclear energy outweigh the risks" involved, "the Faustian bargain is worth the price".

Third, the interaction between the public and nuclear power agencies as an entity and the manner in which nuclear power is presented to the public is the key. In this sense, "the problem of public acceptance is time-dependent…. for the public is changeable, just as nuclear power is subject to technical progress and 'social' improvement".[10] First, the image of the group of the people involved in the nuclear industry reflects much on the general public's perception on nuclear technology. Second, "the quantitative and abstract view of risks" that the technical experts generally take in contrast to the public[11] must be disseminated through increasing interaction with the citizens at large.

Fourth, if societal consensus on "the benefits of nuclear energy outweigh the risks" involved, "the Faustian bargain is worth the price".[12] Even though the benefits that have accrued out of the use of nuclear technology in different fields – health, food processing, infrastructure, energy – over the years have been enormous, the public still perceives nuclear power as a very risky technology. In some cases, association with nuclear facilities is even subject to stigma.[13] The "perceived lack of control, dread, catastrophic potential, fatal consequences, and the inequitable distribution of risks and benefits" of nuclear technology are pervasive in the society.[14] Certainly, nuclear energy's problem is radiation. But most people don't understand or try to understand

10. Ipponmatsu, n. 7, p. 12.
11. Meyer, n. 8, p. 100.
12. Roger E. Kasperson, et.al., "Public Opposition to Nuclear Energy: Retrospect and Prospect", *Science, Technology, & Human Values*, vol. 5, no. 31, Spring 1980, p. 11.
13. M.V. Ramana, "Nuclear Power and the Public", http://www.thebulletin.org/web-edition/features/nuclear-power-and-the-public, August 3, 2011.
14. Meyer, n. 8.

it. On the other hand, there is equally lackadaisical dissemination of nuclear information by the concerned agencies to eradicate the confusion among, and the misperceptions of, the public. This leads to ridiculous situations culminating in public resentment against nuclear projects. There is also a large section of the public with no firm views for or against nuclear energy. The attitude of this middle ground population will be critical for the future of the nuclear energy programmes.[15]

For effective application of the nuclear policy, the measurement of social Willingness to Accept (WTA) and Willingness to Pay (WTP) by evaluating the social cost of nuclear energy is essential.[16] In the process, the nuclear power industry has generated enormous arguments both in favour of, and against, nuclear energy in the context of its social acceptance. Opponents and proponents alike have fashioned interpretations of the attitudes and behaviour of the public, and many of them are reasonable at first glance. According to the *trust-based explanation*, the general masses do not actually form an independent opinion concerning high technological issues because it is beyond their comprehension; rather, they tend to decide which group of people to trust in its management. On the other hand, the *technology-based explanation* people form an opinion based on their understanding of the available evidence on whether a particular technology is acceptable. The technology-based explanation assumes that a better informed public will support industrial projects by the governments as they are ultimately planned for their benefit.

However, the *post-material explanation* asserts that changes in the social structures of modern societies with expansion of education, economic security and the service sector give rise to 'post-material values' – greater consciousness on social security, politics and environment, in other words, civil society consciousness. This, in turn, would strengthen anti-nuclear opinion slowly and gradually along with structural changes and

15. Nuclear Energy Agency, OECD, Public Attitude to Nuclear Power, NEA No. 6859, 2010
16. Eunju Jun, et al., "Measuring the Social Value of Nuclear Energy Using Contingent Valuation Methodology", *Energy Policy*, vol. 38, 2010, pp. 1470-1476.

new values.[17] So, the explanations based on 'change of values' predict gradual, relatively steady increase in anti-nuclear attitudes on the part of the public.[18] But the *issue attention theory of opinion*, viewing technological controversies as dynamic social processes with a specific life of their own, asserts that as media coverage drops, so will public attention and thereby opposition to the issue – denoting a "wave" pattern.[19] In that sense, change of public attitude towards nuclear issues takes place with the pattern of media coverage, therefore, a desired public attitude can be generated by setting the agenda of public debate through adequate and appropriate information dissemination.

The correlation among fundamental social values, beliefs, politics, prevailing environment and media can be channelised for greater public understanding on, and acceptance of, the technology.

The essence of such explanations is that the correlation among fundamental social values, beliefs, politics, prevailing environment and media can be channelised for greater public understanding on, and acceptance of, the technology. But technological controversy is a dynamic social process that cannot readily be predicted or managed due to the variety of participants, factors and environment involved where each tries to influence the other.[20] However, all agree that citizens are getting more involved in nuclear policy-making; therefore, the issue is whether the public is being led to the "right" decision.[21]

17. Stephen Cotgrove, "Catastrophe or Cornucopia", in *The Environment, Politics and the Future* (Wiley, 1982); Ronald Inglehart, "Post-Materialism in an Environment of Insecurity", *American Political Science Review*, vol. 75, 1981, pp. 880-900; Ronald Inglehart, "The Persistence of Materialist and Post-Materialist Value Orientations: Comments on Van Deth's Analysis", *European Journal of Political Research*, vol. 11, 1983, pp. 81-91.
18. James M. Jasper, "The Political Life Cycle of Technological Controversies", *Social Forces*, vol. 67, no. 2, December 1988, p. 359.
19. Anthony Downs, "Up and Down with Ecology: The Issue Attention Cycle", *The Public Interest*, vol. 28, 1972, pp. 38-50.
20. Paul C. Stern and Roger E. Kasperson, "Public Acceptance of Energy Technology", in Stern and Kasperson, eds., *Facilitating Climate Change Responses* (Washington D.C.: National Academic Press, 2010), pp. 45-60.
21. Kasperson, et.al., n. 12, p. 17.

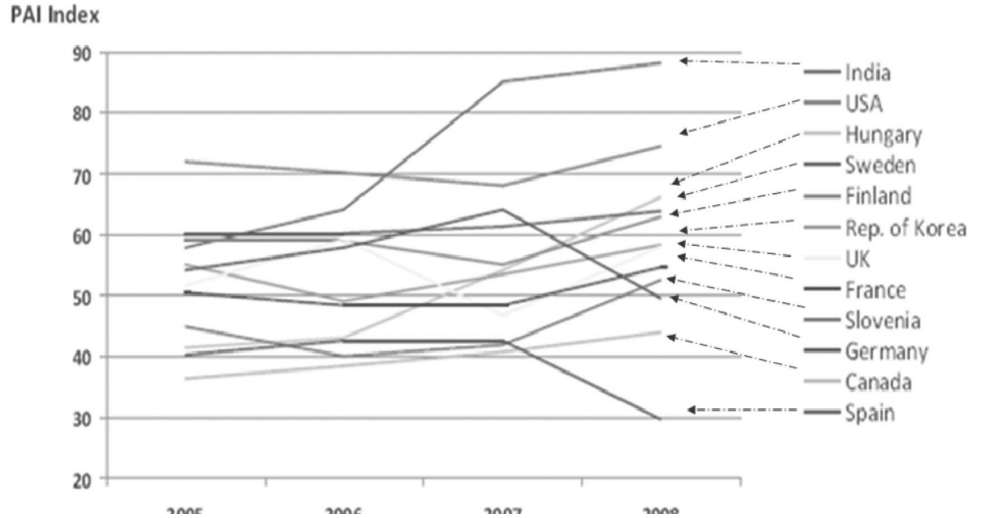
'BURDEN OF PERCEPTION' AND OPINION 'FRAMEWORKS'

So far, no serious nuclear accidents have occurred in India. However, India's ambitious nuclear energy programme seems to be experiencing the "burden of perception".[22] For the last few years, the propagated view has been that the Indian Atomic Energy Regulatory Board (AERB) suffers from "regulatory capture".[23] Even the proposed Nuclear Safety Regulatory Authority has been criticised as "a nuclear regulator without teeth".[24] The "130 safety issues in Indian nuclear facilities of which 95 are of top priority",[25] as alleged by former Chairman of AERB Dr A. Gopalakrishnan, give an impression that all is not well in the Indian nuclear industry.

However, with the global and domestic reaction owing to the March 2011 Fukushima nuclear disaster in Japan, India's several years of safe commercial nuclear power operation are being drowned out. The sections that follow, therefore, attempt to underline the reasons behind public opposition: Does the public lack understanding of the technology and its benefits, and why, in general? Is the public aware of the benefits of India's nuclear projects and what shapes their perceptions in particular? Perceptibly, public awareness on the nuclear programme in India since the last two decades has increased and nuclear related issues are vigorously flashed in the media. The debate over the pros and cons of the Indo-US civil nuclear deal has probably reached every literate Indian. The International Atomic Energy Agency's (IAEA's) "Nuclear Technology Review 2009" observed that the Public Acceptance Index (PAI) of nuclear energy in India has grown from around 60 percent in 2005 to around 90 percent during 2008 and ranks highest in the world.[26]

22. Ritch, n.2.
23. India's nuclear regulatory agency – AERB – has been alleged to have fewer powers and less independence. Though AERB proclaims itself as "independent", its functional and administrative linkages with DAE and AEC are not strictly separated. For example, the safety review report of the AERB is submitted to the AEC in which the Managing Director of NPCIL and Chairman of DAE are members (whose work the AERB is mandated to oversee) and not the Chairman of AERB. Also the AERB depends mostly on the DAE and BARC staff and their research facilities.
24. A. Gopalakrishnan, "A Nuclear Regulator Without Teeth", *The Hindu*, September 16, 2011.
25. A. Gopalakrishnan, "Issues of Nuclear Safety", *Frontline*, vol. 16, no. 6, March 13-26, 1999.
26. "Nuclear Technology Review 2009" at, http://www.iaea.org/About/Policy/GC/GC53/GC53InfDocuments/English/gc 53inf-3_en.pdf, p. 15.

Fig 1: Public Acceptance Index in Countries Using Nuclear Power



Source: http://www.iaea.org/About/Policy/GC/GC53/GC53InfDocuments/English/gc53inf-3_en.pdf, p. 15

However, the anti-nuclear protests (Jaitapur and Kudankulam) in the aftermath of the Fukushima nuclear disaster give the impression that public acceptance of nuclear energy in the country has embarked on a downward trend. While a section of the public, mainly the anti-nuclear groups and retired employees of the nuclear establishment, highlights the dangers of nuclear projects and accuses the nuclear establishment of functioning under the veil of secrecy, the government and the scientific community assert that "adequate provisions exist at Indian nuclear power plants to handle a station blackout situation".[27]

In fact, no single framework can be demarcated in explaining the public attitude in India towards the entire nuclear debate. First, the levels of political conflict and organisation around nuclear issues are the master variables that determine the public's nuclear framework. Moreover, the Indian media that promptly take up every nuclear issue, set the debate that invariably shapes public imagination on anything nuclear. Though the general masses lack comprehensive knowledge about nuclear energy technology, they are

27 NPCIL, "Safety Evaluation of Indian Nuclear Power Plants Post Fukushima Incident" (Interim Report), 2011, p. iii.

Nobody bothers to unravel why such individuals take up these positions; nobody enquires why nuclear is a "good" thing in France and a "bad" thing in India.

influenced by the political and media debate. On the basis of the political and media divide, the general public too is divided into pro-nuclear and anti-nuclear. Of course, there remains a major chunk of the public with no opinion on the subject.

Normally, as is the case with any other country, Indian public frameworks on nuclear issues are partly characterised by nuclear technology "symbols" or images flashed in all forms of the common media—newspapers, TV, cartoons, opinion columns, movies, symbols, etc.[28] Mostly, it is the symbol of a nuclear explosion (mushroom fireball), nuclear plant dome, a nuclear bomb, or the Hiroshima devastation. These have been indicative of feelings of revulsion and fear that may not be amenable to logical thinking.[29] Moreover, the nuclear radiation and effluents are normally considered by the public as "poison one cannot see, touch or smell". The other widespread ideas are that "a reactor is a barely controlled nuclear bomb" and that the population living around a nuclear plant is in danger of being afflicted by leukaemia, cancer, congenital deformities, immunity and organ damage.[30] As in any other country, the Indian public evaluates risks not by the standard scientific computation of probability times consequence, but by a series of *subjective criteria* that place high risk values on the idea that nuclear technology is complex, centrally controlled, and the consequences that would ensue as the result of even a single failure.

More importantly, protest leaders, anti-nuclear persons or critics in India are highly qualified personalities. S.P. Udaykumar, and M. Pushparayan, who led the protest at Kudankulam are highly educated people. It may be recalled that a few years ago, when scientist K. Santhanam said that the 1998 Pokhran II nuclear test had fizzled out with a yield "much lower than what was claimed", it sparked off a nation-wide debate. The irony is, nobody bothers to unravel why these individuals take up such positions;

28. Public Perception", http://sites.google.com/a/ncsu.edu/nuclear-energy/public-perception
29. Meyer, n. 8, p. 99.
30. Praful Bidwai, "People's Power vs. Nuclear Power", *The Daily Star*, October 17, 2011.

nobody enquires why nuclear is a "good" thing in France and a "bad" thing in India. In the Indo-US civil nuclear deal, which created a political rift domestically over the ideological divide, the general public seems to have received an impression that some political groups find the nuclear energy cooperation deal unhealthy. To that extent, the United Progressive Alliance (UPA) government led by the Congress Party, marred with corruption issues, has, undoubtedly, lost public trust. Probably the spill-over of this tarnished image of the government and leadership has contributed in exacerbating popular resentment – witness the unmoved protesters at Kudankulam despite Prime Minister Manmohan Singh's repeated appeals and assurances. Therefore, the first and biggest "misperception that needs to be cured is that governments cannot be trusted to tell the truth about nuclear power".[31]

Second, there seems to be persisting public distrust of centrally controlled large organisations in India. So far, India's nuclear establishment has gradually grown, has become cohesive and hierarchical while enjoying many prerogatives and non-interference. In fact, over the years, the nuclear energy production targets have never been met, not due to the incapability of the programme but because of the international embargo imposed on India. These factors could have been addressed much earlier, but, unfortunately, were not, partly because of the gulf between the nuclear community and the public. V. Venugopal, former Director, Radio Chemistry, Bhabha Atomic Research Centre (BARC), once rightly said that "the major problem with Indian scientists was that they were not meticulous in documentation and that there was a communication gap between the scientific community and the public". Therefore, he was of the view that the Kudankulam protest is "not a nuclear disaster but a public relations disaster".[32] In addition, the success of India's nuclear project, its uniqueness and the benefits accrued so far are not brought into the public domain promptly. For example, India has achieved more than 365 nuclear years of safe operation; despite global non-cooperation, India could sustain its nuclear industry; the

31. Ritch, n.2.
32. "Public Acceptance Paramount While Setting up Nuclear Plants", *The Hindu*, September 26, 2011.

Nuclear energy matters today would involve more politics than in the previous decades due to the recurring anti-nuclear protests that are bound to crop up against new projects.

nuclear sector provides employment to many, and has phenomenally improved the livelihoods of people in the plant's locality; and its nuclear plants have withstood tsunamis and earthquakes though of lesser degree.

Third, the public *idea of nuclear power* is that the industry is in the hands of governments and industrial houses that are eager to make money out of India's nuclear energy programme. At the local level, the impression is that no immediate benefit to the surrounding population would accrue out of the project, only health hazards or livelihood disturbances owing to having to shift to a new location as a result of the project. Apprehensions have been raised about how the nuclear plant would destroy the livelihoods of 7,500 fishermen in Idunthakkarai (Kudankulam) as it may harm the marine life. It is clear that nobody has drawn attention to the fact that around Kalpakkam and Tarapur, the local population is able to carry on fishing without hindrance; rather the livelihoods of the population have improved.

Four, though India today has equally visionary and competent nuclear scientists, the current leaders of the nuclear community perhaps do not have the stature of scientists like Dr. Homi Bhabha and others. In other words, the public image of the current nuclear scientists and their integrity is not as high as that of the early batch of scientists. Only Dr A.P.J. Abdul Kalam seems to have that popularity and has individually reached out to the masses; however, he is known more as a missile expert than a nuclear scientist.

Lastly, with the expansion of the nuclear sector in India, the role of the state governments would be a more determining one than that of the central government as a chain of new nuclear facilities are set to be sited in different states. Therefore, nuclear energy matters today would involve more politics than in the previous decades due to the recurring anti-nuclear protests that are bound to crop up against new projects. For example, the local election

in Tamil Nadu has reflected the Kudankulam protest just as it happened over the Kaiga issue in 1989 when Dr Shivaram Karanth contested for the Parliamentary election, but got defeated.[33] Probably, for the scheduled local election in Tamil Nadu, the political parties and leaders, including Chief Minister Jaylalithaa, did not wish annoy the protesters by questioning their safety concerns. Moreover, the social affiliation of the villagers seems to have been used to organise them. Reportedly, the protests are centred round the Lourde Mary Church and the activists could enter the village only after the Roman Catholic Father Jayakumar gave the nod. The key variable for the public of India as a whole and their support for, or opposition to, nuclear energy is definitely *safety*. "But concerns about safety correlate highly with scales of political ideology" and "attitudes towards nuclear energy in key leadership groups are related to broad social and political perspectives".[34] It is also seen that some of these groups in India have persuaded segments of the public to share their scepticism concerning nuclear safety and social insecurity due to the nuclear energy projects.

INDIA'S NUCLEAR LINEAR PROGRESSION

The increasing gap between the public and the scientific community, the callous attitude of the nuclear establishment and government in clarifying certain information and the propagandist attitude of certain vested interests and disgruntled people alongwith the media misinformation overdrive have contributed to such developments. However, this was not the case when India's early political and nuclear scientists envisioned a nuclear roadmap. The linear progression of the nuclear energy acceptance index in India can be demarcated into three phases. The trust-based optimism phase (1947 to the 1970s) marks popular trust in the stalwart nuclear scientists and the political leader Nehru during which nuclear projects were viewed as symbols of modernity and prestige. The quest for nuclear energy in India, in a way, goes back to two things: one of which was a kind of conviction that

33. Kusuma Sorab, "People's Movement Against Nuclear Projects: The Kaiga Case", in Gaur, ed., n. 1, p. 158.
34. Stanley Rothman and S. Robert Lichter, "Elite Ideology and Risk Perception in Nuclear Energy Policy", *American Political Science Review*, vol. 81, no. 2, June 1987, p. 390.

was pretty much global which was that nuclear energy was going to be a magical energy source that would solve India's socio-economic problems. So the commitment goes back to the 1940s with Homi Bhabha and Jawaharlal Nehru who wanted India to be among the leaders in industry, and science and technology. Like leaders in many newly independent countries, they felt that the prestige associated with the symbols of modernity was going to put countries on the map.[35] India, of course, had global ambitions in this regard and there was no technology that was more a symbol of modernity than nuclear energy. In 1944, Homi Bhabha said, "When nuclear energy has been successfully applied for power production, in, say, a couple of decades from now, India will not have to look abroad for its experts but will find them ready at home".[36]

As a result, a country-wide network of laboratories and scientific organisations was established to groom batches of technocrats and basic researchers. Programmes were initiated for uranium mining and processing, fuel making, heavy water production, reactor building, fuel processing and waste management. Therefore, the 1950s and 1960s are considered as the infrastructure-building phase followed by a reorientation in the late 1960s and 1970s toward protecting the legal, technical and knowledge environment for indigenisation.[37] There was a political consensus among all factions for utilising atomic energy for the socio-economic uplift of Indian society. Both nuclear research and nuclear scientists gained greater autonomy. It was only in the late 1970s, that BARC and the Department of Atomic Energy (DAE) faced critical reviews about their activities and achievements.

This led to the subsequent phase, spanning around two decades, the doubt-based pessimism phase (1980s to 2000), which was marked by public protests (Kaiga protest in October 1988), criticism for not meeting the target energy production, and nuclear accidents and incidents both outside and

35. "India Should Choose Iran, Not US", *The Rediff Interview*, December 28, 2005, http://www.ieer.org/latest/indiairan.html
36. S.K. Jain, "Nuclear Power in India — The Fourth Revolution", *An International Journal of Nuclear Power*, vol. 18, no. 2-3, 2004, http://www.npcil.nic.in/pdf/nu-power-cmd.pdf, p. 13.
37. Ashok Jain and V.P. Kharbanda, "Strengthening Science and Technology Capacities for Indigenization of Technology: The Indian Experience", *International Journal of Service Technology and Management*, vol. 4, no. 3, 2003, pp. 234-53.

within India. Immediately after construction was started at Kaiga, the local population and environmental groups severely opposed the project. On October 2, 1988, around 4,000 people took out a rally and a massive protest took place all over the Uttara Kannada district. The public opposition to the project was mainly against the site selection process, highlighting the environmental impact and disaster proneness of the site. The protest continued for several months, including a district-wide *bandh* on February 2, 1989.[38] There were differences in terms of political parties' mobilisation of the public on the nuclear plant at Kaiga. While the Congress Party and Janata Dal approved the project, the CPI/CPM (Communist Party of India/Communist Party-Marxist) took an inconsistent stand on it; only the Bharatiya Janata Party (BJP) passed a resolution against it. A public debate was demanded and Prime Minister Rajiv Gandhi agreed in Parliament that a debate was necessary but it did not materialise till November 1988.

During this period, nuclear accidents like Three Mile Island, 1979, (US), Chernobyl, 1986 (USSR), the Narora fire, 1993, Kakrapar flooding, 1994, Kaiga containment dome collapse, 1994, had generated enormous criticism and concern about the safety of nuclear plants. At the time of the Three Mile Island accident, Tarapur Atomic Power Station (TAPS)-1&2 and Rawatbhata Atomic Power Station (RAPS)-1 were in operation and another five 220 MWe Pressurised Heavy Water Reactor (PHWR) units were under various stages of construction. Prime Minister Morarji Desai ordered a safety audit of all Indian nuclear reactors. After the Chernobyl accident (1986) Prime Minister Rajiv Gandhi promptly asked the DAE to assess the safety of India's nuclear installations. It is alleged by A. Gopalakrishnan that after reviewing the reports, he was "appalled at the clearly dangerous lack of safety in the various hazardous nuclear installations at that time due to unattended safety problems accumulated over the previous 15 or so years, while the DAE continued to operate these installations at extremely high risk to the public".[39] But the AERB document

38. P. Vishnu Kamath and Sanjay Havanur, "Kaiga as a Site for an Atomic Power Plant: A Re-examination", in Gaur, ed., n. 1, p. 31.
39. A Gopalakrishnan, "Nuclear Power: The Missing Safety Audits", http://www.dnaindia.com/mumbai/report_nuclear-power-the-missing-safety-audits_1536223, April 26, 2011

says the nuclear establishment learnt lessons from all these accidents and discovered many weak areas by the review process. Also, the whole range of remedial measures to the loopholes identified was carried out and since the process was time consuming, the Operating Plants Safety Division, the Unit Safety Committees and SARCOP were assigned to periodically take stock of the progress and status of implementation.[40]

In the midst of all these safety issues, two important developments took place during this phase. First, despite the global denial nuclear regime, the former USSR came forward to set up the Kudankulam reactor. An Inter-Governmental Agreement on the project was signed on November 20, 1988, by Prime Minister Rajiv Gandhi and Soviet President Mikhail Gorbachev, for the construction of two reactors. The project remained in limbo due to the break-up of the Soviet Union and the objections by the United States, on the grounds that the agreement did not meet the 1992 terms of the Nuclear Suppliers Group (NSG). However, the construction of the plant eventually began in 1997. Second, though unrelated to the nuclear energy programme, India conducted a second series of nuclear tests at Pokhran in May 1998 and the public mood was marked by jubilation across the country, though the political and strategic debate revolved around who would get the credit and what strategic advantage would accrue to India *vis-a-vis* Pakistan. Overall, though fallacies in belief, and loopholes in the nuclear establishment coloured the nuclear energy debate, perceptibly "this phase marked the maturity of the Indian nuclear power programme" as potential safety gaps were exposed and addressed.[41] Subsequently, the total installed nuclear capacity reached 2,720 MWe and is currently at 2,770, after EMCCR at MAPS-2.

The third phase, starting from 2001 onwards, can be termed as the post-material-support-oppose phase where "post-material" factors, to a greater extent, went to shape public acceptance of nuclear energy projects. The post-material issues related to "quality of life" such as climate change, environment pollution, energy security, displacement, rehabilitation

40. A.R. Sundararajan, K.S. Parthasarthy and S. Sinha, "Atomic Energy Regulatory Board: 25 Years of Safety Regulation", AERB, November 2008, p. 90.
41. Jain, n. 36, p. 13

and the issue of safety-security of nuclear installations that are linked to support for, or opposition to, the nuclear policy. During the last one decade, a number of Public Interest Litigation (PIL) cases and Right to Information (RTI) applications on these issues were lodged by Indian citizens. The civil society consciousness in India has visibly increased. It indicates that rising industrial and societal prosperity in India will gradually liberate the public from the stress of basic acquisitive or materialistic needs and people will look for quality of life and sustenance. This can be marked from the patterns of public responses to a series of issues like maintaining order in the nation, more say by the people in important political decisions, rising prices, corruption, black money, protecting freedom of speech, etc. Within this framework, one can judge public support for, or opposition to, nuclear projects in India. While the new projects are facing opposition, the public living around the existing facilities is reaping the benefits. While the academia and media are divided, the majority of the Indian public is observing and calculating the pros and cons, but does not seem to have formed any concrete opinion. So there is scope for the nuclear establishment and the government to engage the public by providing the correct information and clarifying their concerns.

Rising industrial and societal prosperity in India will gradually liberate the public from the stress of basic acquisitive or materialistic needs and people will look for quality of life and sustenance.

This phase will continue till the time the majority of the public starts supporting the nuclear energy projects: when the spectacular amount of cheap electricity from the nuclear source becomes available to them without any major nuclear accident, public support is likely to ensue, or, the government may succumb to the anti-nuclear pressure and find nuclear energy unviable, which is unlikely.

RESOLVING UNCERTAINTIES IN LEAD TIME

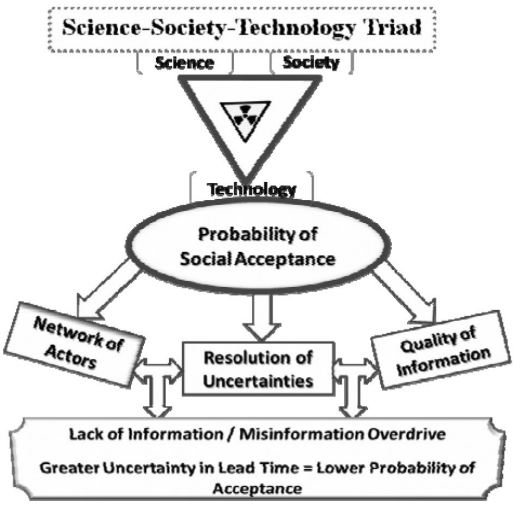
Despite the anti-nuclear activism, the Indian public does not view nuclear power as a problem as such. Certainly, it is a risky technology and one

problem is due to the type of reactors used to produce it. For example, if the reactors at the Fukushima nuclear plant had been Liquid Fluoride Thorium Reactors (LFTRs), the Tokyo Electric Power Co. would not have had such a disaster on its hands. The second problem is the rehabilitation management of the project induced displacement or plant affected persons. A major example is the concerns of the fishermen around the Kudankulam facility. It is clear that the local community has no information on how TAPS has transformed the lives of the local people in Thane district (Maharashtra). Nearly 60 to 70 percent claimants of the rehabilitation package there were fishermen. The people here have generated life-time assets, and received life-time services like a school, post office, hospital, community centre, shops, electricity, and housing enclaves (Popharan and Akarpatti villages located in the tribal areas).[42]

This does not mean that people have no right to ask questions and raise their concerns. Prompt clarification by the concerned authorities or the government is necessary as delay in engaging with the public and sharing of information leads to the "intuitive attribution process," resulting in formation of negative attitudes. Nuclear technology today is associated more with negative values (such as incomprehensibility, involuntariness, dread, etc.); therefore, lack of communication about risks or delay in clarification tends to generate further negativity.[43] In fact, the amount of information dissemination and the lead time of response to public concerns determine considerably the probability of adoption of the projects.[44]

42. Ratan Mani Lal, "At 42, Tarapur Remains an Icon of N-Power Stability", www.news24x7.com, November 14, 2011.
43. Ortwin Renn, "Nuclear Energy and the Public: Risk Perception, Attributes and Behaviour", http://elib.uni-stuttgart.de/opus/volltexte/2011/5927/pdf/ren109.pdf, p. 256.
44. Paul Sommers, "The Adoption of Nuclear Power Generation", *The Bell Journal of Economics*, vol. 11, no. 1, 1980, p. 283.

Fig 2



There remain many uncertainties and misperceptions relating to the nuclear energy programme whose clarification within a reasonable timeframe will determine the degree of public support for nuclear energy in India. First, the siting of new nuclear facilities is the foremost step that invites public attention and becomes a matter of controversy. The people's reaction to the setting up of a heavy industry at a particular site is always negative as they have a one-sided, imaginary consideration of displacement and miseries only. The positive effects of development, employment and the benefits of the rehabilitation programme are not generated in the first instance. For example, the anti-nuclear protest at Jaitapur during April-June 2011 led to a high-handed response by the state government, that resulted in the killing of one protester, and then to political factions getting involved in shadow boxing. From the safety and security point of view, it is alleged that the proposed site is vulnerable to seismic hazards. A study by Roger Bilham and Vinod Gaur in the *Current Science* journal reveals that the Jaitapur region lies in the "compressional downwarp" plate – the same as the Latur and Koyna regions that have experienced earthquakes.[45] On the

45. Roger Bilham and Vinod Gaur, "Historical and Future Seismicity Near Jaitapur, India", *Current Science*, vol. 101, no. 10, November 25, 2011, p. 1279.

"There is no doubt", "that India needs a multi-technology approach to become self-reliant and efficient in energy".

other hand, the Indian Meteorology Department says the proposed Jaitapur nuclear plant site lies in Seismic Zone III but close to Sesmic Zone IV.[46]

The second important question that arises is: why is the government promoting only nuclear energy when other potential renewable energy sources can be harnessed? It is true that large nuclear plants have huge construction costs, and "nuclear power has never succeeded anywhere without enormous government backing".[47] In India, where the government is keen to go down the nuclear road, and not much is highlighted on other renewable resources, whatever the government says on the imperatives of nuclear energy and safety matters is doubted by the people who are reluctant to believe the information provided. The urgent need, therefore, is to address the emerging notion among the public that the "government is wrong" by clarifying that nuclear energy is one of the viable energy options in India's energy security basket. The advocacy that "renewables have only a marginal role to play in India's energy mix", and that nuclear energy is the "inevitable and indispensable option" to address both sustainability as well as climate change issues, should be avoided. "There is no doubt", says Ashok Parthasarathy, "that India needs a multi-technology approach to become self-reliant and efficient in energy".[48] The appointment of Dr Anil Kakodkar as the Chairman of the newly set up Solar Energy Corporation of India (SECI)[49] is a positive move that suggests that the government is seriously considering promotion of alternative sources of energy.

Third, there is a perception floating around that the possible radiation emanating from the nuclear plants causes cancer both among the workers in the nuclear plant and the population in the surrounding area. This is bound

46. "Seismic Zone of Jaitapur Nuclear Power Project Site in Maharashtra", http://npcil.nic.in/main/Siesmic_Zone_of_JNPP.pdf
47. Charles D. Ferguson, "Think Again: Nuclear Power", *Foreign Policy*, November 2011, http://www.foreignpolicy.com/articles/2011/10/11/think_again_nuclear_power
48. Ashok Parthasarathy, "Go Back To the Labs", *Hindustan Times*, December 21, 2011.
49. Dinesh C. Sharma, "PM Manmohan Singh Appoints Nuclear Scientist Anil Kakodkar as National Solar Mission Head", http://indiatoday.intoday.in/story/pm-appoints-nuclear-scientist-anil-kakodkar-as-solar-mission-head/1/167425.html, January 6, 2012.

to happen when the cancer incidence profile of the nuclear workers and the local population is not available in the public domain to reveal whether there is any link between radiation exposure and cancer incidence. A recent study—late but better than never—conducted by the Nuclear Power Corporation of India Limited (NPCIL) over the last 15 years has concluded that employees working in nuclear power plants are less prone to diseases, including cancer, than the general public. The NPCIL brought out a 54-page analysis of the health profile of its employees from its 20 operating plants for the period 1995-2010. The report said the average incidence rate of cancer and average death rate in males, females and combined population (both sexes) was less than the respective national rates in each category. Of the total 80 cancer cases, 41 were from among radiation workers. The average incidence rate was reported at 55.73 per cent against the national incidence rate of 92.9 per cent measured for the average total population of 8,634 (males) during this period.[50] The fact that there is no additional risk of employees developing cancer by virtue of their working in radiation areas could have been brought to the notice of the public much earlier. It is observed that prevalence of hypertension and diabetes in the NPCIL operating sites' employees is less than that found in other studies done for the general public.

The report on the Retrospective Analysis of Health Profile of Employees of the NPCIL (Operating Sites) reveals that "the prevalence of coronary heart disease and COPD is far less than found in various studies done for the general public. The prevalence of anaemia is negligible. The average incidence rate and death rate of cancers, in NPCIL is less than the respective national rates."[51] This suggests that the health of the employees working in NPCIL operating sites is much better compared to those in other studies conducted for the general public across the country.

The initiative by the Tata Memorial Centre to start a cancer registration

50. "Scientific Meet on Occupational Health Safety", http://www.npcil.nic.in/pdf/Press_Note_with_photos.pdf
51. NPCIL, "Retrospective Analysis of Health Profile of Employees of Nuclear Power Corporation of India Ltd. Operating Sites [1995 – 2010]", http://www.npcil.nic.in/pdf/all_sites_health_datas_of_15_years_AME.pdf

A detailed account on the compulsions, imperatives, specificities and achievements of India's nuclear programmes, addressing all apprehensions, needs to be highlighted.

project that will undertake door-to-door surveys outside the exclusion zone of nuclear power plants to check if there is any unusual increase in the number of cancer cases, though a belated step, is undoubtedly a significant one to clear the misperception that the authorities are lackadaisical when it comes to public health. As the effort is the first of its kind in India to establish an independent database, the first three registers will come up in Kaiga, Kakrapar and Rawatbhatta.[52] Also the nuclear establishment is about to take another significant step in which 120 of its environment safety laboratories will release the background radiation level of major cities and localities – similar to roadside weather boards – to convey to the public that radiation is always present in nature and there is nothing unusual or frightening about it.[53] The public's idea of the 'radiation' mystery needs to be streamlined.

Fourth, the specificities of India's nuclear energy programme in contrast to other countries' nuclear programmes need to be highlighted. Otherwise, whenever a nuclear disaster takes place anywhere in the world, the public tends to draw parallels with India's nuclear reactors. For example, when the Fukushima accident took place, everyone questioned how safe Indian reactors are. A detailed account on the compulsions, imperatives, specificities and achievements of India's nuclear programmes, addressing all apprehensions, needs to be highlighted. Nuclear accidents and dangers should not be generalised and it must be known that India has achieved more than 360 reactors years of safe operation without any major nuclear accident. The attitude towards nuclear energy in India would change and diffusion of nuclear energy would take place if the uncertainties relating to its cost-effectiveness, relative capital costs and reliability are clarified early.

52. Kalyan Ray, "Tata Centre to Set up Cancer Registries in all Nuclear Plants", *Deccan Herald*, January 10, 2012.
53. Ibid.

LESSONS LEARNT TO ENGAGE THE PUBLIC

As rightly acknowledged by S.A. Bhardwaj, Director NPCIL (Technical), "We did not realise that we keep talking about nuclear power plants and other technical things but never tried to allay fears among people about the impacts of radiation".[54] Convincing the public that nuclear power is a viable solution to meet the growing power demands of the country, and that advanced mechanisms are in place for safe operation of reactors is the key to engage the public directly. Public resentment, leading to agitation, at both Jaitapur and Kudankulam has taught the nuclear establishment and the government that a policy of ignoring or treating lightly the public's questions and criticism will not work. The Indian nuclear establishment cannot convince the public by merely pointing to its long safe nuclear operation record in justification of its present and future plans. It is important to understand that "nuclear energy must not be looked upon as an end in itself, but must serve social justice and quality of life".[55] In India, nuclear matters have been "projected as being very secretive". Evidence shows that if the political decision to include nuclear in the energy mix is taken in an open and democratic way, people tend to become more favourable to nuclear power. Moreover, "nuclear energy is not the people's main occupation. It is a 'back-of-the-mind' issue which implies that people's attitude can change".[56]

In that context, issues like how quickly the nuclear energy projects will bring benefits to the public at large and, importantly, how much compensation is offered to the people who have to shift out of the area or live in the surroundings, need to be addressed. Undoubtedly, technologies may play an important long-term role in achieving trouble-free and economical nuclear power but in the short-term, the policies and practices

54. "Nuclear Power Corp to Reach out to People, Allay Fears", http://www.smetimes.in/smetimes/news/indian-economy-news/2012/Jan/10/nuclear-power-corp-reach-out-people-allay-fears70344.html, January 10, 2012.
55. Paul Abrecht, et al., Working Committee on Church and Society, World Council of Churches, "Public Acceptance of Nuclear Power – Some Ethical Issues", *IAEA Bulletin*, vol. 19, no. 6, p. 56.
56. FORATOM for Nuclear Energy in Europe, "What People Really Think about Nuclear Energy", http://www.foratom.org/publications/item/what-people-really-think-about-nuclear-energy.html, p. 3

It is essential to recognise the importance of regular public interaction, public communication and public awareness meetings to timely educate and clear all the reservations/ misinformation, if any, in the minds of the people.

of the organisation using the technologies are likely to affect the degree of acceptance. In her letter to Prime Minister Manmohan Singh in the wake of the Kudankulam protest, Tamil Nadu Chief Minister J. Jayalalithaa observed that "the scope and magnitude of this issue is creating a fear *psychosis among the people* and villages surrounding Kudankulam. It is surprising to note that till date no responsible Minister or concerned higher authorities from the Government of India have visited the people or even attempted to assuage their misgivings."[57] How effectively and early the "fear psychosis among the people" is addressed is the key to progress of the project as *fear* and *misperception* are contagious.

Of course, transforming the public perception and convincing everyone to be positive towards nuclear energy is a herculean task. Careful attention to public concerns and a series of measures thereof would help in convincing the public to introspect. It is essential to recognise the importance of regular public interaction, public communication and public awareness meetings to timely educate and clear all the reservations/misinformation, if any, in the minds of the people.[58] With the realisation of the magnitude of public opposition, the Indian nuclear establishment is now looking to scale up its outreach programmes significantly to enhance public acceptance of nuclear power. In a massive way, the DAE is planning to multiply manifold the development work in the vicinity of all nuclear power plants as well as proposed project sites. This includes providing education, healthcare and other social services, deployment of nuclear agriculture

57. "Entire Letter Written by Jayalalithaa to PM", http://www.ndtv.com/article/india/entire-letter-written-by-jayalalithaa-to-pm-134736, September 20, 2011.
58. P.P. Chandrachoodan, "Kudankulam Nuclear Power Station, An Important Developmental Hub for Tamil Nadu – A Green House Gas and Fly-Ash Pollution Free Electricity Provider for The Industrial and Other Over All Development", http://www.npcil.nic.in/pdf/Kudankulam_Nuclear_Power_Station_An_Important_Developmental_Hub_For_Tamil_Nadu.pdf, p. 1

tools, food preservation measures and waste-to-wealth programmes in the neighbourhood of project sites.[59] Reportedly, the total outlay for the nuclear sector could be higher in the Twelfth Plan period (April 2012 to March 2017) than the Rs 46,000 crore earmarked for the current plan period ending March 2012.[60]

In its effort to engage the public, the NPCIL has undertaken many public awareness activities at the proposed Jaitapur nuclear plant site. From 2005 till April 2011, it has engaged around four lakh people—local people, representatives, groups, students, teachers, mediapersons—through meetings, visits to other nuclear plant localities, exhibitions, etc.[61] The NPCIL Bhavnagar office organised a public awareness programme at village Kukad which is about six kilometres from the proposed Mithi Virdi site in Gujarat. Around 150 people were invited from 14 surrounding villages for interaction in the local language on various issues where they claimed that "anti-nuclear people have poisoned their minds, asking them to protest".[62] A series of public awareness programmes through a slogan competition, painting competition, medical and blood donation camps, media orientation programmes, conferences and seminars at school, college and university levels have been undertaken more aggressively.[63]

However, there are certain aspects of the functioning of the nuclear establishment and government policies that need a relook. Most urgent is the transparency in functioning. First, keeping civilian nuclear energy under the official Secrets Act is unnecessary. A recent study by the Washington-based Nuclear Threat Initiative and the London based Economist Intelligence Unit reveals that "low level of transparency of countries like India most directly affects the scores in the global norms category. … If India were as

59. "Nuke Players to Step up Outreach Programme to Win People Back", *Business Line*, November 9, 2011.
60. Ibid.
61. NPCIL, "Details of Public Awareness Activities , Implemented by NPCIL for Proposed NPPs at Jaitapur Site (as on April 2011)", http://www.npcil.nic.in/main/Details_of_Public_meeting.pdf
62. P.M. Shah, NPCIL, "Report on Public Awareness Program at Village Kukad for Representatives of Villages Surrounding Mithi Virdi Site", http://www.npcil.nic.in/pdf/news_19dec2011_01.pdf, p. 2.
63. Information on detail programmes undertaken by NPCIL can be found at http://www.npcil.nic.in/main/PublicAwareness.aspx

transparent as the United Kingdom, its rank in the global norms category would move from 26th to sixth overall".[64] Second, the courses of action on issues relating to the internal and organisational incidents that are reported in the media need further clarification. For example, the reported "act of mischief" and deliberate contamination of the drinking water cooler with tritium at the Kaiga atomic power station in November 2009[65] – the incident seems to have gone unpunished. Another such allegation is the death of 197 Indian nuclear scientists from 1995 to 2011. The Shiv Sena member Dr Deepak Sawant, on July 29, 2011, demanded in the Maharashtra Legislative Council a probe into the spate of suicides among scientists at the Bhabha Atomic Research Centre (BARC). He claimed that 197 scientists working at BARC centres in the country had ended their lives in the last 15 years. Of these, 57 suicides were from BARC in Mumbai.[66] Though these alleged media reports may not have any substance, a negative public perception on nuclear energy as a whole gets shaped on the basis of such allegations, which the nuclear establishment must keep an eye on.

ASSESSMENT: CHALLENGING OPPORTUNITY FOR INDIA

The Indian nuclear establishment is now facing a dual challenge in respect of maintaining its international image as a "responsible nation" while committing to nuclear business deals, and in its effort to garner greater public acceptance of nuclear projects at home. Amidst the global anti-nuclear lobby which has spilled over to India as well, the nuclear establishment now seems to have embarked on a policy of transparency and a trust initiative to reach out to people by providing them with the factual position on India's capabilities, and the safety and economical performance of its plants. Undoubtedly, the ongoing projects would move slowly owing to protest snags but this has brought both challenges and opportunities to step up efforts to feed the awakened public the correct information. In a way, "Fukushima has had a mostly positive effect on the nuclear industry" as it has made the most advanced safety systems an

64. "India's Nuclear Among Less Secure in World: Report", *Hindustan Times*, January 12, 2012.
65. "No Breakthrough yet in Kaiga Case", *The Times of India*, December 17, 2009.
66. "Shiv Sena Wants Probe into BARC Suicides", *The Times of India*, July 30, 2011.

essential requirement and virtually eliminated the supply of older generation reactors.[67] This has also encouraged a look into tougher safety rules and legal frameworks for nuclear safety globally.

Measures to raise public confidence in institutions are also needed and this can be done only by ensuring good governance in the country.

In the days ahead, though challenging, India would find opportunities in matters of the cost of uranium and global cooperation. The price of uranium has fallen to $52 a pound after the Fukushima crisis in 2011, and in the near future, it will not escalate.[68] Japan which was initially reluctant to cooperate with India, has come forward and offered all cooperation. Recently, Australia has also changed its stand. On the domestic front, as the people are increasingly questioning the nuclear energy option and related issues, probably this is the right moment to provide them with authentic information instead of spurious arguments.

The media must be taken on board in the nuclear information management drive. The benefits accrued over the years from the nuclear energy programme need vigorous propagation. For example, few know that the cost of solar energy at present is about Rs 20/kWh and the cost of wind energy is Rs 10/kWh which is suitable only for about 20 to 25 percent of the time (when the wind blows). On the other hand, nuclear power stations sell energy at Rs 1/kWh at Tarapur, and Rs 3/kWh at Kaiga. Power from Kudankulam will cost below Rs 3/kWh.[69]

Measures to raise public confidence in institutions are also needed and this can be done only by ensuring good governance in the country. While citizens have the right to raise their concerns and their genuine concerns need to be addressed by the authorities adequately, the public needs to rise to the occasion, understanding the fact that the world does not have

67. Alexander Yakovenko, "Fukushima has Made the Nuclear Industry Safer", http://rbth.ru/articles/2011/11/29/fukushima_has_made_the_nuclear_industry_safer_13841.html, November 29, 2011.
68. The price of uranium dipped 16 per cent in 2009 after decreasing 41 per cent in 2008 and peaking at $136 in 2007.
69. M.R. Srinivasan, "Why Kudankulam Plant is Safe, and Good for us", *DNA* (Mumbai), October 7, 2011.

any easy energy choices. On the other hand, the government must go the extra mile to convert the anti-nuclear challenge into an opportunity to wipe out the public stigma, keeping in mind that technological controversies comprise a dynamic social process and a cultural feature of today's world is that risk perception is quite decoupled from real risk. But to claim that nuclear energy has abysmally no future owing to sporadic nuclear accidents is a colossal failure of the collective imagination to understand how much real risk is involved and what benefits can be accrued.

NUCLEAR ASPIRATION AS A HEDGING STRATEGY: THE CASE OF IRAN

YEON JUNG JI

In international politics, how a state determines to take strategic action is a consequence of how it sees itself in relation to others. In order to opt for one strategic choice over others, it considers a number of options, which may be weighed in symmetric significance, to leverage other states. The leveraging behaviour among states, often called a hedging strategy, comes from strategic calculations to maximise flexibility and reduce loss by choosing the best option for the next move. This is so in the strategic field as well as the nuclear area. In general, many researchers have attempted to study hedging behaviour, for example, among nuclear weapon states, where there is symmetric rivalry in terms of physical deterrence. However, any strategic sketching of future plans, including unclear strategic moves or increasing uncertainty, can also be used as a strategic action between adversaries. In the case of Iran's nuclear activity, it is important to understand that the theme of nuclear aspiration is being used as a hedging option not only between Iran and its adversaries/competitors but also among the competing states that are dealing with Iran.

Presently, Iran, often mentioned as a fence-sitter, occupies the centre of gravity on nuclear proliferation and is one of the disputed areas of

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If the theme of nuclear aspiration itself can be used as a bargaining chip, it would be one of the strategic assets that can be applied in a strategic hedge to leverage nuclear bargaining with Iran.

debate. While it is important to predict the future proliferation links and nuclear non-proliferation regime only if Iran becomes a new example of a nuclear success, till now it has been somewhat premature to conclude what plans the Iran government has for its nuclear activity. This is largely because the conclusion of the International Atomic Energy Association (IAEA) report continues to be muddled.[1] The IAEA report does not fully agree with the series of National Intelligence Estimate (NIE) reports released by the US, which are completely in disagreement with the claims by the Iranian government. Interestingly, on the one hand, it is significant to speculate on whether Iran's real intention is for nuclear weaponisation or not; however, it is also necessary to see how all the states involved deal with this theme, with some using it as a bargaining chip to deal with Iran, while others seek to maximise their national interest in a larger strategic framework.

Notably, if the theme of nuclear aspiration itself can be used as a bargaining chip, it would be one of the strategic assets that can be applied in a strategic hedge to leverage nuclear bargaining with Iran. And, from Iran's point of view, it also can be used for domestic politics for leverage among different political groups by reiterating the national value in the foreseeable future and keeping the options open. Along with the assumption that Iran's nuclear activity is used for hedging among the states, it leaves a number of follow-up questions: What is the importance of the Iranian nuclear issue in Iran's entire Foreign Policy (FP hereafter)? How do others perceive the significance of Iran's nuclear issue in their FP? If there is no absolute gain in FP among states, what exchangeable factors would be required to cap, delay, or buy time to deal with, the Iranian nuclear programme? How does Iran narrate other options to deal with others in the exchange of positions

1. International Atomic Energy Agency (IAEA), *Implementation of the NPT Safeguards Agreement and relevant provisions of Security Council Resolutions in the Islamic Republic of Iran*, Board of Governors, GOV/2012/9, February 24, 2012, IAEA.

concerning the issue of nuclear development with other states? How do others hedge each other to accommodate each country's national interest in regard to the Iranian nuclear issue? Do Iran and the others use the theme in a flexible way? And, if there is convergence of interest to deal with the Iranian nuclear issue, what is the formation of a strategic circle?

Subsequently, those questions lead us to contemplate on why many states are facing multifaceted political views and diversified policy options that are aimed not merely at own security guarantees, but also to prevent the probable worst case scenario, which thwarts further hedging to Iran when it clashes with understanding and justifying the nuclear threat and proliferation among sanctioning and sanctioned states.

HEDGING AND RISK MANAGING: APPLICATION TO IRAN

Though there is lack of systematic understanding of the hedging strategies in international relations, it is overall pertinent to comprehend that hedging is "a set of strategies aimed at avoiding a situation in which a state cannot decide upon more straightforward alternatives such as balancing, bandwagoning, or neutrality".[2] An important part of the hedging strategy is that it lays out that a 'hedger' does not simply pursue straightforward strategies such as balancing, bandwagoning, or perceptible containment, but is about accommodating the national interest in a more flexible way.[3] A hedging strategy, adopted by a small or medium sized state, assuming that Iran is a regional power, not a major power in the world, can possibly maximise strategic options through diplomacy. For example, it is based on leverage underpinning a limited partnership, cooperation to create mutual strategic value and outcomes, and also to reduce loss through unrelated systemic errors. It anticipates certain possibilities that provide opportunities like dealing with a wide array of strategic convergence by easing present constraints and expanding potential strategic scenarios from a leveraged position. This approach, a so-called insurance policy in general, encourages preserving one's position against uncertainty, and hiding one's intentions from target states.

2. Øystein Tunsjø, *US Taiwan Policy: Constructing the Triangle* (Oxon: Routledge, 2008), p. 110.
3. Evelyn Goh, "Understanding "Hedging" in Asia-Pacific Security", *PacNet* 43, August 31, 2006.

The advantage of a hedging strategy is that it provides both short-term and long-term benefits.

The advantage of a hedging strategy is that it provides both short-term and long-term benefits. A state can avoid outright loss through stiff confrontation in the present and, at the same time, it can aim to increase its hedging ability to enable survival after the worst scenario of conflict, like a war.[4] According to scholars analysing the world within a systemic framework, a state must seek and picture different long-term threats and opportunities as a core strategy to capture a shifted concentration of power, whether a dominant power rises or falls.[5] Therefore, it drives mutual hedging that eventually invokes a dynamic strategic engagement between rivals.[6]

Many states put in efforts in applying hedging behaviour in the nuclear field and the state of nuclear weapons. Nuclear weapons are still symbolic in terms of their potency as a deterrent and in preempting military options, and engagement and containment in diplomatic options.[7] The advantage of nuclear weapons is prolonged in that possessing them does not require additional elaboration to convince adversaries aiming at destructive power. Since the nuclear bomb was introduced, security strategies have moved forward in a realist style to balance and to prevent/reduce external threats—a hedging strategy is, in fact, applied in nuclear weapon states in many cases.[8] It is widely known that most nuclear weapon states adopt hedging strategies, and if deterrence does not play a crucial role, they may go for alternatives or other precautionary tactics, according to the situation, such as preemptive strikes that guarantee premeditated victory.

However, a hedging strategy is not only confined to nuclear weapon states but is used also by nuclear aspiring states. This means that a strategic

4. Brock F. Tessman (2007), "System Structure and State Strategy: Adding Hedging to the Menu". http://tessman.myweb.uga.edu/research/System%20Structure%20and%20State%20Strategy
5. Ibid.
6. Evan S. Medeiros, "Strategic Hedging and the Future of Asia-Pacific Stability", *The Washington Quarterly* 29(1), 2005, p. 145.
7. Elli Louka, *Nuclear Weapons, Justice and Law* (Massachusetts: Edward Elgar Publishig, Inc., 2011), pp.34-38.
8. Goh, n.3.

portfolio of weapons programmes and options is present not only as a physical defence system, but also by an elastic diplomatic network that handles the various tools that are accepted by a number of counterparts during the nuclear discourse. Broadly, the tools of this policy can contain an integrated use of diplomacy, the defence portfolio in collaboration with the military, intelligence, economic assets, law enforcement, and national decision-making. Therefore, though nuclear weapon states obtain accessible military options on the basis of a leveraged nuclear strategy, the consideration of hedging is applicable to aspiring nuclear countries like Iran.

As a result, viewing the international systems in complex asymmetric dyads, especially in regards to nuclear imbalances, a state like Iran that faces a disparate strategic environment may reject the concept by which power-holders are good at balancing the system. Rather, Iran may perceive that power-holders do harm for emerging or regional powers, that is apparent when the present confrontation between Iran and the West is analysed. Interestingly, many argue that one of the ways to overcome the primary immediate external threat is by the emergence of another state or states in an alliance, which can build multipolarity.[9] However, this is not applicable in Iran's case. Therefore, Iran's hedging approach is located on a narrower margin, reflected by maximising national assets such as geo-political position, economic standing, and socio-cultural bonding apart from with other Gulf Cooperation Council (GCC) countries. As states obtain different assets for their hedging strategy, Iran also has distinctiveness in its plans and how it utilises its strategic assets such as oil to differentiate itself from other successful or unsuccessful nuclear aspirants.

It is intriguing that Iran (and Pakistan as well) is an inimitable case that experiences diplomatic turnover on nuclear cooperation that is vibrantly determined by a domestic decision-making process to adopt changing international politics. Since current concerns over nuclear proliferation are rooted in sophisticated nuclear assistance or cooperation which results in

9. Traditional balance of power theory introduces that states have a tendency to formulate counter-productive coalitions that may be able to prevent asymmetric power preponderances. Tessman, n.4.

Though a nuclear weapon is not the only tool of a hedging strategy, it is significantly interpreted as a component of national prestige.

horizontal proliferation, it is pertinent to point out the characteristics and determinants of sensitive nuclear assistance[10] that determine potential nuclear suppliers by an examination of the cross-national perspective.[11] Though this does not put aside the importance of a single case-study to chronicle how domestic factors influence the state to go for nuclear power, it probably needs to be emphasised that a cordial relationship between two or more states can instigate potential nuclear proliferation through nuclear technology assistance.

If nuclear assistance or proliferation is envisaged between friendly states or those aiming at establishing an inner circle,[12] and if newly assisted states or latecomers also know that they can acquire the balance of power by the acquisition of nuclear weapons to change the strategic rectangles of friends or foes, a nuclear aspiring state is likely to opt for the hedging strategy. Though a nuclear weapon is not the only tool of a hedging strategy, it is significantly interpreted as a component of national prestige. It is a consequence of the proliferation issue that has to be analysed, that is, how a new nuclear state, or potential new supplier, can dissuade superpowers and regional rivals from focussing on its vulnerabilities and strengths to make itself into a nuclear hub and prevent its dependency on uncertain nuclear decisions taken by adversaries.

Subsequently, in the case of Iran, as it decides whether to pursue a nuclear weapon programme or not, and to what extent it will take time to make a decision is a matter of changing the "patterns of diplomatic missions and settlements" in the enduring dispute between Iran, the West and the other regional rivals.[13] Most likely, it may shift the perception of the use of nuclear weapons in cases of dyadic intensive conflicts to deter adversaries.

10. Erik Gartzke and Matthew Kroenig, "A Strategic Approach to Nuclear Proliferation", *Journal of Conflict Resolution* 53(2), 2009, pp.151-160.
11. Ibid.
12. Kyle Beardsley and Victor Asal, "Nuclear Weapons as Shields", *Conflict Management and Peace Science* 26(3), 2009, pp.235-255.
13. Gartzke and Kroenig, n.10, pp.151-160.

It can alter its nuclear influence on the symmetric dispute behaviour to protect other strategic assets by hedging.

EVOLUTION OF IRAN'S HEDGING BEHAVIOUR AND NUCLEAR ASPIRATION

At first glance, one may ponder on how Iran prioritises its nuclear programme while adopting a tough, inflexible nuclear diplomacy at all costs, if it pursues hedging strategies using a nuclear standoff. Voluminous scholarly works have debated and elaborated on Iran's nuclear aspirations using theoretical frameworks. Iran's nuclear aspirations have been discussed in broad ways like focussing on the nature of Iran that makes it seem inevitable that it should move towards nuclear power as asserted by the realists; analysing domestic socio-political decision-making as explained by constructivism reflecting constitutive elucidation; or historical narratives that do not consist of classified international chain reactions.[14] There is a debate among many on how Iran's national identity or nuclear preference is to be interpreted and whether internal or external variables should be weighed. In what follows, using the discursive approach within constructivism, Iran's nuclear hedging is interpreted and the possible options, within the frame of constitutive explanations, are considered in the domestic discourse.[15] Applying this to Iran's nuclear diplomacy in international relations, it may be more objective to explain what Iran wants to do as a consequence of how it sees itself in relation to others.[16]

In general, while Iran's national pride is well preserved and marked historically in the domestic sphere, its position in international politics has been constantly challenged by the engagement by other parties. Particularly, the shift of the strategic framework dominated by external powers prevents Iran from being more flexible in the region. This has been perceived as ambition by its adversaries, yet refuted as a subject of sovereign right by

14. Homeira Moshirzadeh, "Discursive Foundations of Iran's Nuclear Policy", *Security Dialogue* 38(4), 2007, pp.521-543.
15. Ibid.
16. Vendulka Kubalkova, "Foreign Policy, International Politics, and Constructivism", in Kubalkova Vendulka, ed., *Foreign Policy in a Constructed World* (New York: M.E. Sharpe, 2001), pp.15-37.

the Iranian leaders. As a matter of fact, a series of events from the 19th century, or perhaps the 16th century, as some argue, provided a stream of history in which Iran has consistently been surrounded by competitive, rival great and superpowers in the Middle East, Anglo-Russian rivalry in the 19th century, German and Ottoman-Britain and Russia rivalry during World War I, US-Soviet Union rivalry during the Cold War, and currently, the continued power rivalry and regional competition, including, Arab-Israel and Shi'a-Sunni rivalry.[17]

The security perception, emphasised by other unfriendly states has been compounded by the standards of decision-making among Iranian elites and supreme leaders; Iraq continues to be a threat from the time of the Iran-Iraq War in the 1980s; Pakistan established nuclear capability by asserting an asymmetric relationship with India; Israel is an undeclared nuclear state; and the US is a nuclear hegemonic power.[18] During the Cold War, Iran also seemed to have a fear of proxy wars between itself and Afghanistan and Iraq, rather than a direct attack from the Soviet Union.[19] And the Israel factor has been a constant in Iran's security concerns. Overall, along with superpower rivalry in this region, Iranian decision-makers have kept their eyes on, and engaged in, regional wars and skirmishes that, by and large, have compounded Iranian nuclear discourses.

It shows that, despite the Shah's cooperation with the US, Iran's nuclear posturing has been aimed at its independent share in international politics, if possible by itself, or finding the alternatives on the basis of limited cooperation. At its peak, the Iranian supreme leader's desire for Persian pride was expressed, and often quoted as the "neither the East nor the West" policy at the apogee of the Iranian Revolution in 1979.[20] The Iran-

17. Bulent Aras and Fatih Ozbay, "The Limits of the Russian-Iranian Strategic Alliance: Its History and Geopolitics, and the Nuclear Issue", *The Korean Journal of Defense Analysis* 20(1), 2008, pp.46-48. And Manuchehr Sanadjian, "Nuclear Fetishism, the Fear of the 'Islamic' Bomb and National Identity in Iran", *Social Identities* 14(1), 2008, p.89.
18. William Van Kemenade, *Iran's Relations with China and the West: Cooperation and Confrontation in Asia*, Netherlands Institute of International Relations, 2009, p.59.
19. Nader Entessar, "Iran's Nuclear Decision-Making Calculus", *Middle East Policy* 16(2), 2009, pp.27- 28.
20. Sanam Vakil, "Iran: Balancing East Against West", *The Washington Quarterly* 29(4), 2006, p.52.

Iraq War in the 1980s deeply influenced the Iranian perception of security, not only at great cost and damage to Iran, but also by understanding that no allies stood by Iran; for example, consider the Soviet's pro-Iraqi position during the war.[21] Recently, the US occupation of Afghanistan since 2001 and invasion of Iraq in 2003 alarmed Iranian leaders enough to consider the nuclear programme and suspend Iran's foreign relations with those competing with the US. Therefore, the major power's pioneering cooperation with Iran has been described differently according to the situation, often negatively, for example, Russia's initial engagement toward Iran was seen as "accidental engagement"[22] or "nuclear gamble"[23] and China's relations with Iran were seen as "cooperative opposition against the US".[24] Clearly, Iranian leaders have limited Iran's cooperation with Russia and China, and, to some extent, with India, for its coverage of the nuclear issue;[25] even with the US and Germany in the past, relations were established neither on long-term amity nor any type of alliance.

At the same time, along with Iran's nuclear intention on the nuclear weapons programme that had been debated by Western experts, it is worthwhile to consider that Iran has had concerns about an alternative source of energy, fulfilling a long-term energy need and protecting its oil assets. Most Western scholars and governments refute Iran's claim about an alternative pattern of energy reliance in the future. However, it cannot be entirely ignored that the Iranian government is inevitably considering a national industrial system that plans on expanding Iran's hedging option. According to Nader Entessar (2009), even Mohammad Reza Shah's pro-West government's completed key research on Iran's future energy project in the early 1970s kept open the option of nuclear power, as advised by Mr. Mahvi, a founder of the Iran Nuclear Energy Company (INECO) and the Iran Management Technical Consultations Company (IMTC), who advised that Iran's possession of a nuclear weapon

21. Aras and Ozbay, n.17, p. 47.
22. Vladimir A. Orlov and Alexander Vinnikov, "The Great Guessing Game: Russia and the Iranian Nuclear Issue", *The Washington Quarterly* 28(2), 2005, p. 50.
23. Victor Mizin, "The Russia-Iran Nuclear Connection and US Policy Options", *Middle East Review of International Affairs* 8(1), 2004, p. 74.
24. Van Kemenade, n.18.
25. Vakil, n.20, pp. 51-52.

From the Iranian side, it is fairly clear that Iranian elites believe that Iran is surrounded by nuclear powers, that is, the US, Israel, and Pakistan.

would reduce its dependency on arms deals from other countries.[26]

Hence, one can argue that the nature of the Iranian nuclear aspiration and the dispute with the West is considered a *fait accompli*, and there is no elaborate interrelation between Iranian political groups such as hardliners or reformist Islamists, as it is determined by a systemic structure.[27] According to them, the broad picture of the Iran-Washington confrontation has always been drawn in pursuit of security objectives that the Islamic regime believes should not be determined by the West, presently the US and Israel.[28] The stiff confrontation is not only shown by mutual verbal aggression between Iran and the US—"Axis of Evil"[29] versus "Great Satan"—but also in dealing with the non-proliferation regime in arguing about the additional protocols for signatories. Iran's claim of a peaceful nuclear energy programme is consistently refuted by the US, since Israel discovered the secret sites at Natanz and Arak in 2002 as evidence of Iran's impermissible nuclear progress. Globally, though Iran has been accused of being a potential nuclear-armed state by a series of National Intelligence Estimate (NIE) reports in 2003 and 2007, this was not repeated in the 2010 report[30].

From the Iranian side, it is fairly clear that Iranian elites believe that Iran is surrounded by nuclear powers, that is, the US, Israel, and Pakistan. The presence of Israel in the Middle East is a singular challenge to Iran's national security as its conventional and nuclear capabilities are all ahead of those of Iran's military. Apart from the US military assistance, Israel's

26. Nader Entessar, "Iran's Nuclear Decision-Making Calculus", *Middle East Policy* 16(2), 2009, pp. 27- 28.
27. Amin Saikal, "The Iran Nuclear Dispute", *Australian Journal of International Affairs* 60(2), 2006, pp.193-199.
28. Ibid.
29. George W. Bush, "President Delivers State of the Union Address", The White House, January 29, 2002.
30. According to the National Intelligence Report of 2010, the US government failed to conclude that Iran has an equivocal intention go for nuclear. "US Faces a Tricky Task in Assessment of Date on Iran", *The New York Times*, Global Edition, March 17, 2012.

achievement of the triad nuclear capability, warplanes like the F-16s, F-4s, F-15s for carrying nuclear warheads, Jericho I and Jericho II, Shavit nuclear designed missiles and Dolphin-class submarines distresses Iran which desires regional dominance that is planned for its survival among global powers.[31] Compared to Israel, which is assumed to possess the maximum of 400 nuclear warheads, Iran is seen as not capable of deterring, or even countering a possible attack from such an adversary.[32]

However, a set of threat perceptions for architecting a hedging strategy is induced in order to evolve a rational security goal from the different discourses among which that of the political group is dominant. In other words, composing the hedging options, for instance, to what extent Iran would compromise, depends on how the domestic situation changes. While some argue that Iran experiences a lack of communication on the nuclear policy between the decision-makers and the public,[33] Iran evidently undergoes a political debate and vibrant criticism from opponents, unlike other nuclear states that have been named the enemy of the US.[34] Iranian factions consist of different participants, including traditional conservatives, pragmatic conservatives, principlists, reformists, and the Iranian Revolutionary Guards who invoke policy resilience through political checks and balances according to the situation.

Domestic debate among these groups helps Iran's political elite visualise the classic Iranian ideals with regards to its nuclear aspiration. For example, the traditional conservatives, led by Ayatollah Ruhollah Khomeini, stand by Iran's uncompromising need for nuclear capability that is based on the ideology of *moqavamat* (resistence) and *khod-kafai* (self-sufficiency), fundamentally against the West. [35] The pragmatic conservatives represented by Rafsanjani believe in religious values and economic reforms

31. Amin Saikal, "The Iran Nuclear Dispute", *Australian Journal of International Affairs* 60(2), 2006, pp.193-199.
32. "Israel-Iran Military Comparison", http://www.juancole.com/2012/02/israel-iran-military-comparison.html
33. Sanadjian, n.17, pp. 77-100.
34. Shahram Chubin and Robert S. Litwak, "Debating Iran's Nuclear Aspiration", *The Washington Quarterly 26*(4), 2003, pp. 102-103.
35. James Dobbins, et. al., *Coping with a Nuclearizing Iran* (Pittsburg: RAND Corporation,2011), pp. 12-16.

that prevent strategic inflexibility in dealing with the global powers. They also seek a stable stance for regional dominance. At times when Iran gave vocal expression against the sanctions implemented by the US, and its support for resistance groups like Hezbollah, the view of this group, which suggests a practical approach in Iran's international relations, was often underestimated. The power concentration in the domestic politics tends to constrain this approach by other supreme clerics.

The other opinion is suggested by the conservatives who have risen to prominence after Ahmadinejad's election in 2005. They prefer not to compromise in Iran's bargaining with externals, as they are of the view that Iran is an ascendant power which creates an inevitable conflict with the US over hegemony in this region.[36] They also believe that Iran would break through its political vulnerabilities and security issues by the strict enforcement of given principles. On the other hand, the reformists' alarming fundamental reforms, established in a radical Islamic group that has lost its power on economic and foreign policies, seem not to play any meaningful role in the nuclear discourse because of the current President, Mohammad Ahmadinejad, and his conservative support, which he has had since 2005.

Presently, the Iranian Revolutionary Guards, organised after the Iranian revolution, is one of the most influential groups that played a crucial role during the election in 2009 with its subordinate military force, the Basij.[37] Its position in the Iranian economy has grown stronger because of its expansion in various national infrastructure fields, including the energy sector by the Revolutionary Guards' construction company, Khatam al Anbia, and its officers' participation.[38] This military position in Iran's political and economic arenas seems to neutralise other political groups such as the reformists and the pragmatic conservatives. The concerns over the military's role in Iranian foreign and defence policies enlarge the transforming regional security order. According to the views from the US

36. Ibid.
37. Anthony H. Cordesman and Martin Kleiber, *Iran's Military Forces and War-Fighting Capabilities* (Washington: Centre for Strategic and International Studies, 2007).
38. James Dobbins, et. al., *Coping With a Nuclearizing Iran* (Pittsburg: RAND Corporation, 2011), pp. 12-16.

and European countries, uncertainties on Iran's leverage on its nuclear posture would increase along with an increase in the Revolutionary Guards' influence. First, if the Iranian Revolutionary Guards take over control of the ballistic missile forces, and the nuclear command and control, a possibly nuclear-armed state will be under the guidance of the Guards and that will be hazardous to the West and Israel. Second, as the Revolutionary Guards is shaped by an ideological foundation to protect Iran, it is likely to narrow the possibility of rapprochement with its adversaries, and last, the Guards, in a stable political and economic position, may continue to support the conservative and fundamentalist approach, emphasising regime survival against external threats.[39] However, it is premature to conclude that Iran will pursue only the radical and irrational proposition in the international community.

Overall, like other states, though perhaps differently perceived to some extent, as Iran is seen as a theocratic country[40] or authoritarian regime in the West,[41] the voices from the various groups provide the marginalised strategic options that they can pursue. These discourses show how important Iran's nuclear issue is in shaping Iran's foreign relations, how its nuclear aspiration has been identified and justified by its leaders, and how the significance of a nuclear programme has been enjoyed by the majority of a decision-making group. Hence, given the history and its geo-political environment, Iran's nuclear aspiration cannot be asserted as entirely an irrational strategic move.[42] However, as there are many different perceptions and strategic analyses of Iran, it creates a proactive hedging behaviour rather than a reactionary posture among the global powers and Iran's neighbouring countries as well. It generates mutual hedging on Iran and others that creates a broad circle of hedging.

39. Ibid., pp. 9-29.
40. Siamak Khatami, *Iran, A View from Within: Political Analyses* (London: Janus Publishing Company, Ltd, 2004).
41. Dmitry Shlapentokh, "Gulf States'/Saudi Arabia's and Russia's Approach to Iran: Similarities and Differences", *Defense and Security Analysis* 26(3), 2010, p. 305.
42. Zbigniew Brzezinsky and R.M. Gates, *Iran: Time for a New Approach* (New York: Council on Foreign Relations, 2004).

Iran's nuclear hedging does not only invoke the global powers' mutual hedging on nuclear proliferation, but also induces a complicated hedging spectrum in the region as more states are involved.

HEDGING BEGETS HEDGING: IRAN AND OTHERS

As seen by Iran's long-standing desire for independence in regional and international relations, there is leveraged limited cooperation in Iran's nuclear diplomacy. Though Iran has faced hardships, it seems to have been successful in exploring its interests among the superpowers.[43] From an optimistic view, the West analyses that Iran has been somewhat successful in exploiting nuclear non-proliferation regimes and sustaining economic sanctions, echoing its sovereignty and regime survival, with the assistance of Russia and China.[44] On the other hand, the Gulf states and Saudi Arabia perceive Iran as managing to prevent the US and Israel from operating militarily, as well as blocking terrorist intervention in the event of a direct head-to-head confrontation with the US and Israel.[45] Interestingly, Iran's nuclear hedging does not only invoke the global powers' mutual hedging on nuclear proliferation, but also induces a complicated hedging spectrum in the region as more states are involved. Since no state wants to have a net loss due to the war, they would rather have a long assured benefit that would prevent consequential and indefinite returns.

Markedly, in the discussion of Iran's nuclear activity, Iran's contribution to the world economy is closely referred to and it draws out follow-up policies among others. Iran's economic influence as one of the largest oil exporters in the world constitutes a major component of its influence, even as the economy has not been a foremost issue when discussing Iran's nuclear programme.[46] In 2012, the interrelation between Iran's nuclear programme and oil supply will apparently increase in accordance with

43. Aras and Ozbay, "The Limits of the Russian-Iranian Strategic Alliance: Its History and Geopolitics, and the Nuclear Issue", *The Korean Journal of Defense Analysis* 20(1), 2008, p.55.
44. Ibid.
45. Shlapentokh, n.41, p. 305.
46. Suzannne Maloney, *Iran's Long Reach* (Washington: United States Institute of Peace, 2008), p. 60.

Iran's decision to halt oil exports to Britain and France in reaction to the oil embargos.[47]

By and large, dealing with Iran's nuclear programme in the regional domain, with the US-Israel and Russia-China in particular, provides different views and hedging approaches with each other and in Iran that are based on a dissimilar set of assumptions. The assumption or the standard of perception established is impacting on strategies dealing with Iran and other varied issues. For instance, while most states see Iran as a theocracy, an authoritarian regime, or even a semi-totalitarian regime in the post-Khomeini era,[48] there is varied acceptance among others. Applying one of the views that democratic states do not conflict with each other, as Western scholars understand, in dealing with a nuclear aspiring Iran, the US and Israel inevitably tend towards the option of creating a new regime in any discussion of Iran's nuclear programme. In response, Iran's option of going forward to become a nuclear power is certainly related to regime survival and preventing intervention from established pro-Western regimes that impose strict sanctions. Iran's nuclear hedging is certainly aimed at finding strategic partners who do not intervene in its domestic politics.

However, the alliances do not pursue the same policy toward Iran. The US and its alliance provide less likely policy resilience owing to a different policy toward other states dealing with the Iran issue. Though the US and Israel are allies in their joint effort on Iran's nuclear issue, they have slightly different strategic approaches in order to accomplish their strategic hedging. Whereas Israel constantly harps on preemptive strikes on Iran's nuclear facilities, the US has less of an appetite to consent to anything that may have irreversible consequences and escalate tensions and the arms race in the Middle East.[49] Unlike Israel, the US has several concerns regarding current allies in the Middle East. First, the Gulf countries' dependence on US protection needs to last long enough to prevent sketching of the

47. "Iran Halt Oil Shipments to Britain, France", *The Washington Post*, February 19, 2012.
48. Majid Mohammadi, *Judicial Reform and Reorganization in 20th Century Iran* (New York: Routledge, 2008), p. 163.
49. "The Perceptions Game in Israel, Iran and the US", *Stratfor*, March 2, 2012, http://www.stratfor.com/geopolitical-diary/perceptions-game-israel-iran-and-us

While China adopted the international non-proliferation norm, it has kept expanding nuclear cooperation as Iran was under IAEA surveillance.

diversification of the security order by other global powers.[50] Second, the US' influence and national interest in this region should not be washed out by Iran's nuclear slogan, Muslim bombs against Israel[51], and last, if there is an arms race among states in this region, it is inevitable that they will compete with other global arms exporters like Russia and China.[52] In addition, Washington's hedging toward China presents other significance in the global strategic framework. Interestingly, countering China's approach toward Iran, the US government has attempted direct and indirect hedging to balance China-Iran relations. On the one hand, the US applies strict sanctions to Iran, arguing about the perilous situation in nuclear proliferation, and on the other, it tries to enter into nuclear cooperation with China in a nuclear market, anticipating that Beijing would reduce its oil dependency on Iran, fulfilling China's domestic requirements, and meeting Washington's strategic needs to decrease China's influence on Tehran, thus, providing benefit for the US nuclear industry.[53]

Conversely, in the case of China, it is less likely to adopt the "sinister theories of the US".[54] China inked a secret agreement, the China-Iran Nuclear Cooperation Agreement (NCA) in 1985, and emerged as a leading nuclear partner of Iran, with its own strategic calculus from 1985 to 1997. While China adopted the international non-proliferation norm, it has kept expanding nuclear cooperation as Iran was under IAEA surveillance. According to William Van Kemenade (2009), Beijing basically rejected the opinion from the West that only pro-Western countries were able to

50. James Dobbins, et. al., *Coping with a Nuclearizing Iran* (Pittsburg: RAND Corporation, 2011), pp. 30-31.
51. "Rafsanjani says Muslims Should Use Nuclear Weapon Against Israel", *Iran Press Service*, December 14, 2001. http://www.iran-press-service.com/articles_2001/dec_2001/rafsanjani_nuke_threats_141201.htm
52. Ibid.
53. Flynt Leverett and Jeffrey Bader, "Managing China-US Energy Competition in the Middle East", *The Washington Quarterly* 29(1), 2005, pp.187-201.
54. John W. Garver, "China's Iran Policies, Testimony Before the US-China Economic and Security Reiew Commission on "China's Current the Emerging Foreign Policy Priorities" (website).

obtain nuclear capability.[55] Specifically after the Cold War, China's policy on cooperation on peaceful nuclear energy with Iran, although it was linked with the A.Q. Khan network, was more of a strategic move to dissolve the US hegemony, which had been strengthened by 9/11.

In fact, China's current strategy in dealing with Iran and the entire Middle East elucidates a unique case in its history.[56] China's attraction to Iran is predominantly focussed on its oil supply that gives Iran the advantage of an open high oil sector to foreigners, unlike its competitor, Saudi Arabia. In the long-term, Beijing seems to seek China's growing reliance on Iran on the basis of a number of upcoming assumed scenarios. During peace-time, China can hold a positive position in Iran as a soft power mediating in the conflict between the US and Iran, and remaining part of the nuclear non-proliferation regime. In case of a military clash between the US and China, China can to foil the US hegemony on Iran by halting its agreement in imposing new sanctions, aiming not to insulate regime change issues in Iran's domestic politics. China also perceives that it needs to fulfil its energy requirements until other alternatives are found, based on the hedging strategy in international relations. [57]

From Iran's point of view, China's "going out" [58] policy would not hamper Iran's national interest in dealing with the West and it can provide a number of options for Iran. In calculating Iran's limited cooperation with China, Iran's protection of its Islamic ideology and regime emphasised by current President Mahmoud Ahmadinejad and the Iranian conservative group would not be swayed by choosing a non-Western country like China, and Iran is seen to anticipate that Iran-China relations can balance Russia as well. As long as China doubts the intentions of the West, it would be inclined to set up a cooperative defence relationship with Iran.

55. Van Kemenade, n.18, pp. 68-70.
56. Leverett and Bader, n.53, p. 188.
57. John W. Garver, "China's Iran Policies, Testimony before the U.S-China Economic and Security Review Commission on "China's Current the Emerging Foreign Policy Priorities", 2011, http://www.uscc.gov/hearings/2011hearings/written_testimonies/11_04_13_wrt/11_04_13_garver_testimony.pdf
58. Leverett and Bader, n.53, pp.187-201.

Russia is in a more complicated situation as its role in Iran is that of an arms dealer and offering nuclear cooperation, as symbolised by the Bushehr construction in conformity with the nuclear Non-Proliferation Treaty (NPT).

Russia is in a more complicated situation as its role in Iran is that of an arms dealer and offering nuclear cooperation, as symbolised by the Bushehr construction in conformity with the nuclear Non-Proliferation Treaty (NPT). For Moscow, the Middle East is a significant buffer zone that needs to be carefully dealt with in Central Asian relations.[59] However, Tehran observes that Russia is no exception in using Iran for its benefit. This was proved by the mutual ideological friction and the Soviet Union's pro-Iraqi policy during the Iran-Iraq War and the balance among regional rivals, Iran, Turkey and Iraq, and global rivalry. Another factor that proves the use of Iran for Russian's benefit is its continued position in favour of Resolutions 1696, 1737, and 1747 passed by the UN Security Council, along with China, that no longer guarantees Iran's stance. Perceptively, the Russian elites understand that the fundamental security frame or balance of power in this region would not be changed by Iran's nuclear possession, even if Iran goes nuclear, and that, to some extent, is also accepted by Iran's neighbouring states.[60] In particular, Iran has become a relatively stable partner of Russia after the rapprochement to fulfill its requirements to maintain the 'near abroad' under its influence and not against Russia's national interest.[61] According to some observations, nevertheless, the nature of this relationship is quite controversial in terms of the contradictory disposition of Russian foreign policy overall. Dealing with Iran's nuclear issue, despite the fact that Moscow worries over Iran's nuclear programme and transparency, is rooted in a profit-oriented approach.

Thus, Russia's hedging strategy seems to contain several stipulations such as the strategic cooperation with Iran must be 'not too far, not too close'

59. Kori N. Schake and Judith S. Yapho, "The Strategic Implication of a Nuclear-Armed Iran", *INSS McNair Papers*, 64, Institute for National Strategic Studies, 2011.
60. Shlapentokh, n.41, p.312.
61. Aras and Ozbay, n.17, p.50.

and is conditioned to prevent the US, European Union (EU) and Chinese influence in this region. At the same time, the limited cooperation with Iran needs to be confined within the Middle East to protect national interest, not to extend to multilateralism, given the case in point that Russia hesitated to give full membership of the Shanghai Cooperation Organisation (SCO) to Iran. From the Russian point of view, it would be better to give the minimum options to Iran and its nuclear aspirations as Russia is almost the only country to assist Iran's nuclear activity and it can leverage that in its relations with Tehran.[62]

The Middle East, Saudi Arabia and the Gulf countries, though they are pessimistic about resolving Iran's hegemonic desire in this region, are hardly willing to pursue the US strategic assessment on Iran, owing to concerns over regional instability. They regard it as better to accommodate Iran by a diplomatic solution, not by sanctions or a preemptive military attack.[63] Ironically, in the strategic calculus between the US and the Gulf countries there is incomplete unison in a preference for the hedging and threat perception of Iran. In general, although Iran's propaganda on Shia communities and the connection with terrorism are hazardous issues for them, the Gulf countries have a common understanding that Iran is a country that the Middle Eastern states do/must/need to coexist with, while the US is the centre of gravity. While a nuclear-armed Iran is the ultimate threat in the future, they also understand that it is somehow far from the risk of a direct nuclear attack from Iran's nuclear programme. However, the issue of Israel cannot be taken off the table for resolving the Israel-Palestine dispute and the ideological threat which induces intensified fear and is more urgent.[64] Therefore, the Gulf countries basically agree on Iran's denuclearisation, yet a military attack will cause Iran's direct and indirect military retaliation via terrorism, shutdown of the Hormuz Strait, and will inspire the supporters of Iran's response to the US;[65] their vision of a Middle East Nuclear Weapon Free Zone or eventual elimination of

62. Ibid., pp. 55-57.
63. Shlapentokh, n.41, pp. 308-311.
64. Dobbins, et. al., n.35, pp. 30-33.
65. Ibid.

Saudi Arabia plays a big role in cultivating its hedging against Iran and building a long-standing and close relationship with the US.

Weapons of Mass Destruction (WMDs) is based on the common understanding that it must include Israel.

Like great powers, these countries' threat perception is about the defining priorities of strategic planning. Evidently, the Gulf countries are keener to observe Iran's policy about Shias toward the neighbouring countries such as Iraq, rather than Iran's nuclear programme even after the US intelligence revealed and emphasised Iran's secret nuclear facilities in 2002.[66] From the view of the West, although the unstable picture of nuclear proliferation is emphasised in the global arena, Iran's nuclear development is somehow linked to the Arab countries' sympathy by inspiring the Islamic pride and sovereignty, described as pan-Arab or pan-Islamic aspiration. [67] However, it is more pertinent to understand that the pan-Arab desire is compounded by the Arab-Israel conflict that gives little incentive to Iran's nuclear policy.

Among these, Saudi Arabia plays a big role in cultivating its hedging against Iran and building a long-standing and close relationship with the US Noticeably, Saudi Arabia's dealing with a nuclear Iran draws the hedging strategy toward the US, by not fully agreeing with Washington's conservative approaches against Iran and yet by assenting to China's increasing stakes in providing advanced weapons and military technology to preserve its dominant position and expand counter-value against a nuclear aspiring Iran.[68] In the meantime, other views are that Saudi Arabia might not want the US-Iran rapprochement as it would decrease Saudi Arabia's strategic substance, hedging a confrontational position toward Iran.[69] Improvement of its strategic ties with China is seen in the bilateral agreement on the nuclear cooperation pact signed in January 2012.[70] Possibly, as Saudi Arabia

66. El-Hokayem and Matteo Legrenzi, "The Arab Gulf States in the Shadow of the Iranian Nuclear Challenge", Working Paper, May 26, 2006, Henry L. Stimson Centre.
67. Ibid.
68. Leverett and Bader, n.53, pp.187-201.
69. Dobbins, et. al., n.35, p.35.
70. "Saudi Arabia, China Sign Nuclear Cooperation Pact", *The Wall Street Journal*, January 16, 2012.

is the biggest economy in the Middle East, and has made a nuclear deal with China as part of its future energy plan, Iran's justification on peaceful atomic energy cannot lose its position completely.

Other regional powers, such as Brazil and Turkey, are also known for participation in Iran's nuclear issue. Both states surprised the world by signing a joint declaration in May 2010 to agree on an exchange of nuclear fuel—low-enriched uranium to Turkey and enriched fuel to Iran.[71] These parties' purpose on the Iranian nuclear issue implies that the regional powers, though they are seen to accommodate or bandwagon to major powers, in fact, suggest horizontal views in accordance with the regional powers, known as solution-oriented engagement.[72] Turkey's long-standing involvement in Iran since 1639, through the Treaty of Kasr-i-Shirin, turned into a new phase of strategic understanding after the 2003 US invasion in Iraq.[73] For the last ten years, Turkey's traditional threat perception on Iran has changed tremendously by dealing with the US and Israel and its evolving ideological sentiments evoked from the negotiations with the EU countries over EU membership. Hence, even though there is a deep policy concern over Iran's nuclear aspiration, it ironically is welcomed on several grounds of the new hedging. It stands as a power struggle against global hegemony in the light of Iran's obligation to the NPT; Iran's nuclear issue is used, via a nuclear fuel swap deal, to equalise nuclear power between the US and Israel[74] and to observe the cost-risk calculation of the nuclear aspiration of Iran, whether to prevent a sudden attack from the West in the foreseeable future and any intentional attack from the US and Israel, if Turkey breaks up with the alliance. For Tehran, reorienting Iran-Turkey relations provides an opportunity to share strategic interests with other states by accommodating with Armenia and Azerbaijan, especially to compete with the US. Though many argue that there is little affinity in Iran's relations with those states likely to bring benefit for Iran's nuclear

71. Iran, Turkey, Brazil Agree on Nuclear Deal", *Tehran Times*, May 18, 2010.
72. Mehmet Ozhan, "Turkey-Brazil Involvement in Iranian Nuclear Issue: What is the Big Deal?", *Strategic Analysis* 35(1), 2011, pp.26-30.
73. Mustafa Kibaroglu and Baris Caglar, "Implications of a Nuclear Iran for Turkey", *Middle East Policy* 15(4), 2008, p. 60.
74. Ibid., pp. 69-70.

Iran's hedging on its nuclear issue seems to have been successful up to the present; the country has widened its hedging options.

programme, this leverage would enable diplomatic empowerment, applying pressure and avoiding a direct confrontation with the US.[75]

CONCLUSION

Iran's hedging on its nuclear issue seems to have been successful up to the present; the country has widened its hedging options by drawing forward a number of calculative benefits for other actors that will eventually prevent a united coercive diplomacy against Iran. Furthermore, international relations to do with the Iranian nuclear issue provide a strategic circle of mutual convergence of interests. Domestically, Iran's nuclear policy is relatively viable when it comes to justifying national sovereignty while, at the same time, ensuring that the debate is open to the public. The evolution of Iran's hedging behaviour is seen to have originated from historic events; however, how and to what extent flexible options are reflected in foreign relations depends upon which political group gains power. In the discourse of Iran's nuclear programme via legal and illegal channels, this shapes the distinctive example of generating a hedging strategy whereby Iran has not been willing to enter into an alliance or full strategic partnership to deal with the international regime.

Owing to the disputed uncertainty of Iran's nuclear purpose, Iran's nuclear aspiration itself has become one of the hedging options among states that want to delineate how to deal with the foremost competitors, engaging Iran's nuclear activity for them. However, as this activity is difficult to define, though suspicious—as the West has noted—such nuclear activity and diplomacy should not be regarded as an irrational choice – rather, it is effective to produce strategic gain. And the type of regime seems to have little relation with determining whether a choice is rational or not in nuclear policy. Therefore, Iran's case needs to be analysed further on the basis of a cross-case study, rather than with a single focus as has been the case in

75. Varun Vira and Erin Fitzgerald, "The United States and Iran: Competition Involving Turkey and the South Caucasus", Draft, August 4, 2011, Centre for Strategic and International Studies. http://csis.org/files/publication/110804_iran_chapter_8_turkey_casp.pdf

previous research, since the Middle East is in a more complicated matrix than such research can demonstrate. In addition, as many states put Iran's nuclear issue on the table to leverage other diplomatic issues relating to Iran, the nuclear issue is not the sole variable in the hedging behaviour. This implies that aspiring for nuclear power, going nuclear or engaging in nuclear proliferation needs to be understood in terms of diplomatic leverage in foreign relations as a whole, and this is particularly clear in Iran's case.

CHINA'S TIBET POLICY: IMPLICATIONS FOR INDIA

SANA HASHMI

China's policies towards Tibet, and, more importantly, the rising discontent among the Tibetans against China have been among the most vexed political issues of recent times which have caught the attention of the international community. China has controlled Tibet for over 60 years now. It invaded Tibet on October 7, 1950, when 40,000 People's Liberation Army (PLA) troops from the southwest military region crossed the Drichu river and captured Tibet.[1] Since then, there have been numerous incidents of human rights abuses and environmental degradation in Tibet by China. The plight of the Tibetans can be gauged from the fact that despite the Chinese claim that Tibet is being developed and affairs in Tibet are spic and span, thousands of Tibetans have fled Tibet and are now living in other countries of the world, especially India, as refugees. The Tibet issue has generated significant interest in the West and other nations as well.

The Tibetans keep looking for a platform to raise their voices and bring to the world's attention the plight of their brethren in their motherland. At the same time, the Chinese authorities leave no stone unturned to assert that Tibet is, and has been, an integral and inalienable part of China and is an internal affair in which no interference from other countries will be accepted. The Chinese often use their power and stature in world politics to get things

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1. Tsering Shakya, *The Dragon in the Land of Snows: A History of Modern Tibet Since 1947* (NY: Penguin, 2000), p. 43.

Lakhs of Chinese nationals have settled in Tibet and they have already outnumbered the Tibetan populace in Tibet.

done their way. They claim that their projects in Tibet are proof of the fact that China considers Tibet as its own part and is developing it at the same pace as the Chinese nation. China argues that the idea of Tibet being a free and independent country was the brainchild of the Western imperialistic powers who had their vested interests in Tibet and China, and it was these interests, which led to the Simla Agreement of 1914, which China categorically rejects, as it stressed on the British claim that China has "suzerainty" over Tibet and not "sovereignty".[2]

For the Tibetans, the growth and developmental work carried out in Tibet by the Chinese government is not for the development and prosperity of Tibet and the Tibetans, but for its own selfish motives. China is using the Tibetan region as a military base and has ravaged its natural resources to sustain its own growth and its increasing demand for natural resources and minerals such as uranium, lithium, chromites, coal, iron, cobalt, copper, gold, and so on. It is estimated that Tibet holds 40 percent of China's mineral resources that include probably one of the world's largest deposits of uranium.[3] The Tibetans believe that China is, slowly and stealthily, trying for 'Hanisation' of Tibet, by its policy of population transfer. Lakhs of Chinese nationals have settled in Tibet and they have already outnumbered the Tibetan populace in Tibet. This is China's ploy to eliminate the Tibetan culture and religion.

The claims and arguments of the Chinese and Tibetans are totally in contrast to each other. The Chinese maintain that Tibet has always been a part of China, and due to imperialistic influence and feudal exploitation, had become a living hell where the false notion of independence prevailed. According to China, after Tibet was 'liberated' and merged with the Chinese

2. http://www.china.org.cn/e-white/tibet/9-2.htm, accessed on March 15, 2012.
3. http://articles.economictimes.indiatimes.com/2012-04-30/news/31508366_1_tibetan-plateau-india-china-tawang-monastery, accessed on May 2, 2012.

motherland, it has been ushered into an era of harmony and growth.[4] At the same time, for the Tibetans, before the Chinese invasion, Tibet was a peaceful and religious country, with people living in peace and contentment. However, after the Chinese occupation, the fundamental rights of freedom and independence were snatched away and the Tibetans were turned into prisoners in their own motherland. The Chinese definition of Tibet is very different from that of the Tibetans. For China, only the Tibetan Autonomous Region (TAR) comprises Tibet, but for the Tibetans, 1/4th of the area of China is Tibet.

The Sino-Tibetan imbroglio is not only problematic for China and Tibet but is a bone of contention and has proved awkward for India which bears several direct implications for it as India is the immediate neighbour of China and a large number of Tibetans are living in India in exile. Maintaining an equilibrium between the Tibetans living in India and its relations with China sometimes proves convoluted and thorny for India.

GROWING RESENTMENT AMONG TIBETANS

The Tibetans assert that China's Tibet policy is based on grasping with both hands, deepening economic development and increasing political restrictions. From time to time, the Tibetans have tried to raise this issue at the international level—as recently as during the 2008 Beijing Olympics. Before the Olympics began, Tibetans and pro-Tibetan groups staged demonstrations all across the globe to persuade countries to boycott the 2008 Beijing Olympics. The Chinese responded with a severe crackdown on the Tibetans' protests in their own country and urged other nations not to get affected by the Tibetan tactics. Owing to the immense influence that China has on the world economy and power politics, no nation dared to defy the Chinese.

Synonymous with the issue of Tibet is the Dalai Lama, the spiritual and temporal head of Tibet and Tibetans. The current Dalai Lama, the 14th Dalai Lama, Tenzin Gyatso, Nobel Peace Laureate, has been fighting

4. Sana Hashmi, "Between the Dragon and the Elephant: The Geostrategic Importance of Tibet," *Defence and Security Alert* , vol.3 issue 6, April 2012, pp. 69-71.

for the cause and liberation of Tibet all his life. He has met many famous world leaders and has won their respect and sympathy. The Dalai Lama, considered an apostle of a peaceful resolution to the issue, came up with the famous "Middle Way Approach". This approach is based on greater autonomy for Tibetans in internal matters like culture, religion, education and environment, with defence and foreign affairs remaining in China's control. The crux of the approach is to have "genuine autonomy" within Chinese control, not gaining independence. Unfortunately, neither is the Central Tibetan Administration (Tibetan government-in-exile) recognised by the Chinese nor do they pay any heed to the Middle Way Approach advocated by the 14th Dalai Lama.

China rejected the Middle Way Approach, and, for that matter, paid no attention to the Five-Point Peace Plan[5] and Strasbourg Proposal[6] by claiming that these are only attempts to split China.

The Dalai Lama has, time and again, stated that a belligerent and violent approach by the Tibetans is neither in favour of humanity nor a feasible way, considering China's might. Recent self-immolations are the perfect example of the growing resentment among the Tibetans: 33 Tibetans have resorted to self-immolation within and outside Tibet. Most of them left a note stating that they wanted to see Tibet as an independent and liberated state and the Dalai Lama to return to their homeland. The Tibetans assert that such acts of self-immolation are a result of the repressive policies in Tibet by the Chinese government. They have been resorting to this method in order to pressurise Beijing and the international community and letting the world know about the sufferings of the Tibetans in Tibet since March 2011. However, their voices remain unheard. It is obvious that there is

5. The Five-Point Peace Plan was proposed by the Dalai Lama in 1987 for the restoration of peace, tranquillity, human rights and preservation of the environment, culture and religion of Tibet. The five principles of the proposal were: transformation of Tibet into a peaceful and demilitarised zone; dereliction of China's policy of population transfer into Tibet; respect for the human rights and democratic freedom of the Tibetan people; protection of the environment and natural resources of Tibet and denuclearisation of Tibet; and initiation of negotiations on the future status of Tibet and relations between Tibet and China and their people.
6. The Strasbourg Proposal was an amplification of the fifth point of the Five-Point Peace Plan which called for negotiations between China and Tibet and was proposed in 1988 at the European Parliament in Strasbourg. But, in 1994, the proposal was withdrawn due to China's non-responsiveness.

a striking variation between the ideologies of the older and younger generations of Tibetans-in-exile. The older people want to stick to the Middle Way Approach and their demand of autonomy within China's control, whereas the younger generation is resorting to peaceful demonstrations and tactics like self-immolation and suicide to see Tibet as an independent state, and if independence is not a prospect, then greater autonomy is what they demand. This difference in ideologies might prove hazardous for the Tibetan cause.

China has repeatedly claimed that it is developing Tibet at par with the rest of China, with massive and gigantic projects related to hydro-power, rail and road networks, and so on.

China has often stated that the Tibetans living in Tibet are content and satisfied with the current situation there but many people, both Tibetans outside Tibet and non-Tibetans who support the Tibetan cause, stress on the fact that if the Tibetans are content with the policies of China towards the Tibetans in Tibet, then what is the Dalai Lama, along with lakhs of Tibetan refugees, who are spread across 35 settlements, doing in India for the past 53 years and why don't they go back?

China has repeatedly claimed that it is developing Tibet at par with the rest of China, with massive and gigantic projects related to hydro-power, rail and road networks, and so on. However, the Tibetans claim that all such projects related to infrastructural development have hidden motives. They argue that the 1,118-km-long railway track between Golmud and Lhasa and other major road and air infrastructural projects in Tibet have concealed, self-centred, expansionist and militaristic motives behind them, as such projects on such a huge scale for a population of just two-three million raise many doubts and questions.[7] The Tibetans have alleged that China has transformed Tibet into a military base with lakhs of the PLA troops and missile bases present in Tibet and since the time of the Chinese occupation, the Tibetans have become a minority in their own land due to the huge influx of people from the Chinese

7. V. P. Malhotra, *Tibetan Conundrum* (New Delhi: Knowledge World Publications, 2006), p. 85.

Mainland.[8] Most Tibetans hold the view that they have been treated like outsiders in their own country and due to this reason, lakhs of them have taken refuge in other countries, while many more living in Tibet are suffering from injustice and atrocities under the Chinese rule. One of the major reasons for discontent among the Tibetans in Tibet is that around 90 percent of the positions in public offices in Tibet are occupied by the Chinese, and the Tibetans are mostly engaged in rural or low income jobs. The Tibetans claim that they are paid lower salaries/wages than the Chinese in Tibet, and while Tibet is prospering, the Tibetans are not. Their major grievance is that they are not allowed to display even a photograph of their religious leader, the Dalai Lama, openly. In fact, photographs of the Dalai Lama have been replaced by portraits of Mao Zedong, first Chairman of the People's Republic of China (PRC), in almost all the monasteries. The Tibetans are neither allowed to wear their traditional attire nor allowed to eat Tibetan food. Furthermore, it is compulsory for Tibetans to learn and speak Mandarin and live their lives according to the Chinese customs. The Chinese government has made Mandarin the medium of instruction in almost all the schools in Tibet. The more appalling trend is that among all the ethnic minorities in China, the literary level among the Tibetans is the lowest. The Chinese government has boycotted the 'Losar ', the Tibetan New Year, and asked the Tibetans not to celebrate it. The Chinese are, slowly and steadily, endeavouring to wipe out the Tibetan culture and even the Tibetan people from Tibet.

The Tibetans are against the transformation of Tibet into a military base. They uphold that before the occupation, Tibet was a sanctum of Buddhism and peace but after the invasion, it has become a militarised zone which is increasingly affecting the environment, leading to environmental degradation.

China refuses to acknowledge that there is a crisis in Tibet. Instead of allaying the grievances of the Tibetans, which is the need of the hour, China

8. India-Tibet Coordination Office, *Handbook on Tibet* (New Delhi: India-Tibet Coordination Office, 2008), p. 63.

is on a mission to demonise the Dalai Lama. Whenever, the Tibetans protest, the Chinese start accusing the "Dalai group". China's refusal to address the causes for the unrest in Tibet, and its policy of demonising the Dalai Lama is not going to do any good; China will never be able to win the hearts of the Tibetan people if it continues doing so. It would be advisable for China to focus on Tibet's future instead of the Dalai Lama—the Tibetans believe that as long as the Chinese government policy does not change in Tibet, there won't be an end to the unrest. The Chinese government needs to give a fresh impetus to the resolution of the Tibetan issue and accept the fact that a problem exists in Tibet.

IMPLICATIONS FOR INDIA

Tibet is a vital feature when it comes to Sino-Indian relations and the problems between the two Asian giants cannot be discussed without involving it. Many strategic analysts hold the view that India committed a blunder by reiterating the "One China Policy" and recognising Tibet as a part of China. However, it has been ages since Tibet was surrendered for the sake of Sino-Indian relations. In 1950, Jawaharlal Nehru, the first Prime Minister of India, tried his best to prevent a Chinese military occupation of Tibet, and advocated peaceful resolution of Sino-Tibetan tensions but ultimately sacrificed Tibet for the sake of Sino-Indian friendship.[9] Unfortunately, that sacrifice by India did not prove to be advantageous for India and tensions between India and China continued to escalate.

The Tibetan issue has gained importance over the last decade or so since the issue is not restricted to Tibet but also concerns the countries which border Tibet and which are dependent on Tibet's waters. Tibet under Chinese control has several implications, mostly for India. With Tibet under its complete domination, China now finds itself militarily and strategically in a stronger position vis-à-vis India; diplomatically too, it is in a favourable environment, with considerable scope for diplomatic manoeuvring to its advantage.[10] China and India are two ancient civilisations, that share a long,

9. Dawa Norbu, *China's Tibet Policy* (Richmond, Surrey: Curzon Press, 2001), p. 284.
10. Dawa Norbu, "Strategic Development in Tibet: Implications for its Neighbours," *Asian Survey*, vol. 19, no. 3, March 1979, pp. 245-259.

porous border. Prior to 1950, Tibet acted as a natural buffer between India and China. It was quite vital, given that distance is an important factor in maintaining healthy and cordial relations.

One of the most crucial facets of this problem is the issue of water security. Tibet is said to be the "water reservoir" of India. It has one of the greatest water systems in the world, and its rivers supply fresh water to 65 percent of Asia's population and to approximately 30 percent of the world's population.[11] Most of the major rivers that flow through South Asia and Southeast Asia originate in Tibet. Apparently, China has embarked on a huge programme of dam building and the alleged river diversion projects, mainly on the Brahmaputra (called Yarlung Tsangpo in Tibet). With Tibet under its control, China has the status of being the upper riparian for the major rivers like the Brahmaputra, Indus, Mekong, and Salween, with control over the water of all these rivers. As there is no water treaty between India and China, the methods and approach adopted by China go unnoticed and unscrutinised. It is quite clear that China's policies could lead to severe water scarcity for countries like India, Bangladesh, Myanmar and Cambodia.[12] The water scarcity will have a direct impact on the human and growth aspects of these countries. China has, time and again, maintained that all these projects are meant for the development of Tibet and fulfilling the requirements of the Chinese people, and are just the usual hydro projects. It also rejects the claims that these projects will have any adverse effects on the lower riparian countries like India, Cambodia, Vietnam, Myanmar and Bangladesh.[13] China has unquestionable control over the waters as Tibet is under its occupation and India, being a lower riparian country, is highly dependent on the water of Tibet for its water security. The water issue is bound to have an adverse effect on relations between China and other lower riparian countries, especially India.

Tensions between India and China have also escalated owing to China's control over Tibet. The already estranged relations between India and China

11. Malhotra, n.7, p. 89.
12. http://yaleglobal.yale.edu/content/beijings-threat-indias-water-security, accessed on January 22, 2011.
13. www.china.org.cn/e-white/20011108/3.htm, accessed on January 13, 2011.

are bound to get worse with China controlling Tibet and claiming many areas in India as its own territories. This has severe territorial and strategic implications for India and the better infrastructure in Chinese controlled territories does not help the Indian cause. India, according to many experts and strategic analysts, has committed numerous mistakes in its policies vis-à-vis China. It has not learnt lessons from the Sino-India War of 1962 and is still not assertive enough to counter the Chinese claims on its territories, especially Arunachal Pradesh, which China labels as "Southern Tibet".

India's policy towards Tibet is also not clear, as before the Chinese occupation of the country, it recognised Tibet as an independent country, but later, it accepted and recognised the Chinese claims, even when the Tibetan government-in-exile is situated in Dharamsala, in India. The PRC could establish full legal claims over Tibet only after Nehru recognised Tibet as a part of China in 1954 and once this occurred, China began officially to claim territory along the Indo-Tibetan border, using the provisions of the 1954 Treaty as its rationale.[14] Had Tibet not been under China's control, there would not be a boundary question between India and China. Before the Chinese so-called "peaceful liberation" of Tibet, India did not have to spend so much on enhancing defence and infrastructure along the northern and northeastern borders of India but it is now compelled to spend a huge amount of its Gross Domestic Product (GDP) on defence.

The threat to Indian territory from China has aggravated considerably since the unresolved boundary question grants China the desired leverage.[15] Interestingly, India is the only country with which China has not been able to settle its border dispute. The antecedent of the border dispute between India and China lay in the Chinese invasion of Tibet in 1950. [16] With China controlling Tibet, it was much closer to the Indian mainland than before as China and India shared a common border after the Chinese occupation of Tibet. It also fuelled China's ambitions of restoring its sovereignty over

14. Norbu, n.10, p. 286.
15. http://www.indiandefencereview.com/geopolitics/Threat-Perception-of-India.html, accessed on April 27, 2012.
16. David M. Malone and Rohan Mukherjee, "India and China: Conflict and Cooperation" *Survival*, vol. 52 no. 1, February-March 2010, pp. 137-158.

the so-called "lost territories", since Tibet could now act as a launching pad for its power and economic growth. With Tibet under its control, it becomes easier for China to use its cards against India whenever the need arises. China not only commands authority over Tibet but has also been laying claim over the Arunachal Pradesh and Sikkim provinces of India. It is deemed that occupation of Tibet was one of the main steps to open the gates for China to enter India, Bhutan, Nepal, the Indian Ocean and Central Asia. In 1949, as soon as the PRC was established, Mao Zedong proclaimed, "Tibet is the palm of China and Ladakh, Nepal, Sikkim, Bhutan and North-Eastern Frontier Agency-NEFA (now Arunachal Pradesh) are its fingers". He knew that with Tibet in their grip, the Chinese could work on their expansionist policies and claim parts of Indian territory. George Ginsburg and Michael Mathos, in their book *Communist China and Tibet: The First Dozen Years*, have stated, "He who holds Tibet dominates the Himalayan piedmont; he who dominates the Himalayan piedmont, threatens the Indian subcontinent; and he who threatens the Indian subcontinent, may well have all of South Asia within his reach, and with it, all of Asia".[17]

The implications are not restricted to the northeastern border of India – the northern border is equally affected. The effects of Chinese control over the Aksai Chin region are far-reaching. It brings China inside Ladakh, a part of Jammu and Kashmir (J&K), on which there is already a dispute between India and Pakistan. So now, India has to deal with two troublesome neighbours on the J&K front at the same time. The Sino-Pakistan alliance is also of grave concern for India, as the increased level of alliance on the military and development fronts between China and Pakistan is a cause of strategic and military problems for India. Pakistan, an all weather ally of China, has gifted 5,180 sq. km. of Pakistan Occupied Kashmir (PoK) to China, which was under its control when the ceasefire was declared in 1947 after the war between India and Pakistan. China uses its alliance with Pakistan as a front for waging asymmetric warfare on India, with its military and economic support to Pakistan.

17. George Ginsburg and Michael Mathos, *Communist China and Tibet: The First Dozen Years* (The Hague: Martinus Nijhoff, 1964), p. 210.

Infrastructural development in Tibet is a major concern for India in this era of competition. China has been developing efficacious infrastructure along the areas bordering India which, at times, discomfits India. The rail-road network in Tibet is far more developed than on the Indian side of the border. In Tibet, China has reportedly constructed 14 air bases and an oil pipeline from Golmud to Lhasa. At present, China has in Tibet, 17 secret radar centres, 8 stations for Intercontinental Ballistic Missiles (ICBMs), 70 medium range and 20 short range missile sites—India, Nepal and Bhutan will be easy targets from these missile sites in Tibet.[18] According to another source, one quarter of China's nuclear missile force is deployed in Tibet, which includes medium and intermediate range missiles at Nagchuka and ICBMs at Nyingtri, Kongpo and Powo Tramo, and some of these missiles could primarily be aimed at India.[19] As per one report, China had deployed 5,00,000 soldiers on the Tibetan plateau and half of them are based on the Sino-India border.[20] The process of transforming Tibet into a military base is not only hazardous for Tibet but will have a severe impact on the entire eco-system, as Tibet is the water tower of Asia and about two billion of the world's population is dependent on Tibet's water. Tibet is a source of 11 major rivers but nuclearisation of Tibet is polluting the waters which, in turn, is affecting the countries of South Asia and Southeast Asia. Though China has, time and again, elucidated that all the infrastructural and other related projects in Tibet are only meant to modernise Tibet and for the prosperity of the Tibetans, the latter have a different story to narrate. They claim that all the projects in Tibet are intended to annihilate the Tibetan culture from the roots and to encircle India on the northeastern frontier. China, in India's neighbourhood, means more ominous implications for India rather than benefits. India, like any other nation, desires to have a peaceful and amicable neighbour rather than an assertive and aggressive one. Moreover, there have been reports of China supporting various

18. Lt. Gen. O. P. Kaushik (Retd), "China Bridgehead in Tibet: Targets in India," *Defence and Security Alert*, vol.3 issue 6, April 2012, pp. 48- 51.
19. http://www.indiandefencereview.com/geopolitics/Threat-Perception-of-India.html, accessed on April 27, 2012.
20. Air Vice Marshal A. K. Tiwary (Retd), "PLAAF Against India: Attrition Through Tibet," *Defence and Security Alert*, vol.3, issue 6, April 2012, pp. 30-33.

insurgents group like the Nagas and providing them with arms, weapons and funds in the northeastern states of India via Tibet.

Furthermore, India is, slowly and steadily, moving towards the status of a world power, with close ties with other major powers of the world. This might lead to a shift in the balance of power in the world, which is not acceptable to China. It leads to growing uneasiness in the Chinese government, thus, it has embarked upon a strategy to destabilise India through continued border disputes, environmental issues and even by tying up with the arch-rival of India, Pakistan, by using its Tibet card. China is acting as a true expansionist power and is trying to push India onto the defensive. The criticality of Chinese control over Tibet is aptly summed up by the views of an Indian analyst, P. C. Chakravarti, who said, "Any strong expansionist power, entrenched in Tibet, holds in its hands a loaded pistol pointed at the heart of India."[21]

TIBETANS IN INDIA: ASSET OR LIABILITY FOR INDIA?

The self-immolation in New Delhi by Jamphel Yeshi, a Tibetan-in-exile, during Chinese President Hu Jintao's visit to New Delhi during the Brazil, Russia, India, China, South Africa (BRICS) Summit, caught the attention of civil society and the international community as a whole. It led to the preventive arrest of 300 Tibetans during the BRICS Summit, and created trouble not only for Tibetans living in New Delhi but also for the Tibetan look-alike Indian citizens of northeast India. Three colonies, particularly of "refugees" in New Delhi – Majnu Ka Tila, Buddha Vihar and Tibetan Refugee Camp – had been turned into police camps during that period.[22] This event led to the issue of prejudice faced by Indians hailing from the northeastern region, predominantly from Manipur, in Delhi. This kind of racial profiling has become the stereotype for those from the region and has been for decades, which just goes to show how difficult it is to combat, let alone destroy, prejudice. As one young professional from Manipur said to a reporter, "I have lived in Delhi for four years, why is my 'Indianness'

21. P.C. Chakravarti, *India-China Relations* (Calcutta: Firma K.L Mukhopadhyay, 1961).
22. http://articles.economictimes.indiatimes.com/2012-03-29/news/31254550_1_brics-summit-tibetans-shame, accessed on April 10, 2012.

being questioned?"[23] It implies that the Indian police didn't want to take any chances and cracked down on the protests, even if they had to do it at the cost of hurting the citizens of their own country.

Now the question that arises is: do these protests by the Tibetans and inferences on Tibetans, make them a liability or trouble for India, as the Dalai Lama has been an honoured guest of India since 1959 and has been provided refuge? There is a belief among certain sections of the people in India that the Tibetans living in India comprise one of the major causes for the strained Sino-Indian relations which might prove perilous for India's security. Many believe that the Chinese government has its agents inside India for espionage. With over a lakh Tibetans living in India, a few may turn out to be pro-Chinese and, thus, help China with critical and confidential information. In 2011, the drama over the 17th Karmapa Lama, Ogyen Trinley Dorjee, ruffled feathers and raised doubts in India. In an investigation over a *benami* land deal that had the Tibetan government-in-exile as a party, foreign currency worth crores was recovered from the residence of the Karmapa Lama. According to the central government, the currency included Chinese currency as well. Investigating agencies like the Enforcement Directorate, suggested that the Karmapa was acting for the Chinese government and had received the huge amount of money to establish Chinese control over all the Indian monasteries in Ladakh and Arunachal Pradesh.[24] However, these allegations were later proved to be baseless and insignificant.

Another problem with the Tibetans living in India is that India has become the pivot of the Tibetan struggle as a majority of these refugees are living in India, with only a miniscule number living in other countries, which sometimes lands India in complicated situations.

Despite all the difficulties faced by India due to the Tibetans living in there, the exiled Tibetan community, in many ways, is an asset to India, as they are different from illegal immigrants from other neighbouring countries and are economically self-sufficient, giving a further boost to the Indian

23. http://www.sunday-guardian.com/analysis/tibetans-carry-the-torch-despite-china-and-delhi, accessed on April 29, 2012.
24. www.ibnlive.in.com/news/tibetan-leader-karmapa-linked-to-china/141801-3.html, accessed on February 25, 2012.

The Dalai Lama's presence adds to India's standing in the global community as a democratic country, given the Dalai Lama's innumerable powerful supporters around the world.

economy. There is no evidence or history of Tibetans engaging in any unlawful activity. Even by self-immolating themselves, they are inflicting harm on themselves, not doing any harm to the country. Given the graphic and painful nature of the personal sacrifice, self-immolation is just a way to attract significant attention to a cause without harming others.[25]

One of the greater benefits of having Tibetans living in India has been the rejuvenation of Buddhism in India which, in turn, has led to a high influx of Buddhist tourists to the Buddhist destinations in India. The Tibetans are the fundamental reason why Western and, increasingly, Eastern Buddhists are coming to India. It would be very interesting to look at how the Dalai Lama has contributed to security in India. While it is true that Sino-India relations, sometimes, get strained because of the presence of the Dalai Lama and the Tibetans, India should not forget that their presence in India comprises leverage which can be used to put diplomatic pressure on the Chinese. Furthermore, the Dalai Lama's presence adds to India's standing in the global community as a democratic country, given the Dalai Lama's innumerable powerful supporters around the world, which strengthens India's credentials for offering political asylum to democratic leaders escaping and fighting oppressive authoritarian regimes.[26]

Some of the Tibetans are also a part of the Special Frontier Force, also known as Establishment-22, which had been used in the Kargil War and now in Siachen. Another important advantage of having the Tibetan community in India is that India can use Tibet as a bargaining chip with China to solve the border dispute. The very presence of the Dalai Lama and the Tibetan community in India should be seen as a 'stipulating factor' while dealing with China. Due to the aggressive policies of the Chinese, the Tibetans view

25. http://www.stratfor.com/analysis/china-significance-tibetans-self-immolations, accessed on May 4, 2012.
26. http://www.indiandefencereview.com/geopolitics/Indias-Tibet.html, accessed on April 25, 2012.

India as more benevolent than China or for that matter any other nation, which further improves India's image in the world fora.

INDIA NEEDS TO ALTER ITS POLICIES

Many scholars still think that India needs to revise its policies towards Tibet and to some extent towards China as well, as the Tibet issue has a direct link with India's problems with China. Some would even argue that India still tries to appease China and needs to get out of its 'appeasement policy'. India has not taken much advantage of the presence of the Dalai Lama and the Tibetans in India for the past 53 years. It is observed on many occasions that India too, like China, does not want to make its people aware that Tibet is a political issue. What is disturbing is that the situation of the Tibetans in India is vulnerable and based on the whims and fancies of the policies of the Indian government. Some Indian officials have, on many occasions, emphasised that the Dalai Lama and the Tibetans should remember that they are honoured guests and should remain here as guests. The Dalai Lama usually describes India's position on Tibet as "over-cautious" and in his view, New Delhi seemingly wants to play the Tibet card to please Beijing in the hope of warming up ties between the two countries.[27] The Dalai Lama has, time and again, warned India about China's presence in Tibet and its intentions against India. Even during the March 2008 uprising in Tibet, the monk made an indirect appeal to New Delhi to take the initiative on the issue, saying that China and India cannot forge a friendship based on trust until "they solve the Tibetan problem because of which China maintains a huge army on the plateau". He also remarked that "*Hindi-Chini bhai bhai* is not possible without the resolution of the Tibetan issue."[28] Despite India's appeasement policy towards China and not using its "Tibetan card" against it, China continues to lay claims over Indian territory in Arunachal Pradesh, and continues to show Arunachal Pradesh and Kashmir as disputed areas on its official maps. Moreover, it shows Arunachal Pradesh as "Southern Tibet" on the maps.

27. http://www.atimes.com/atimes/South_Asia/LG17Df02.html, accessed on March 29, 2012.
28. Lt Gen R.K. Jasbir Singh, ed., *Indian Defence Yearbook 2009* (Delhi: Natraj Publishers, 2009), p. 194.

It seems China is not seriously considering a resolution of the Tibet issue or the border dispute with India and is simply buying time till the Dalai Lama passes away.

This is not the end to China's assertiveness. It further refuses to grant visas to officials of the Arunachal region, as it claims that Arunachal is a part of China and the people of that region do not require visas to travel to their own country. Moreover, China had repeatedly issued stapled visas to the citizens of J&K as, according to the Chinese, J&K is disputed territory. It is important not to forget the statement made by the Chinese Ambassador to India, H.E. Zhang Yan, in New Delhi prior to Chinese Premier Wen Jiabao's last visit to India in 2010 that China-India ties are "fragile" and need special care, indicating the cautious Chinese attitude towards issues dividing India and China.[29]

It seems China is not seriously considering a resolution of the Tibet issue or the border dispute with India and is simply buying time till the Dalai Lama passes away, after which it hopes the Tibetan movement would fizzle out which would also further weaken India's bargaining position on the border negotiations while, at the same time, gaining for China greater manoeuvrability.[30] It is high time that India realises that its soft policies and shying away will be of no help.

From the time of Pandit Nehru, India's policy has been to shut its eyes to what is happening in Tibet, to what the Chinese are doing in Tibet, to what the Chinese are doing towards India; and, in particular, to the military and infrastructure build-up in Tibet.[31] India lost Tibet as a buffer in the 1950s. India should keep in mind the fact that if the Tibetans fight back and get Tibet, India will get back its buffer. This does not mean that India should encourage the Tibetans to protest to cause volatility in China. India's policies and approach should be as neutral and non-aligned as possible. It should buttress the exiled community economically and culturally and let them

29. http://www.eurasiareview.com/30012012-china%E2%80%99s-double-speak-analysis/, accessed on March 30, 2012.
30. Ibid., p. 196.
31. Arun Shourie, "Roof of the World," *Defence and Security of India,* vol 1 issue 5, pp. 22-34.

decide what course of action they want vis-à-vis China. One more point to be kept in mind is that most Tibetans of the younger generation were born in India and this gives them the rights of free speech and expression. Hence, India should deal with the Tibetans-in-exile with greater compassion as they have every right to hold peaceful demonstrations. India needs to devise an effective long-term policy so that the Tibetan movement does not affect Sino-India relations negatively.

Another policy recommendation for India while dealing with China would be that India should refrain from referring to Tibet in the joint statements until China accepts and mentions Arunachal Pradesh as a part of India, in order to put diplomatic pressure on China. This is important because while India accepts Tibet as an autonomous region of China, the Chinese continue to lay claims on Arunachal Pradesh, which is an integral part of India—a state of the Union of India. Hence, the need to put diplomatic pressure on China is a must for Indian foreign policy.[32]

It needs to be noted that not only is the Beijing-Dharamsala issue not heading anywhere, but the Sino-Indian border talks also are not showing any progress. In this regard, India's policies need a serious review. It would be a better option if India and the civil society take a more serious note of it. It is not only our moral responsibility to highlight the Sino-Tibetan issue but it is in our vested interest to eliminate the persisting problems between the Chinese and Tibetans. Easing the tension in Tibet is a prerequisite for better and stabilised Sino-India relations. India needs to include the Tibet issue in talks with China as it is bound to be affected by any cataclysm in Tibet. India should urge China to resume talks with the Tibetan delegations and Sino-Tibetan dialogue must go on as the best time to engage in negotiations is when the current Dalai Lama is present and alive. India needs to build up military infrastructure in order to avoid a situation like the "1962 War". It would be suicidal for India to ignore the Chinese strategy in Tibet, which is, by and large, pointing towards India. India should remain more vigilant of Chinese actions. Not only does the

32. Sana Hashmi, "Military Infrastructure along the Northern Border of India," *Defence and Diplomacy*, vol 1, no 2, pp. 103-112.

Indian government need to redraft its policies but the Tibetans also need to review their strategy and approaches for dealing with the predicament. Together, they can make a change; a change for maintaining prosperity and tranquillity in the Asian region.

PLA: MILITARY OPERATIONS OTHER THAN WAR (MOOTW)

J.V. SINGH

Military Operations Other Than War (MOOTW) focus on deterring war, resolving conflict, promoting peace, and supporting civil authorities in response to domestic crises. The phrase and acronym was coined by the United States military during the 1990s, but has since fallen out of use. The UK military has crafted an equivalent or alternate term "Peace Support Operations" (PSO). Both MOOTW and PSO encompass peace-keeping, peace-making, peace-enforcement and peace-building.[1]

MOOTW not involving the use or threat of force include humanitarian assistance and disaster relief. Special agreements exist which facilitate fire support operations within the North Atlantic Treaty Organisation (NATO) and the ABCA quadripartite working group, which includes the American, British, Canadian and Australian military contingents. Cooperation is organised in advance with NATO Standardisation Agreements (STANAGs) and Quadripartite Standardisation Agreements (QSTAGs). Many countries which need disaster support relief have no bilateral agreements in place; and action may be required, based on the situation, to establish such agreements.[2] MOOTW also involves arms control and peace-keeping.

The United Nations (UN) recognises the vulnerability of civilians in armed conflict. Security Council Resolution 1674 (2006) on the protection of

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1. Hugh Segal, *Geopolitical Integrity,* (2005), p. 275.
2. "US Army Field Manual," "Military Operations Other Than War", Global Security.org, http://www.globalsecurity.org/military/world/japan/ddh-x.ht m, retrieved September 28, 2009.

The non-traditional missions of the Chinese armed forces have evolved as an increasingly used tool of statecraft.

civilians in armed conflict enhances international focussed attention on the protection of civilians in UN and other peace operations. The implementation of paragraph 16 anticipates that peace-keeping missions are provided with clear guidelines regarding what the missions can and should do to achieve protection goals; that the protection of civilians is given priority in decisions about the use of resources; and that protection mandates are implemented.[3]

Chinese military operations other than war focus on deterring war, resolving conflict, promoting peace, and supporting civil authorities in response to domestic crises. The non-traditional missions of the Chinese armed forces have evolved as an increasingly used tool of statecraft.[4] China has deployed forces in more than a dozen UN peace-keeping missions.[5] The People's Liberation Army (PLA) established specialised forces for military operations other than war. Current planning anticipates five specialised groups, including (a) flood and disaster relief forces; (b) post-earthquake emergency rescue forces; (c) emergency rescue forces for nuclear, chemical and biological disasters; (d) emergency relief force for transportation facilities; and (e) international peace-keeping force.[6]

MOOTW have been a subject of study at the National Defence University (NDU), which became a venue for examining the practical experience of equipment utilisation and support. The characteristics, rules, contents and methods of equipment utilisation and support in MOOTW were evaluated.[7] The General Logistics Department (GLD) of the PLA printed and distributed the "Measures on the Military Financial Support of Military Operations Other than War" and the "Regulations on War-time Financial Support of

3. Australia, Department of Foreign Affairs and Trade: Peacekeeping and Related Peace Operations.
4. Cynthia Watson, "The Chinese Armed Forces and Non-Traditional Missions: A Growing Tool of Statecraft," *China Brief*, vol. 9, no. 4, February 20, 2009.
5. Bonny Ling, "China's Peacekeeping Diplomacy," *China Rights Forum*, No. 1, 2007.
6. "PLA Constructs MOOTW Arms Force System," *People's Liberation Army Daily*, May 24, 2009.
7. Wu Yulin and Liu Demao, "Academic Symposium on MOOTW Equipment Utilisation and Support Held in NDU," *People's Liberation Army Daily*, January 9, 2009.

the PLA" on March 20, 2012, which have come into effect since January, 2012.

The Measures on the Military Financial Support of Military Operations Other than War is composed of 34 Articles in 6 chapters, mainly including the tasks, ways and plans of the financial support of military operations other than war and the provision, expenditure and final account management of the funds. The Regulations on War-time Financial Support of the PLA is composed of 42 Articles in 8 chapters, mainly including the scope of guarantee of operational funds, budgets and final accounts, money supply, expenditure management and financial work of rear bodies. Both the legal documents stipulate the allocation of funds in advance and the responsibility of payment by chief military and political officers in the event of an emergency, which has greatly enhanced the effect of financial support.[8]

CHINA'S MILITARY: EXPEDITIONARY CAPABILITIES

China's military is in the process of becoming an expeditionary force. The PLA's expeditionary capabilities will grow significantly in the coming years. The country's anti-piracy deployment to the Gulf of Aden and the use of its naval and air assets to support the evacuation of Chinese citizens from Libya in February and March 2011 have shown the PLA's real capability in this arena.

The US Department of Defence defines expeditionary power as "an armed force organised to accomplish a specific objective in a foreign country." Additionally, such a force should be able to transport, sustain, and protect itself so that it has the freedom to conduct independent missions necessary for the defence of national interests. The PLA's gradual but important evolution toward greater expeditionary capability coincides with China's steadily rising economic presence and the increasing number of Chinese seeking their fortunes in volatile but often fast-growing countries in places like Africa, Central Asia and the Middle East, both as employees of large state conglomerates and as private entrepreneurs.

8. Source: *PLA Daily*, March 21, 2012.

For now, however, due to cost and perception reasons, China's expeditionary capabilities will most likely be tailored to handling threats to Chinese citizens and economic interests abroad. Foremost among these are non-traditional threats to resource security, such as piracy and terrorism, as well as threats to the People's Republic of China (PRC) citizens overseas, such as the internal chaos seen in Libya. Compare this with the US military, which possesses highly sustainable expeditionary capabilities that enable it to fight large wars halfway across the world and simultaneously handle other contingencies. The platforms and operational infrastructure that make high-intensity missions possible can also be scaled down to deal with non-traditional security missions like humanitarian relief after the 2004 Indian Ocean tsunami or suppression of piracy off Somalia. Therefore, the PLA's naval, air and ground capabilities for out-of-area operations are likely at least a decade away from achieving the ability to handle the range of missions that the US Department of Defence possesses today.

But the Chinese military is improving its capacity for dealing with smaller-scale threats that do not involve potential forcible entry into a hostile area, but still involve long-range deployments. Improved abilities to show the flag and assist with humanitarian missions and other military operations other than war can potentially allow a limited expeditionary military capacity to yield substantial diplomatic benefits for China.

MISSIONS TO DATE

The PLA Navy (PLAN) anti-piracy mission to the Gulf of Aden, now over two years old, is proving highly successful. The 2010 China Defence White Paper noted that by the end of 2010, the PLAN had dispatched 7 sorties with 18 ship deployments, 16 embarked helicopters, and 490 Special Operation Force (SOF) soldiers. Using means including accompanying escort, area patrol, and onboard escort, the PLAN has safeguarded 3,139 ships sailing under both the Chinese and foreign flags, rescued 29 other ships from pirate attacks and recovered 9 ships released from captivity by pirates.

The Gulf of Aden (GoA) anti-piracy mission, in turn, helped improve the Chinese military's readiness to take part in the February/March 2011

operation to evacuate more than 30,000 PRC citizens from strife-torn Libya. While the majority of these left via chartered ships and aircraft or overland, the operation marked the first time China has deployed military assets to protect PRC citizens overseas. Beijing deployed the *Xuzhou*, one of its most modern missile frigates, and also sent four IL-76 long-range military transport aircraft to help evacuate PRC citizens trapped near Sabha in central Libya.

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A key reason the *Xuzhou* was a useful asset in the Libya contingency was because it was already forward deployed as part of China's anti-piracy mission in the GoA. Senior PLAN and civilian leaders are receiving a first-hand lesson in how useful forward deployed military assets are for a country like China that increasingly has global interests. The anti-piracy missions cracked open the door, but in the wake of the Libya evacuation, there is a strong likelihood that the PLAN will seek to assume a more sustained presence in the Indian Ocean region, perhaps extending toward the Persian Gulf as well.

The PLA Navy led the way on China's first expeditionary mission, the GoA anti-piracy deployment, but the PLA Air Force (PLAAF) has also been gaining experience in long-range operations through increasingly challenging military exercises that are helping it improve relevant capabilities such as aerial refuelling and long-range strikes. In September 2010, the PLAAF deployed SU-27s to the Operation Anatolian Eagle exercise in Turkey and the planes reportedly made refuelling stops in Pakistan and Iran. In addition, during the September 2010 Peace Mission multilateral exercise with Kazakhstan and Russia, Chinese J-10s operating from bases in Xinjiang and supported by aerial refuelling, conducted a 2,000-km strike mission with live ordnance against targets in Kazakhstan, according to reports.

Expeditionary military operations require access to regional replenishment and repair facilities. The PLA's long-range exercises and GoA deployment are boosting its access to regional ports and airfields,

which can be used to provide logistical support for future missions. China is most likely to pursue a 'places, not bases' model, as the US experience shows that maintaining large fixed bases on foreign soil poses major diplomatic and security challenges. Areas for potential deepening of PLA logistical support and access during times of crisis that merit close watch in the coming years include: Tanzania, Kenya, Madagascar, Djibouti, Salalah (Oman), Aden (Yemen), Gwadar and Karachi (Pakistan), Chittagong (Bangladesh), Hambantota (Sri Lanka), Mauritius (where Port Louis has sufficient draft to accommodate a large warship), Sittwe (Burma), and Singapore.

As China builds the appropriate diplomatic and logistical infrastructure for supporting expeditionary operations, it is also important to look at the platforms the PLAN and PLAAF are acquiring that could help facilitate expeditionary military operations in theatres 'beyond Taiwan.' Certain naval, air, and space platforms will become relevant to potential future expeditionary missions that the PLA might be called upon to perform.

EXPEDITIONARY PLA NAVY

Large amphibious warfare ships known as Landing Platform Docks (LPDs) and Landing Helicopter Docks (LHDs) are essential to expeditionary operations because of their versatility, as they can host troops, carry vehicles and hovercraft, and serve as operating bases for heavy helicopters for mission support such as a vertical evacuation of Chinese citizens trapped in a hostile area.

China has now reportedly built two Type 071 LPDs. One is operational and one has been launched, but is still being fitted out, and a third vessel is under construction. Amphibious warfare vessels were instrumental in the US Navy's responses to the 2004 Indian Ocean tsunami and 2010 Haiti earthquake, and China is likely to build several additional LPDs, and perhaps LHDs as well. China is currently in the process of testing and certifying a domestically built heavy lift helicopter called the AC313 that is basically a reverse-engineered Super Frelon (27 person capacity). The AC313 and follow-on heavy helicopters could likely operate from any PLAN LPD or LHD.

China also appears to be rapidly refurbishing the ex-Soviet carrier *Varyag* that will become operational in 2012. In addition, China has decided to embark on a national carrier programme in which it would build domestically a 50,000-60,000 tonne conventional carrier by 2014 [US Office of Naval Intelligence (ONI) project that will be completed after 2015] and a nuclear powered carrier by 2020. China certainly faces substantial challenges in equipping a carrier, training pilots in carrier operations, and building a carrier group. That said, the country's rising defence budget, officially $91.5 billion in 2011 and the experience of domestic shipyards in building increasingly complex large commercial ships make it likely that physical construction barriers can be overcome in a reasonable span of time.

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A carrier group would offer immense diplomatic benefits in providing a visible Chinese naval presence in the South China Sea, in Southeast Asia, along key sea-lanes in the Indian Ocean, and for humanitarian missions such as the response to the 2004 Indian Ocean tsunami. Several carrier groups would be necessary for persistent presence in these areas, however, to allow for periodic maintenance. Greater focus on carrier battle group development would suggest that Chinese leaders want to bolster their capacity to handle higher-intensity expeditionary missions than would be the case if ship procurement focusses more on LPDs and/or helicopter carriers.

A strong corps of replenishment ships is vital for supporting expeditionary operations, as the PLAN currently has only three long-range replenishment vessels, according to the defence news forum IHS *Jane's*. For comparison, the US Navy has a fleet of around 30 long-range combat replenishment ships. China could surge production of underway replenishment vessels given the vessels' relative similarity to commercial ships and China's large commercial shipbuilding capacity. As such, the replenishment vessel construction rate will be a key barometer of the PLAN's future expeditionary intentions.

China's most modern surface combatants can handle the non-traditional security contingencies that China is most likely to face, as long as they have adequate replenishment support. For expeditionary operations beyond the South China Sea region, submarines can provide critical security and support for intelligence gathering, making long-range nuclear submarine operations an important topic for moving forward the PLAN training. If China makes a stronger push to upgrade its surface combatants' anti-submarine capability, this could signal the intent to create expeditionary naval forces suited for high-intensity conflict as well.

China has found a near justifiable way of modernising its defence forces, particularly its navy, by emphasising on the importance of non-traditional roles that such forces can play. The 2008 White Paper on China's national defence enunciated for the first time that China now sees military operations other than war as an important form of applying military force. The PLA Navy has accordingly widened its scope of operations in line with this concept, to include "integrated offshore operations in distant waters, strategic deterrence, and counterattacks." The Central Military Commission (CMC) of China also issued the "Military Operations Other than War Capacity Building Plan" that provides the guidelines and measures for the accomplishment of diverse non-military tasks.

China, accordingly, has intensified its non-traditional military activities since 2008 and considers this to be the most active period for its armed forces, during which it deployed the largest scale of military force and performed various kinds of tasks with increasing regularity in peace-time. A Chinese media report quoting statistics from the PLA sources states that the Chinese military has employed more than 2.44 million servicemen, organised 7.82 million militiamen and reservists and operated more than 6,700 aircraft sorties for MOOTW since 2008. The uninterrupted anti-piracy patrols mounted by the PLA Navy ships since December 2008 in the Gulf of Aden and off the Somali coast, wherein nine task forces, each comprising three of its warships have been deployed till date for escort duties, is the most notable instance of MOOTW.

Many an international eyebrow has been raised at the rapid pace

of the Chinese defence modernisation over the last decade. The US has been an active proponent in questioning China's 'peaceful rise', a term used for the very first time at the scenic beach resort town of Bo'ao in the tourist paradise of Hainan in 2003. Though the Chinese have, since then, toned down the underlying alarmist connotation of 'peaceful rise' to that of 'peaceful development', the international community continues be concerned about the fast-paced modernisation of the PLA, which is the ultimate agency to execute the peaceful development concept propagated by the Chinese leadership. The Chinese leadership and government, on the other hand, have taken great pains to convince the international community about their genuineness towards "peaceful development". In the White Paper on Chinese 'peaceful development' released on September 6, 2011, it has been mentioned that 'peaceful development' is a strategic choice voluntarily exercised by China and that Beijing hoped that the world would have confidence in the sincerity of the Chinese endeavour. The Chinese State Councillor, Dai Bingguo, reiterated this very position in an open article written and released in the United Kingdom on September 25, 2011, wherein he averred that the Chinese declaration of "peaceful development" was "not merely empty talk," and he exhorted the world to welcome rather than obstruct it.

Navies the world over, by the very nature of their operational role and additional characteristics of institutional flexibility, manoeuvrability, adaptability and reach are ideally suited to be appropriate instruments of their state's foreign policy and its diplomatic propagation in their respective national interest. The British, in the 19th century and till the mid-20th century as also the US thereafter, have continually utilised their naval power in the furtherance of their respective countries' foreign policy and achievement of their political objectives. The PLA Navy or for that matter, any navy of consequence, therefore, should be no different and may be deemed to follow the same route to achieving major power status.

It is evident that in the context of the current world order, the occasions and opportunities for using navies in their conventional role as instruments of coercive diplomacy are few and far between. However, there are numerous

Warships have been visiting various Indian Ocean littoral countries, including India, Pakistan, Sri Lanka, Myanmar, Malaysia, Singapore and Thailand on goodwill visits, while transiting these waters for anti-piracy missions.

opportunities for these navies to be engaged in non-traditional activities which project the benign face of the state while keeping the force well trained, equipped and operationally active, at the same time. These non-traditional tasks also help in justifying the capacity building, force modernisation, infrastructure upgrade and greater financial outlay to a certain extent. The international community in such a situation also has to grudgingly accept such justifications and feels a little out of a place in questioning the 'real motive' for such grand force expansions.

There have been many positive benefits for the PLA Navy on account of various maritime and diplomatic activities which were either associated with, or complemented, the presence of its ships in the Gulf of Aden. These warships have been visiting various Indian Ocean littoral countries, including India, Pakistan, Sri Lanka, Myanmar, Malaysia, Singapore and Thailand on goodwill visits, while transiting these waters for anti-piracy missions. The PLA Navy ships even crossed the Suez, ventured into the Mediterranean and visited ports in Egypt, Italy and Greece during August 2010. These ships, while on deployment, have regularly visited ports in Oman, UAE, Yemen and Djibouti, either for operational turnaround, rest and recreation or to evade bad weather. The frigate *Xuzhou* was diverted from the anti-piracy task to the Libyan coast in end February 2011 to assist in the withdrawal of Chinese citizens from the crisis struck Libya and worked in tandem with the PLA Air Force and civil aviation evacuation effort.

The PLA Navy hospital ship *Peace Ark* sailed for the Indian Ocean from China on August 31, 2010, on a 90-day "Mission Harmony-2010". The ship operated in the Gulf of Aden for some time with the sixth task force and then called on ports in Djibouti, Kenya, Tanzania, Seychelles and Bangladesh. The ship's medical teams provided free health services, diagnostics and treatment to the local public and military personnel, conducted medical

cooperation with local hospitals, primary schools, orphanages, nursing homes and the poor communities. This voyage of the *Peace Ark* achieved much more international mileage for China as well as the PLA Navy in spreading its message of 'peaceful development' than what mere words in White Papers and rhetorical statements from back home could do.

China, having realised the immense benefit of exposing the benevolent facet of its navy towards its larger image building exercise, has again sailed the *Peace Ark* hospital ship on a long voyage to the Latin American countries of Cuba, Jamaica, Trinidad and Tobago, and Costa Rica in the Atlantic Ocean. The ship sailed on September 16, 2011, under the "Mission Harmony 2011" and returned after more than 100 days at sea, covering a distance of more than 23,500 nautical miles. The PLA Navy Rear Admiral in charge of the mission stated that the aim of the current expedition following the "Harmonious Mission 2010" was to "strengthen the non-war operations of naval forces and perform diversified missions". He further emphasised that "the mission was of great significance in publicising the ideas of 'Harmonious World' and 'Harmonious Ocean', demonstrate China's friendly relations between the Latin American countries, and highlight the PLA's image as a peaceful and a civilized force." The above statement needs to be taken note of by the international community and its wider connotations require to be analysed in greater detail.

There are vital lessons to be learnt from the above Chinese approach of naval capacity building by highlighting the relevance of the non-traditional role of this service, in the current global maritime environment. It is nothing new or extraordinary that the PLA Navy is doing and which other navies have not done before or are not doing now. However the Chinese are projecting their achievements to the world in an organised and relentless manner so as to lend credence to their 'peaceful development' formulation.

The Chinese have, in fact, institutionalised the whole process of laying more than required emphasis on even routine activities through an interesting concept known as the "Three Warfares". This entails the shaping of domestic and international opinion in their favour through the 'soft' trio-instruments of media, psychological and legal warfare. The Chinese

Peace Mission 2010 was the first time the PLAAF simulated a long distance air strike outside China.

leadership, in fact, exhorts its state machinery and the people to be continuously engaged in these three warfares, so that the sought for objectives are met without recourse to the hard options.

Needless to say, the investment of so much national effort, resources and international relations capital can really be considered to stand China in good stead in the long run, as the PLA Navy organisation and personnel have developed strong sea legs in a multinational operating environment, gained vital lessons in interoperability and above all, a reasonably acceptable presence in global maritime matters. It can, thus, be inferred that China considers this course of action as a win-win situation, one of continuing modernisation, but with a benign pretence. Whether or not the international community is convinced about these Chinese overtures, is a moot question.

EXPEDITIONARY PLA AIR FORCE

Overseas and cross-border exercises have given the PLA a unique opportunity to practice long-distance deployment. The PLA recognises that one of the prerequisites for becoming a major military power is mastering forward deployment away from China. Peace Mission 2010 was an opportunity for the PLA to test its power projection capabilities. It used a mix of air and rail transport to rapidly move an expeditionary force of over 1,000 men and their vehicles from eastern China to Kazakhstan. The success of this undertaking was a testament to the PLA's improved logistics. In addition, Peace Mission 2010 was the first time the PLAAF simulated a long distance air strike outside China. In previous Peace Mission exercises, the PLAAF had forward deployed only a handful of strike aircraft for close air support. But on this occasion, the PLAAF tested its newly developed integrated air strike capabilities. Four H-6 bombers with two J-10 fighter escorts, supported by tankers and an airborne command aircraft, took off from a base in Xinjiang and struck their targets in Kazakhstan.

The PLAAF is likely to press harder for longer-range transport aircraft in the wake of the Libya evacuation, where the 4 IL-76 Candid transports performed well. At present, the PLAAF has 14 IL-76s and 25 Y-8 long-range transports, according to *Jane's*. This would likely create a capacity shortfall in the event that the PLAAF is called upon to bear the brunt of a large-scale evacuation from an inland country where the PLAN struggles to directly assist. In the event of an evacuation or intervention operation under hostile conditions, long range, highly capable SU-27, J-11, or SU-30 fighter bombers could provide limited tactical air cover provided they can access a regional airfield such as Khartoum in Sudan. The transit of four PLAAF SU-27s to Turkey for the Anatolian Eagle exercises in September 2010, for example, showed that the PLAAF is able to deploy tactical aircraft to areas far from China even without aerial refuelling.

Also, Chinese commanders operating in unfamiliar locales will likely clamour for improved Intelligence, Surveillance, and Reconnaissance (ISR) efforts to support their missions. Thus, space-based sensors and air-breathing observation platforms like the WJ-600 drone unveiled at the 2010 Zhuhai Air Show will play a vital role in maximising the commanders' situational awareness. In 2010, the number of Chinese space launches equalled the US launch figure for the first time. More importantly, a significant portion of China's launches involved satellites that are helping to build up a persistent and survivable ISR capability along China's maritime periphery and beyond.

China has launched 7 Yaogan surveillance satellites since December 2009, suggesting that a more robust spaced-based reconnaissance capability is a high priority for the PRC. China is also building up a constellation of Beidou navigation satellites that will likely give Chinese forces an independent regional navigation and weapons guidance system by 2012, with global capabilities coming into existence around 2020.Lastly, China is reportedly preparing to launch a second Tianlian data link satellite in June 2011, which, in conjunction with the existing Tianlian-1, could provide coverage over as much as 75 percent of the earth's surface.

EXPEDITIONARY GROUND FORCES

For the expeditionary ground forces missions, Special Operation Forces (SOF) and PLAN Marines are the most relevant ground forces. Their roles might include securing airfields and ports, and protecting evacuation operations. Putting boots on the ground abroad for virtually any mission outside the context of a UN peace-keeping operation is a bridge China has not yet crossed and is likely to be prompted only by an extremely serious provocation such as large scale anti-Chinese violence in a country with many PRC expatriates.

China is gradually building up a cadre of soldiers with significant international operating experience gained through participation in UN peace-keeping operations, many of which take place in locations and security environments like Congo and Sudan, which are similar to areas where the PLA might actually have to help protect an evacuation of Chinese citizens in the future. The country's 2010 Defence White Paper stated that as of December 2010, it has dispatched 17,390 military personnel to 19 UN peace-keeping missions. In February 2011, China had 1,878 troops participating in UN peace-keeping missions, according to the UN.

China's expeditionary military capabilities are currently limited, but set to grow significantly in the coming years, as will Beijing's propensity to use them to protect PRC citizens and economic interests abroad. While the PLA is decades from having US-style expeditionary forces capable of sustained high-intensity combat even if it wants to go that route, the potential for more regular and capable Chinese military deployments to distant portions of the South China Sea, Southeast Asia, the Indian Ocean, and Africa is now real.

Diplomatic engagement needs to incorporate discussions to assess how China intends to use its growing power projection abilities and also explore ways to de-conflict Chinese expeditionary operations and those of other militaries in strategic regions like Africa and the Middle East. China's developing expeditionary capabilities makes it a more useful partner for cooperation on non-traditional security issues and the United States should try to increase discussions on this topic with its Chinese partners, both bilaterally and in multilateral forums.

PLA: MOOTW SINCE 2008

Since 2008, the PLA and the Chinese People's Armed Police Force (PAPF) have fulfilled a series of tough MOOTW which have become an important way to use military power. The CMC has made a series of decisions and plans to strengthen the capacity building of military operations other than war, and issued the Military Operations Other than War Capacity-Building Plan that provides the guideline and measures for the accomplishment of diverse non-military tasks.

The years since 2008 proved to be the most active period of the Chinese military, during which it deployed the largest scale of military force, performed various kinds of action and was responsible for the most concentrated tasks in peace-time. According to the statistics from the operations department under the PLA General Staff Headquarters (GSH), since 2008, the Chinese military has called out 2.444 million servicemen, organised 7.82 million militiamen and reservists, and dispatched more than 6,700 aircraft/sorties for MOOTW.

The military has set up a leading group to handle emergencies. The four general headquarters/departments, major military area commands, and services and arms of the PLA also set up corresponding leading groups, and established joint coordination mechanisms with state agencies and local governments to ensure that they promptly launch emergency mechanisms once the CMC makes the decisions. Emergency command agencies at all levels in the military have also participated in national and local governments' corresponding leading agencies for disaster prevention and reduction, flood control, disaster relief, production safety, forest fire prevention, and so on, to establish an action coordination mechanism.

Currently, a system of mapping, meteorology and communication support that serves MOOTW is under construction. The emergency office of the GSH of the PLA is in close communication and contact with more than 20 departments, including those of public security, civil affairs, water conservancy, forestry, earthquake, oceans and weather to enable information sharing at the headquarters level. The GSH of the PLA and relevant ministries such as the Ministry of Foreign Affairs and the Ministry

The PLA has also organised and participated in international joint anti-terrorism exercises, including the China-Pakistan "Friendship 2010".

of Transport established the GSH – PLA Navy – Escort Taskforce "Blue Shield Action", a three-tier command system. The command centre in Beijing has video calling and data transmission capabilities to communicate with warships. In the East China and South China Seas, the PLA Navy has established a maritime sea right-safeguarding-action coordination mechanism with the departments of maritime surveillance, fishery administration and public security marine police to effectively safeguard national maritime rights and interests.

Relying on the current command system, the military has also established cooperation relations of anti-terrorism command and stability maintenance with state and local governments. Under the unified leadership of local Party committees at all levels, the provincial military area commands, garrisons and PAPF played a part in the joint-command agencies of anti-terrorism and stability maintenance at the corresponding level. The PLA has also organised and participated in international joint anti-terrorism exercises, including the Sino-Russian "Peace Mission 2009," China-Pakistan "Friendship 2010", Shanghai Cooperation Organisation (SCO) joint anti-terrorism exercises and China-Romania anti-terrorism training, improving its emergency command capacity on international communication platforms.

Efficient and versatile emergency rescue forces of the PLA and PAPF have developed combat power. It is learned from the GSH of the PLA that as of the end of 2010, with the support of the national authorities and local governments, the Chinese military had built professional state-level emergency response teams of 50,000 people in 8 categories, and all the Military Area Commands (MACs) of the PLA had set up provincial emergency response teams of 45,000 people in 9 categories. These professional teams, including engineering, medicine, transportation, Nuclear, Biological, Chemical (NBC), emergency communication, maritime search and rescue and others, are equipped with helicopters, large-scale engineering machinery, field medical equipment and life detection devices

and other advanced equipment, and basically have the capabilities of rapid response, force projection, specialised rescue, command and coordination and comprehensive support as well as the capacity to support political work.

A national earthquake disaster emergency rescue team, mainly comprising the engineer regiment from a group army under the PLA Beijing MAC, has been recognised by the United Nations as the world's 12th and Asia's 2nd international heavily armed rescue team. In the relief work for the Wenchuan earthquake, on the average, every three personnel of the China International Rescue Team saved one earthquake sufferer and all the rescued people survived. The Zhouqu landslide rescue work was a typical case of the deployment of the PLA professional soldiers. The PLA mainly deployed engineer, chemical defence, pontoon bridge, hydropower, transportation, communication and hygiene and disease control troops for disaster relief and rescue. The day after the landslide, an engineer regiment of a group army under the PLA Lanzhou MAC conducted 8 underwater demolitions of barrier dams. A hydropower troop unit under the Chinese PAPF used large machines to timely dredge up the river channels.

The PLA Air Force, Navy, army aviation, air defence, engineer, chemical defence, medical service, diving, nuclear, chemical and biological security inspection and monitoring troops played an important role in security and guard tasks for such significant events as the Beijing Olympic Games and the Shanghai World Expo. The Chinese peace-keeping force cleared nearly 10,000 landmines and explosives buried in an area of 85,000m in various task areas. Having accomplished quality projects following high standards, the Chinese peace-keeping engineers are being hailed as the creators of "The China Speed" and "The China Miracle" by the international community. Some of the important MOOTWs are listed below:

- After the Wenchuan earthquake, 146,000 PLA soldiers rapidly travelled to the disaster areas by air and land from around the country. They dug out 3,338 survivors from the debris and rescued over 1.4 million trapped people. During the earthquake relief and disaster rescue work in Yushu county, the PLA deployed 16,000 officers and men to rescue 1,564

people. In the rescue and relief efforts during the Zhouqu landslide, the PLA dispatched over 7,600 officers and men to search and rescue 53 survivors and treat and cure 25,000 people.

- On December 26, 2008, a naval escort task force from the PLA Navy sailed to the Gulf of Aden and the waters off the Somali coast to perform escort tasks for the first time. As of the end of June 2011, the PLA had organised nine naval escort task forces, dispatched 27 ships and vessels and fulfilled 316 escort tasks for 3,681 ships. In 2011, after the outbreak of civil war in Libya, the *Xuzhou* warship of the PLA Navy, on an escort mission in the Gulf of Aden, sailed to the Mediterranean Sea at top speed to escort a passenger liner carrying Chinese evacuees.
  • In the disaster rescue work for the Wenchuan earthquake, the PLA Air Force and the aviation troops of the PLA urgently deployed over 200 airplanes and helicopters of all types to transport 39,000 people and over 7,700 tons of materials via a total of more than 5,400 flights. It was the largest air transportation operation in the history of the PLA's disaster rescue and relief work. In order to speed up the pace of evacuating Chinese people from Libya, the PLA Air Force urgently dispatched 4 IL-76 transport planes, with each plane flying over 30,000 km in 46 hours. The 1,655 Chinese evacuees in the last batch all successfully left Libya.
  • In recent years, the PLA and the PAPF dispatched more than 260,000 officers and men, 200 airplanes and 102 ships and warships to undertake security and guard tasks for such grand events as the Beijing Olympic Games, Shanghai World Expo, Guangzhou Asian Games and Shenzhen Universiade.
- In recent years, the PLA and the PAPF dispatched professional forces to fight forest fires in the Greater Khingan mountains, Funing county of Hebei province, Taian city of Shandong province and other places, effectively protecting China's forest resources. A water supply engineering troop unit of the PLA implements tasks nationwide such as digging wells to fight against drought and contributing numerous streams of life to the people.
- In June 2008, a troop unit of the PLA airborne force urgently blocked

off the dam in the Mianyuan river. In July 2010, an engineer regiment of a group army under the PLA Lanzhou MAC successfully blocked off the crevasse of the Luofu river in Weinan city of Shaanxi province. In June 2010, a transportation troop unit of the PAPF successfully blocked off the crevasse of the Changkai Dam of the Fuhe river in Jiangxi province.

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- Since 2008, the PLA has dispatched 7,735 officers and men to participate in international peace-keeping operations and sent 291 officers and men to take part in disaster rescue work in Indonesia and other countries. At present, China has a total of 2,100 peace-keepers implementing peace-keeping operations within the framework of the United Nations, contributing the biggest number of peace-keeping officers and men among the five permanent member states of the UN Security Council.

LEGAL AND INSTITUTIONAL INFRASTRUCTURE

The Chinese military's internal security responsibilities fall within the broad category of "diversified military tasks." The concept of diversified military tasks, first introduced at least as early as 2004 and emphasised at the Chinese Communist Party's 17th Congress in 2007, calls for the PLA, the PAPF, the militia, and the reserves to be prepared to handle a range of responsibilities far wider than simply deterring and, if necessary, defending against aggression by foreign armed forces. Although the concept is only loosely defined, commentators in China understand it as including both the wide variety of tasks that a modern army would have to perform in conducting "local wars in conditions of informatisation" and a number of responsibilities that fall under the rubric of "military operations other than war."

MOOTW cover a wide range of responsibilities, including conduct of operations meant to deter foreign aggression, border control, counter-

terrorism, response to serious incidents of mass violence, emergency response, rescue, humanitarian aid, participation in UN peace-keeping operations, and even drought alleviation measures such as cloud- seeding. All of these MOOTW and other "diversified tasks" are seen as being related. China's leaders see themselves and their military as facing a world in which "issues of existence security and development security, traditional security threats and non-traditional security threats, and domestic security and international security are interwoven and interactive."

The legal basis for the Chinese armed forces' internal missions is ultimately derived from Article 29 of the Constitution of the People's Republic of China (PRC). After stating that the purpose of the armed forces is to "strengthen national defence, resist aggression, and defend the motherland," Article 29 goes on to assign three other broadly defined tasks: "safeguard the people's peaceful labour, participate in national reconstruction, and work hard to serve the people." This flexible definition of the tasks of the armed forces supplies a constitutional basis for virtually any internal deployment of military force for the accomplishment of any specific task that the Chinese leadership might wish to accomplish.

The PRC only began to build a formal emergency response management system in the post-Mao era. Prior to that, emergency response was handled largely on an ad hoc basis by the Communist Party leadership on all levels, who tended to employ small temporary crisis management groups to lead a "mass movement" style of social mobilisation to deal with crises. Since 1979, economic reform, the growth of a market economy, greater respect for property rights, an increasingly complex bureaucracy, and greater awareness of the models of emergency response in other countries have combined to move China toward the development of a specialised emergency response system. A growing body of law seeks to define the Chinese military's roles and responsibilities and its relations with the state, society, and economy. One of the regular complaints emerging in the Chinese literature on the PLA's internal security missions is that this body of law is still woefully inadequate. As the Asian Development Bank pointed out in its report on

the Wenchuan earthquake response: "The Chinese government does not have a stand-alone disaster risk management agency with a dedicated disaster risk management function." However, there are laws and emergency response plans that lay out some of the internal security roles and responsibilities of the PLA, the PAPF, the militia, and the reserves.

China's laws describe "contingencies" or "public emergencies" as including natural disasters, accidental disasters, public hygiene incidents, and social security incidents. Contingencies are classified into four levels: I - Very Severe; II - Severe; III - Relatively Severe; and IV - Average. In general, the laws and contingency or emergency response plans envisage local police, militia, and reserves as the initial and, in lower-grade incidents, the only necessary, responders to contingencies. However, in severe and very severe incidents, the PAPF and/or the PLA are called upon to operate as "shock troops" and even as the main forces in handling natural disasters and other emergency situations.

The emergency response law of the PRC states the military's role in typically flexible terms: "The Chinese People's Liberation Army, the Chinese People's Armed Police Force, and militia join in emergency response, rescue, and management in accordance with this law and other relevant laws, administrative regulations, and military laws and the commands of the State Council and the Central Military Commission." The regulation on army participation in disaster rescue and relief describes the PLA's role in disaster rescue and relief as that of a "strike force," and its responsibilities as rescuing, transferring, or dispersing victims; protecting the safety of important targets; rescuing and transporting important materials; participating in specialised tasks, including repair of roads, bridges, and tunnels, rescue at sea, nuclear, chemical, and biological rescue, control of infectious disease, preventing or controlling other serious dangers or disasters, and when necessary, assisting local government in reconstruction. The PLA began formally including rescue and disaster relief operations in its training programmes in 2002.

CHINA'S GROWING DEFENCE BUDGET

Beijing has given the military double-digit budget increases for well over a decade and some Chinese security analysts are calling for a larger-than-usual boost this year. Whatever the exact amount of China's official defence budget, the announcement will once again highlight China's growing military power. Widely dismissed as a "junkyard army" for many years, the Chinese military is now raising quite a few eyebrows with its growing capability. In recent years, China has deployed increasingly potent anti-access capabilities, including modern surface ships, advanced submarines, fourth generation fighter aircraft, and conventional cruise and ballistic missiles. China is also enhancing its Command, Control, Communication, Computer, Intelligence, Surveillance, Reconnaissance (C4ISR), space and cyber warfare capabilities; developing an anti-ship ballistic missile designed to target US aircraft carriers; and modernising its nuclear forces.

The PLA's growing capabilities in these areas, along with other recent notable events, including Beijing's controversial anti-satellite missile test in January 2007; its January 2009 missile defence intercept test; and the Chinese Navy's unprecedented and continuing participation in counter-piracy operations off the coast of Somalia since December 2008 are raising questions about whether an increasingly powerful China represents a looming military threat. In an article for the Centre for Security Policy, the author Frank Gaffney argues, "China is responding to what it perceives to be US declining power by becoming ever more well armed, assertive and contemptuous, a formula for serious, and possibly major, conflict ahead."[9]

At the outset of the economic reform era in the 1970s, China's leaders stated that military modernisation would take a backseat to domestic economic development. Deng Xiaoping argued that it would be necessary to delay major increases in defence expenditure until China had achieved a higher level of economic development. By the end of the 20th century, Deng predicted that China would be much more powerful economically and would then be able to spend more on military modernisation without

9. Frank Gaffney, "Obama vs. the All-Volunteer Military," Centre for Security Policy, February 1, 2010.

short-changing other national priorities. In line with this guidance, the PLA's share of the budget declined throughout the 1980s. While it saw nominal increases in the late 1980s and early 1990s, much of that gain was devoured by inflation. It was not until the late 1990s when rapid economic growth began and Beijing became determined to develop more credible military options against Taiwan and the US in a cross-Strait conflict that the PLA finally started to enjoy major increases in the defence budget.

The number of funding sources and the involvement of multiple levels of government further complicate attempts to estimate China's defence spending.

This trend has continued and China's official figures put defence spending at about 1.4 percent of the country's rapidly growing Gross Domestic Product (GDP). The official numbers tell only part of the story, however. The true level of China's current defence budget is difficult to calculate, largely because some items are not reflected in the announced defence budget. Among these are expenditures on foreign weapons procurement, paramilitary expenses, state subsidies for the defence-industrial complex and some defence-related R&D programmes. Moreover, the number of funding sources and the involvement of multiple levels of government further complicate attempts to estimate China's defence spending. Consequently, outside estimates range from about one-and-a-half to three times the official budget figure.

Attempting to project future trends in Beijing's military spending is even more complex. Forecasts of Chinese military spending over the next 10 to 20 years vary widely, depending on the methods employed and the underlying assumptions about China's future economic performance. For example, in 2005, the US Department of Defence predicted a possible three-fold or greater increase in China's defence spending over the next 20 years, which would place its military budget at $210 billion to $315 billion or more in 2025.[10] In contrast, a RAND Corporation report released at about the same time, projected that in 2025, Chinese defence spending would reach about $185 billion. That's still an impressive sum, but considerably lower than the

10. Office of the Secretary of Defence, Annual Report to Congress, *Military Power of the People's Republic of China 2005*, pp. 21-22.

Pentagon forecast.[11] These divergent estimates reflect uncertainty not only about future economic performance, but also about how China's leaders will choose to allocate budgetary resources when faced with a variety of new security challenges, on the one hand, and competing domestic priorities, on the other.

NEW MISSIONS FOR THE PLA

Because MOOTW enhances China's soft power, Beijing has been more supportive towards externalising the military's non-combat activities. As China's political, economic and security interests become more global and complex, the PLA's roles and missions are evolving to contend with an increasingly diverse set of security challenges. In December 2004, President Hu Jintao assigned the "New Historic Missions" to the PLA, which encompass four key roles:

- Help the Communist Party maintain and consolidate its ruling position.
- Provide a strong security guarantee for national development.
- Safeguard national interests.
- Safeguard world peace and promote common development.

To fulfil these expanded missions, the Chinese leadership has tasked the PLA with enhancing its capabilities to successfully conduct combat operations and participate in military operations other than war. Specifically, President Hu's concept of "multiple military tasks" provides a conceptual framework for the PLA to properly balance the development of the capabilities required to fulfil its evolving combat duties along with other military missions.

The PLA's participation in bilateral and multilateral military exercises is a remarkable evolution in China's approach to military diplomacy and national security. These exercises are better understood when viewed within the context of Beijing's confidence-building strategy, recognition of non-traditional threats, emphasis on force modernisation and military operations other than war, and the desire to counter-balance the United

11. Keith Crane, Roger Cliff, Evan Medeiros, James Mulvenon and William Overholt, *Modernizing China's Military: Opportunities and Constraints* (Santa Monica, CA: RAND, 2005).

States. In addition, the analysis of both the benefits and implications that these exercises have for the Chinese military provides observers with a better understanding of the People's Liberation Army and its approach to military diplomacy.

As Gen Xu declared, "To deter and win wars remains the top priority of the armed forces."

As Chinese CMC Vice Chairman Gen Xu Caihou has indicated, MOOTW are emerging as "routine and constant missions for the military," adding: "We believe that in the current era when the tides for peace, development and cooperation are ever more keenly felt, to conduct military operations other than war is becoming an increasingly important form of applying military forces".[12] Chinese strategists indicate that Beijing's conception of such operations covers a wide variety of activities, including counter-terrorism operations, participation in UN peace-keeping operations, non-combatant evacuation operations, emergency disaster relief operations, international humanitarian assistance and counter-piracy patrols.

But while the military's participation in such activities, like its counter piracy patrols off Somalia, is clearly seen as important, the PLA's core mission remains clear. As Gen Xu declared, "To deter and win wars remains the top priority of the armed forces."[13] As part of the concept of "multiple military tasks," Chinese strategists envision several potential types of combat operations, including, but not limited to, large-scale island attack, air defence and border-area defence operations.

The PLA faces the challenge of balancing the relationship between enhancing combat operations and ramping up military operations other than war. Chinese analysts argue that such activities can help improve the PLA's ability to win wars by giving it experience in critical areas such as command and decision-making, projection of military strength, logistics and support operations, and intelligence, surveillance and reconnaissance activities. Growing involvement in such missions can enhance China's image and offer valuable operational experience that will help improve its

12. Gen Xu Caihou, "The Chinese Military: A Force for Multiple Military Tasks," speech at the Centre for Strategic and International Studies, October 26, 2009.
13. Ibid.

ability to conduct combat operations and support the core goal of deterring and winning wars.

POTENTIAL CONSTRAINTS

Even as the PLA's involvement in non-traditional security missions grows, it seems likely that the demand for greater defence spending may increasingly come into conflict with the rising costs of China's domestic priorities. Indeed, calls for increased defence spending are likely to be matched by growing demands for government outlays to cope with a range of social problems. Such problems, which emerged as consequences of Beijing's economic reforms during the Deng Xiaoping and Jiang Zemin eras, include a growing income gap, the glaring inadequacies of the Chinese health care system, worsening environmental degradation and rising social unrest. Tensions that have arisen from these challenges could worsen if the pace of China's economic growth slows.

Under the leadership of President Hu Jintao and Premier Wen Jiabao, China has been shifting from an economic strategy that emphasised rapid GDP growth above all else to an approach that devotes more attention to reducing income inequality and promoting sustainable economic development. As part of this new approach, Chinese leaders stress that the country's economic policies must promote the development of a "harmonious society" based on balanced growth and sustainable economic development.[14] Hu and Wen are likely to have their hands full, as top officials historically have been evaluated using metrics associated with the rapid growth strategy. The shift in orientation may also begin to impose serious constraints on further dramatic increases in military spending in the future.

CONCLUSION

Rapid economic growth has allowed Beijing to dramatically increase defence spending since the late 1990s. It has been able to do so without having to

14. For a detailed explanation of this approach, see "Communiqué of the Sixth Plenum of the 16th CPC Central Committee," *People's Daily*, October 12, 2006.

make tradeoffs between military modernisation and other policy priorities. China remains determined to continue modernising its military for at least two major reasons. First, China still sees military power as an important aspect of its Taiwan policy even in a time of warming relations. Second, Beijing appears convinced that China's growing global interests require a much more capable military. Indeed, the concepts of "new historic missions" and "multiple military tasks" provide a more expansive rationale for Chinese military modernisation beyond Taiwan.

As the PLA embraces missions that require its forces to deploy regionally and globally, it is likely to participate in more exercises to test its capabilities in foreign environments and learn from experienced counterparts.

As the PLA embraces missions that require its forces to deploy regionally and globally, it is likely to participate in more exercises to test its capabilities in foreign environments and learn from experienced counterparts. Simultaneously, the PLA's participation in overseas exercises has become an invaluable means for Beijing to exert its regional and global influence. Finally, China's participation in international exercises represents an important stepping stone in the PLA's transition into a modern fighting force. The recent developments reflect the PLA's rising confidence and China's growing assertiveness in the 21st century.

To the extent that new roles and missions ultimately require a greater global presence for the PLA, we could see growing concerns about China's expanding military capability in some countries, rising tensions within China over some of its traditional foreign policy principles and potentially new challenges for their security relationship. However, it should be noted that international maritime exercises so far only offer limited improvements to the PLAN's MOOTW capabilities. The activities have been more useful to Beijing as public relations events, rather than sophisticated exercises that strengthen the navy's conduct at sea. This may reflect the PLAN's still limited capacity in cooperating with foreign navies under complex conditions. However, in the long-term, sustained

operational experience in the Gulf of Aden and ongoing engagement in regional forums on maritime security will no doubt contribute to China's maritime MOOTW capabilities.

This paper reflects the views and conclusions of the author and not necessarily the opinions or policy of the Centre or any other institution.

THE UMBRELLA POLITICS

DEBALINA CHATTERJEE

When a state stays under the security umbrella of another state, the latter takes the responsibility of providing security to the former, either explicitly or implicitly. The ideological power struggle between the Soviet Union and the United States during the Cold War had resulted in blocs to gain political leverage and strategic advantage in regions of their interests. Military and political influence are two vital factors which determine a state's power potential. Extended deterrence is referred to as "an attempt by a defender to discourage a challenger from attacking its protégé".[1]There have been several arguments propounding that extended deterrence works, as can be understood from the following sentence: "*There hasn't been a superpower war since 1945 in spite of the Soviet Union's expansionist ambitions, so deterrence must work*".[2]

During the Cold War, the East and West considered nuclear weapons to have "superseded all other types of weapons, and commitments to allies had been made exactly on this supposition".[3] Ken Booth and Nicholas Wheeler have argued that a true security dilemma has two aspects: a "dilemma of

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1. Steve Chan, "Extended Deterrence and the Logic of Selection", in *China, The US, and The Power-Transition Theory: A Critique* (New York: Routledge, 2008).
2. As Quoted by Richard Ned Lebow, "Extended Deterrence: Fact or Fiction?", in Eric H. Arnett, ed., *New Technologies for Security & Arms Control: Threats & Promise* (Washington: AAAS Publication No.98-36S, 1989).
3. Lawrence Freedman, "Strategic Studies and the Problem of Power", in Thomas G. Mahnken, Joseph A. Maiolo, eds., *Strategic Studies: A Reader* (New York: Routledge, 2008).

interpretation" which arises from uncertainty over the motives, intentions and capabilities of other states; and the "dilemma of response" which arises from uncertainties over the appropriate response. This further complicates international politics as choices made in this regard determine "whether actors are drawn into a spiral of strategic competition and arms racing, jeopardising rather than enhancing their security".[4]

This paper aims to take a look at the umbrellas that exist in today's forum of world politics and the *raison d'etre* behind them. For a broader understanding, the paper is divided into four sections: the first section explains why states offer a security umbrella, the second deals with why states accept to be under a security umbrella, the third deals with why some countries choose not to be under a security umbrella, and the fourth section with the limitations of a security umbrella.

SECTION I

WHY STATES CHOOSE TO OFFER A SECURITY UMBRELLA

States with autonomous production of weapons are more powerful than states without this capability. Powerful states like Russia and the United States provided a security umbrella in order to maintain the security colonialism. States balance power in two ways: either by mobilising their domestic resources to develop military power or by forming temporary alliances with other states which have similar interests.[5] In the early 19th century, Britain provided a naval umbrella in the Gulf region for Pax Britannica dominance. A security umbrella was usually used by the United States to provide nuclear security to countries like Japan, South Korea, Turkey, a large part of Europe, Canada and Australia for Pax Americana dominance. A defensive umbrella for US allies in the Gulf indicates that the US is "trying to create a more self-sustaining security architecture that requires outside involvement

4. As put forward by William Walker, "Sculpting an Order out of Disorder: Nuclear Weapons and Cold War", in *A Perpetual Menace: Nuclear Weapons and International Order* (New Delhi: Routledge, 2012).
5. Lt. Col. Rolf A. Siegel, "America's Grand Strategy Choices", *Strategy Research Project*, US Army War College, April 10, 2000. (Unclassified).

only *in extremis"*.[6] With the integration of Japan and Germany in the US security and economic arrangements, the Americans tried to maintain peace with these enemy states through a policy of "double containment"**.** The Soviet Union, on the other hand, never had an explicit security umbrella over its allies. Barry Buzan explains the "superpower overlay" which was particularly strong in Northeast Asia where "indigenous security dynamics were effectively suppressed throughout the Cold War".[7] In 1957, after the launch of the Sputnik by the Soviets, Eisenhower offered Intermediate Range Ballistic Missiles (IRBMs) to the European countries. For the United States, stationing of tactical nuclear weapons in the European states was necessary since the European conventional build-up was still at its nascent stage. The Soviets, on the other hand, considered Central and Eastern Europe to be more important and, hence, decided to deploy satellite alliances with these countries "to provide a buffer" against a perceived American expansion and also to prevent a German "revanchist design" in Europe.[8] The Nye Report of 1995 clarified the United States' long-term commitment in the region. For the United States, it was important to maintain a tangible strategic "footprint" in the region to check the Chinese and keep an eye on the North Koreans. Washington chose to hedge its security bets which would combine "engagement, binding, and balancing mechanisms".[9] Since 1945, the Russians have made their presence felt strongly with their

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6. Peter Juul, "Clinton's Defence Umbrella", *The Guardian*, July 24, 2009, <http://www.guardian.co.uk/commentisfree/cifamerica/2009/jul/23/clinton-iran-defence-umbrella-gulf>
7. Barry Buzan, "The Post Cold War Asia-Pacific Security Order: Conflict or Cooperation?" in Andrew Mack and John Ravenhill, eds., *Pacific Cooperation: Building Economic and Security Regimes in the Asia-Pacific Region* (Boulder, CO: Westview Press, 1995).
8. As expressed by Andrew O' Neil in "Northeast Asia's Security Order", in *Nuclear Proliferation in Northeast Asia: The Quest for Security* (New York: Palgrave Macmillan, 2007).
9. Evan S. Medeiros, "Strategic Hedging and the Future of Asia-Pacific Stability", in Li Ming Jiang, ed., *China's International Relations In Asia: Critical Issues in Modern Politics*, Vol I (New York: Routledge, 2010).

security umbrella in Tajikistan and, at present, theirs is the "second largest military contingent" outside Russian territory. [10] The ten-year lease signed between Russia and Tajikistan in 2004, enables Russia to get "exclusive use of three military bases and joint use of an air base free of charge" and also deploy Russian troops in the territory of Tajikistan. [11]

When the United States formed the North Atlantic Treaty Organisation (NATO) in 1949, Lawrence Kaplan had identified it as a "radical transformation in American foreign policy". Many analysts felt the United States was going against the policy of political isolationism which it had followed prior to 1941. The United States applied Winston Churchill's strategy of taking the harder course, joining with the "less strong powers" and thereby defeating and frustrating the "continental military tyrant" in its own grand strategy.[12] The 1950 National Security Council articulated America's grand strategy as one framed to "foster a world environment in which the American system can survive and flourish".[13]

During the Cold War, the two superpowers were aware that a strategic victory for one was a strategic failure for the other. The weakening of Japan at the end of World War II, and the resource exhaustion of France and Britain, forcing them to retreat from Asia soon after World War II were some of the factors that led the United States to start playing a big role in the Asia-Pacific region. In contrast, the Gross National Product (GNP) of the United States increased from $209.4 billion in 1939 to 355.2 in 1945.[14] In 1950, the United States held 49.8 percent of the world's monetary gold, reserve currencies, and International Monetary Fund (IMF) reserves.[15] The Soviet nuclear umbrella was never an officially declared one but was implied

10. Farangis Najibullah, "Tajikistan Under the Russian Security Umbrella", <http://www.rferl.org/content/under_the_russian_security_umbrella/24320140.html>
11. Ibid.
12. Piece quoted from citation by Eric A.Miller, "Threats, Dependence, and Alignment Patterns", in *To Balance or to Balance: Alignment Theory and the Commonwealth of Independent States* (England: Ashgate Publishing Ltd, 2006).
13. "American Hegemony Without an Enemy," <http://www.u.arizona.edu/~volgy/LayneSchwarzAmericanHegemony.html>
14. Geir Lundestad, "Cooperation Established: 'Empire' by Invitation, 1945-1950: America's Position of Strength", in *The United States and Western Europe Since 1945* (New York: Oxford University Press, 2003).
15. Ibid.

under the security pacts. Under the Collective Security Treaty Organisation, it included Belarus, Armenia, Kazakhastan, Uzbekistan, Kyrgyzstan, and Tajikistan. The United States, on the other hand, followed the hub and spokes system whereby it tried to build several alliance mechanisms after the San Francisco Peace Conference in 1951. It is described as a model in which there is a cartwheel in which the hub (the United States) stands and can move with the help of strong spokes like Japan, South Korea, Turkey and other alliances. As North Korea continues with its ambitions of possessing nuclear weapons, the extended deterrence has further strengthened in South Korea. China perceived the presence of the US defensive umbrella in Japan as a check on Japan's strategic ambitions.

The US defence strategy aims to achieve four key goals for the development of US forces' capabilities, their development and use. They have "paid special attention in assuring allies and friends of the US' steadfastness of purpose and its capability to fulfil its security commitment; dissuading adversaries from undertaking programs or operations that could threaten US interests or those of our allies and friends; deterring aggression and coercion by deploying forward the capacity to swiftly defeat attacks and imposing severe penalties for aggression on an adversary's military capability and supporting infrastructure; and, decisively defeating an adversary if deterrence fails".[16] The defensive umbrella had proved to be fruitful for the United States in the case of Taiwan as in the quest for military assistance to counter the Chinese threats, Taiwan even underwent a transformation from a corrupt dictatorship to a democracy. However, it could be rightly said that in Taiwan, the United States basically follows *dual* deterrence or *pivotal* deterrence and not *extended* deterrence. This means that the US tries to discourage China from launching any armed attack against Taiwan while, at the same time, it discourages any attempt by Taiwan to declare *de jure* independence.

The tussle between democracy and non-democracy continues since the end of World War II. With an Anglo-Saxon model of capitalism and the quest to become the world's government, containment of the Communist

16. Doctrine of Joint Nuclear Operations, *Joint Publication 3-12,* March 15, 2005.

The United States believed that an unchecked China would "enforce claims over resources and territory" which are disputed at present by the "weaker neighbours."

bloc remained a major agenda of the United States' grand strategy. Andrew O' Neil highlights Asia's Cold War dynamics based on three independent levels: the impact of the US-Soviet global rivalry in shaping the security frameworks and strategic dynamics of inter-state relations in the region; the regional-level rivalries involving Asia's indigenous great powers, particularly China; and "the competition, conflict and cooperation among the local powers at the sub-regional level…overlaid by the rivalries among the major powers".[17]Nuclear weapons have always been an important tool in the foreign policy of Washington. In 1949, the nuclear umbrella was provided to NATO by the US to "protect against the perceived military threats of the Soviet Union and the Eastern bloc countries".[18] For the United States, Asia was in its list of regions of strategic importance only when the dragon became a Communist state and the Americans feared Communist expansionism in Asia. The United States believed that an unchecked China would "enforce claims over resources and territory" which are disputed at present by the "weaker neighbours".[19] It was assumed that the security umbrella would enable Washington to enhance its strategic reassurance. In the 1960s, Lyndon Johnson offered support to states that felt threatened by the nuclear blackmailing of the "Communist Chinese aggression". Since the end of the Cold War, the Chinese have been cautiously pursuing a strategy of expanding their own power and influence and, at the same time, trying to undermine and diminish the power and influence of the United States. The United States had always played the game of *real politik* well against both the Soviet Union during the Cold War and against China post Cold War. In the Asia-Pacific region, the United States uses the security dilemma model

17. O' Neil, n.8.
18. David Krieger and Steven Starr, "A Nuclear Nightmare in the Making: NATO, Missile Defense and Russian Insecurity", *Nuclear Age Peace Foundation,* January 3, 2012.
19. Views expressed by Aaron L. Friedman, "A Contest for Supremacy" in *A Contest for Supremacy: China, America, and The Struggle for Mastery in Asia* (New York: W.W. Norton & Company, Inc., 2011).

to contain the Chinese. In 1961, a Treaty of Mutual Assistance, Friendship and Cooperation was signed which committed the USSR to the defence of North Korea. This cordial relationship was maintained even during the Sino-Soviet split when North Korea maintained good relations with both the countries.[20] At present, both the United States and China are trying to shadow box each other for influence and status in the Asia-Pacific region. The United States has particularly been befuddled about China's revisionist tendencies and believes that China's rise could bring about instability in the Asia-Pacific region

Post Korean War, the United States had remained committed to South Korea's security and, in return, the South Korean government purchased US military goods. In 1980, Korea signed a memorandum of understanding with the United States government to purchase the F/A-18s, and in 1991, decided to procure the F-16s.[21] Provision of the security umbrella to Australia under the Australia, New Zealand, United States (ANZUS) Treaty since 1981 had provided the United States a stopover for US Air Force (USAF) B-52 bombers at Darwin in the Northern Territory when they fly out from Guam to patrol the Indian Ocean. South Korea was the largest recipient of US exports of major conventional weapons for 2005-09. The United States delivered 40 F-15K combat aircraft and advanced air-to-air missiles and air-to-surface missiles to South Korea.[22] Under the implicit nuclear umbrella of the United States, Israel procured several fighter aircraft like the F-151 Thunder[23], F-4E 2000 Phantom and F-161 Sufa[24]. Japan would be receiving the F-35s from the United States. South Korea, Japan and Taiwan have received aircraft like the F-16 Fighting Falcons, F-15 Eagles, and F-4 Phantoms. It has

20. Greg Austin and Alexey D. Muraviev, "Strategic Policy in the Asia Pacific", *The Armed Forces of Russia in Asia* (New York: I.B.Tauris & Co Ltd, 2000).
21. Kongdan O. H., "US-Korea Aerospace Collaboration and the Korean Fighter Project", *International Military Aerospace Collaboration: Case Studies in Domestic and Intergovernmental Politics.*
22. Paul Holtom, Mark Bromley, Pieter D. Wezeman and Siemon T. Wezeman, "International Arms Transfers", *SIPRI 2010.*
23 David S. Sorenson, "Israel, the United States, and the F-151 "Thunder", Program, *International Military Aerospace Collaboration.*
24. John Steinbach, "The Israeli Nuclear Weapons Program", The Emirate Centre for Strategic Studies and Research, 2009. <http://www.nuclearfiles.org/menu/key-issues/nuclear-weapons/issues/policy/israeli-nuclear-policy/steinbach_israeli_program.pdf>

been suspected that Iran too could provide a nuclear umbrella to fellow Muslim countries as a cover for "terrorism and subversion".[25] By this move, Iran could make it clear that it was ready to launch an attack on non-Muslim states like Southeastern Europe, Israel and Russia. Iran's decision of an alliance with the Islamic countries for a missile umbrella could also imply that Iran could threaten those Islamic countries that support the West. There have also been reports of Iran starting to build a joint missile base in Venezuela which would enable Iranian missiles to reach the territory of the United States. Iran had planned to station the Shahab-3, Scud-B and Scud-C category missiles in the region. This could enable Iran to carry on with the S-300 missile deal with Russia, using Venezuela as the proxy state to buy the missile, as Russia is bound by sanctions against Iran.[26]

The United States considers that the concept of providing a nuclear umbrella to allies assures them of nuclear security and serves as a tool for non-proliferation by preventing them from trying develop and field their own nuclear weapons. The United States offered a security umbrella to Israel to prevent it from acquiring nuclear weapons, even though some could debate that Israel already possesses indigenous nuclear weapons. There have been several arguments which pointed out that in case the United States stopped providing a nuclear umbrella to states, many states like Germany and Japan could become nuclear weapon states. The decision to deploy four Aegis ships in Rota, Spain, is due to the fact that Rota is on the southwestern Atlantic coast of Spain, about 65 miles away from the Strait of Gibraltar, which leads to the Mediterranean Sea. This would be critical to the security of the region.

In the Gilpatrick Committee Report, it was asserted that a Japanese decision to build nuclear weapons would probably produce a chain reaction of similar decisions by other countries. [27] In 1958, the United States had deployed nuclear weapons in South Korea. However, by 1992, under the

25. C.Hart, "The Marriage of Terrorism and Nuclear Capability", *American Thinker,* February 24, 2010.
26. Anna Mahjar-Barducci, "Iran Placing Medium Range Missiles in Venezuela: Can Reach the US", Gatestone Institute, December 8, 2010.
27. Roswell L.Gilpatrick, Chairman, "A Report to the President by the Committee on Nuclear Proliferation", National Security Archive, Washington, DC, January 21, 1965.

direction of George Bush, the nuclear weapons were removed from the state. There were unconfirmed reports that South Korea was pursuing its own nuclear weapon programme. In the 1960 and 1970s, when the conventional military balance started tilting towards North Korea, Seoul did think of a nuclear arsenal to neutralise Pyongyang's conventional military strength. However, in 1975, South Korea was coerced by the United States to sign the nuclear Non-Proliferation Treaty (NPT). The security umbrella over Taiwan enabled the United States to cut off the French-Taiwan nuclear deal too. The United States' decision to offer a nuclear umbrella to the Middle East states is to deter Iran and also to prevent other Islamic states in the region from becoming nuclear states.

Weaker states often bandwagon with powerful states having the same enemy in order to increase the strategic costs to the enemy state.

SECTION II

WHY STATES CHOOSE TO ACCEPT A SECURITY UMBRELLA

Military stability is a desired aim for most states as no state would want to be defeated militarily and be subjected to political submission by military means. While some states prefer to indigenously militarise, others often prefer to stay under a security umbrella in order to save the expense of military modernisation and also to remain safe and secure against any threat of aggression from rival or rogue states. States which do not have the power to deter other states, could use the security umbrella to their convenience to deter those states and thereby bring in regional stability. Weaker states often bandwagon with powerful states having the same enemy in order to increase the strategic costs to the enemy state. As Kenneth Waltz puts it, "on the weaker side" alignment is "appreciated and safer, provided, of course, that the coalition they join achieves enough defensive or deterrent strength to dissuade adversaries from attacking".[28] For example, a missile defence umbrella in Turkey will raise the cost for Iran and Russia to develop

28. As quoted in Threats, Dependence, and Alignment Patterns.

counter-measures to overwhelm the ballistic missile defence. Many analysts feel Japan's Yoshida doctrine allowed Japan to be a "free rider" whereby it could exist under the shadow of American security, thereby preventing resources to be drained out to raise a standing military. While the Chinese economy remained in the underdeveloped category, Japan's remarkable economic growth determined by the *Phoenix* factor after the holocaust was regarded in Northeast Asia as the "regional exemplar of the developmental state".[29] It could also be said that because Japan had little pressure of military expenditures, it could continue its United Nations diplomacy efficiently. Tokyo's contribution to UN expenditures increased from 11.4 percent in 1989 to 19.5 percent in 2004. [30] Japan possesses one of the most modern conventional military forces in the world. After the Korean War, South Korea also received foreign aid which prevented the economy from falling apart. It has been reported that Turkey has an estimated 90 B-61 bunker busting bombs of the United States hosted in its own territory which are claimed to be far more than what Turkey can produce indigenously.

As Stephen Walt argues, states ally to balance against threats rather than against power alone. [31] Gramsci describes hegemony as "a relation, not of domination by means of force, but of consent by means of political and ideological leadership. It is the organisation of consent."[32] A major reason for Japan to be under the tutelage of the American forces was the Sino-Japanese tension which had prevented detente since time immemorial. China, on the other hand, chose to build a close alliance with the Soviets unlike the Japanese policy of a dependent security alliance with the United States. The Yoshida doctrine accepted the "conditional independence" and "sovereignty" of Tokyo in exchange of the American "strategic shield". [33] Japan's neighbours could encourage the nuclear umbrella as some feel that

29. O' Neil, n. 8.
30. Rex Li, "A Regional Partner or a Threatening Other? Chinese Discourse of Japan's Changing Security Role in East Asia", in Christopher M. Dent, ed., *China, Japan and Regional Leadership in East Asia*.
31. O' Neil, n. 8.
32. Cornelia Beyer quotes Antonio Gramsci's definition of hegemony in "Hegemonic Governance", University of Hull, <http://turin.sgir.eu/uploads/Beyer-Hegemonic%20Governance%20Turin.pdf>
33. Japan: Occupation and Recovery.

in case the US-Japan treaty ever fails, Japan could rearm itself.

Japan could argue the case for a nuclear umbrella under defensive military capabilities.

When Washington offered IRBMs to Europe, Turkey and Italy accepted them. Turkey accepted them to deter the Soviets while Italy accepted them to strengthen its relationship with the US and achieve a power status. Allied elites, especially in Northeast Asia, accepted US leadership based on the "legitimate ideology of extended nuclear deterrence, institutional integration and unique American nuclear forces that underpinned the alliances".[34] A possible reason for Japan's acceptance of the nuclear umbrella could be that Japan had learnt from the mistakes it had committed in the Pearl Harbour episode, and would not dare to challenge the United States in the future. Japan could argue the case for a nuclear umbrella under defensive military capabilities. In case Japan becomes a nuclear weapon state, it could lose the United States as an ally and could be isolated in the East Asian region, given that the country does not have trustworthy allies in the region. The "Taepo Dong shock" in which a North Korean missile flew above Japan, landing in the Pacific Ocean, made Japan pretty apprehensive and led to a missile defence alliance with the United States. The fear of North Korea acquiring nuclear weapons also strengthened Japan's decision to build a missile defence alliance with the United States. Right after the Korean War, South Korea was under the nuclear umbrella of the USA in order to deter the Chinese. In 1958, nuclear weapons were deployed in South Korea, and till 1991, South Korea was under the nuclear umbrella of the USA. However, with North Korea testing its nuclear weapons, the USA and South Korea issued a joint communiqué whereby the USA agreed to provide help to the South Koreans for 'extended deterrence' under a nuclear umbrella.[35] The 'direct military threat' from North Korea had worried the South Koreans.

34. As cited by Peter Hayes in "Extended Nuclear Deterrence, Global Abolition, and Korea", *The Asia-Pacific Journal: Japan Focus* < http://www.japanfocus.org/-Peter-Hayes/3268>
35. Note: In 2009, President Obama reaffirmed to provide security to South Korea through extended deterrence and under this extended deterrence, providing the nuclear umbrella was on the agenda of Washington.

The North Korean military doctrine is based on the belief that decisive victory can be achieved only by offensive means. The nuclear umbrella could also help in building cordial relations between South Korea and Japan. Both perceive North Korea as a serious threat to their territory. Hence, both countries, sharing similar political values and a capitalist economy, have the potential of being allies. Saudi Arabia has also been threatened by Iran's ambitious nuclear programme. At present, Saudi Arabia is believed to be under the nuclear umbrella of the United States. Even the UAE desired to be under the missile defence umbrella of the United States and was interested in the Terminal High-Altitude Area Defence (THAAD) system. The security umbrella deal between Venezuela and Iran permits Venezuela to use the missile facilities in case of "national needs".[36]

During the Cold War, when Germany was divided, any military attack by the East Germans on the West German border could have provoked a nuclear retaliation from the United States. One could rightly say that the United States allowed Germany to carry on with civilian nuclear research and development because of it being under the American nuclear umbrella. However, following *ostpolitik* and the unification of Germany, both East and West Germany came under the security umbrella of the United States. The uranium imports for Japan could be used judiciously only for the purpose of nuclear energy without facing the consequences of sanctions on the import of nuclear energy. The United States encouraged Japan to establish its own self-defence forces with technological and financial assistance from the United States which would include Japan's defence industrial base and also aerospace. There was, hence, a *gaiatsu* (political pressure) for rearmament. In 1955, the indigenisation of the Japanese aerospace industry began with the licensed production of the F-86 (60 percent of domestic production). However, in 1956, Japan produced the T-1 trainer which was 100 percent domestic with a licensed engine. By the 1960s, the aerospace industry started to flourish and most Japanese felt that autonomous defence capabilities comprised a better option than being in an alliance.[37]

36. As quoted in Mahjar- Barducci, n.26.
37. Michael Jonathan Green, "US-Japan Co-development of the FSX", *International Military Aerospace Collaboration: Case Studies in Domestic and Intergovernmental Politics.*

For Japan, the idea of staying under the nuclear umbrella could be the best option as that would prevent Japan from withdrawing from the NPT, thereby damaging its own international reputation. At the end of World War II, Japan hoped for Soviet mediation to obtain more favourable surrender terms which were dashed by Moscow's decision to enter the war, thereby violating its neutrality treaty with Japan.[38] In a way, one could say, the military alliance with the United States spared Japan from being divided among the victors, unlike Germany, thereby enabling Tokyo to regain its sovereignty. [39] This dependent security alliance further incited resentment and worry amongst the Chinese. This could be the reason why the Chinese laid more stress on improved diplomatic relations with Japan in the Bandung Conference in 1955. One cannot deny that the economic bilateral ties between Beijing and Tokyo had been strengthening. The security umbrella also allowed Japan to "compensate for its legitimacy deficit" by projecting itself as *small Japan* and *peace loving state* and also enabled Japan to follow "tip-toe diplomacy".[40] Japan takes the nuclear umbrella as an opportunity to maintain cordial relations with the United States and, at the same time, it also enables Japan to have nuclear weapons in its territory. After being labelled a "free rider" and a practitioner of "check book diplomacy", it began to emerge as a robust US ally during the 2001-06 tenure under Junichiro Koizumi.[41]Japan recognised Korea's independence and also renounced claims on Taiwan. South Korea, on the other hand, knows it has little influence over North Korea's nuclear weapon and ballistic missile programme and the main interlocutors are the United States, China, Japan, and Russia. [42] Even though Australia faces no real external threats, the rise of China, India and Japan has kept the Australians worried about

38. Alice Lyman Miller and Richard Wich, "Japan: Occupation and Recovery", in *Becoming Asia: Change and Continuity in Asian International Relations Since World War II* (Stanford: Stanford University Press, 2011).
39. Ibid.
40. Christopher W. Hughes, "Japan's Policy Towards China: Domestic Structural Change, Globalization, History and Nationalism", in Christopher M. Dent, ed., *China, Japan and Regional Leadership in East Asia* (UK: Edward Elgar Publishing Limited, 2008).
41. Geoffrey Kemp, "Pakistan, Japan, And South Korea: Middle East Connections", in *The East Moves West: India, China, and Asia's Growing Presence in the Middle East* (Washington D.C.: Brookings Institution Press, 2010).
42. R.S.N. Singh, *South Korea*.

the strategic role of the United States in the Asia-Pacific region. However, even though the Australians are thinking of an indigenous nuclear weapon system, it is unlikely to happen as that would mean withdrawing from the NPT. Many have felt that such a decision will lead to international isolation, but that is unlikely as Australia could be supported by China and Russia for strategic reasons.

SECTION III

WHY STATES CHOOSE NOT TO BE UNDER A SECURITY UMBRELLA

NATO members like France and the United Kingdom had their indigenous nuclear programme. In the post World War phase, due to diplomatic relations between Great Britain and the United States, one could assume that Britain would have stayed under the nuclear umbrella of the United States. But it did not choose to do so. Instead, it behaved the same way the arch rival of the United States, the Soviet Union, behaved by going in for an ambitious indigenous nuclear weapon programme. Prime Minister Clement Atlee saw nuclear weapons as a means to end any further wars as he believed that only a "bold course" could "save civilization".[43] George Bernard Shaw had once stated "Britain is faced either with the end of this country or no more war..the choice between survival and extinction".[44] It could be this fear of extinction that probably influenced Britain to not stay under any umbrella and to pursue its own nuclear weapon programme. Britain was particularly disappointed with the formation of NATO.[45] France refused to stay under the United States' nuclear umbrella. Charles de Gaulle had built the *force de frappe* to restore the prestige of France by building indigenous nuclear weapons. France also feared that the US nuclear umbrella might not be applied to France if the Soviets attacked Europe. De Gaulle's main motive was to pose a serious challenge to the US defined Atlanticism, where Germany

43. In Hot Pursuit: British and Soviet Nuclear Policy.
44. Quoted in Lawrence S. Wittner, "A New Sense of Fear: Great Britain, Canada, Australia, and New Zealand", *One World or None: A History of the World Nuclear Disarmament Movement Through 1953* (California: Stanford University Press, 1993), p.86
45. Ibid., p.87

became the main battleground for the US-French rivalry. However, during the later phases, France and Great Britain were assisted by the United States in sensitive nuclear technology for developing nuclear weapons.[46] When the United States offered IRBMs to NATO allies in 1957, following the launch of the Sputnik by Moscow, countries like Denmark and Norway not only refused to station such weapons on their territory but also opposed stationing them on any part of the European territory. There has been a belief that even India was under the nuclear umbrella. However, as Jasjit Singh clarifies, the Indo-Soviet Treaty of 1971 under Clause 9 was a mere political signal to convey the political deterrent to countries like the US or China. In 1991, India sent a clear signal to Moscow that it did not require Clause 9 of the treaty, and was ready to sign a fresh treaty without the clause because probably by then, India had already built the bomb. [47] Even though Turkey has been under the nuclear umbrella of the United States since the Cold War era, there have been concerns that it is now trying for an indigenous nuclear weapon programme. This could be due to Turkey's threat perceptions from Iran, Syria and Israel and also due to suspicion over the security umbrella of the United States. In 2009, Turkey's Prime Minister Recep Erdogan ruled out the idea of hosting US missile defence systems against Iran as he felt it would make Turkey "susceptible to a possible missile attack from Iran and also Syria, Iran's ally".[48] The decision to host advanced radar systems could jeopardise relations between Tehran and Ankara, especially at a time when Turkey is trying to improve its relations with Iraq, Iran, Russia and Greece. [49] The Iran threat could coerce the Saudi Arabians to develop their indigenous nuclear weapons.[50] China's military expansion has also been a threat for both Japan and the United States and, as a result, the defence relations between Japan and the United States have strengthened over the years. However, Japan's threat perceptions have led many to believe that Japan could eventually

46. As Cited by Matthew Kroeing, "Explaining Nuclear Assistance", in *Exporting the Bomb: Technology Transfer and the Spread of Nuclear Weapons* (United States of America: Cornell University Press, 2010).
47. As clarified by Jasjit Singh. The clarification has been put down with his permission.
48. Debalina Chatterjee, "Missile Defence in Turkey", *USI Journal,* January-March, 2012.
49. Ibid.
50. Yoel Guzansky, "Saudi Arabia Nuclear Hedging", *Atlantic Council,* December 13, 2011, <http://www.inss.org.il/upload/(FILE)1323850540.pdf>

North Korea insists on self-reliance, thereby rejecting any scope for dependency, and laying stress on nuclear arms.

start developing its own nuclear weapons. According to Victor Cha, withdrawal of the nuclear umbrella from East Asia by the United States could result in North Korea acting more proactively by becoming more provocative. It could consider it an admission of defeat by the United States and its allies and, hence, could rely less on conventional capabilities and treat any escalation as a "use or lose incentive". The threat from these artillery systems has been so strong that South Korea had not been appreciative of a ballistic missile defence as it felt that this threat cannot be negated by such defences.

Sometimes, states do not want to be under a security umbrella even if they are weak in all respects. North Korea insists on self-reliance, thereby rejecting any scope for dependency, and laying stress on nuclear arms.[51] The mission of the nuclear forces of the Democratic People's Republic of Korea (DPRK) is to "deter and repel aggression and attack against the country and the nation until the denuclearization of the Korean peninsula and the world is realized".[52] North Korea maintains a policy of not using nuclear weapons against non-nuclear states or threatening them with nuclear weapons as long as they do not become a threat to its security "in conspiracy with nuclear weapon states".[53] The United States and Japan appear reluctant to convert the Six-Party Talks into a regional security dialogue mechanism, as they fear that doing so could confirm China's standing at the centre of the talks.[54] The United States believes that nuclear weapon capability in the possession of an unpredictable country like North Korea is a dangerous tool which would threaten regional security. North Korea, on the other hand, has resented the US move of calling it the "axis of evil", and the delay in the setting up of a light water reactor led to North Korea retreating from its obligations under

51. Gilbert Rozman, "Navigating Between the United States and North Korea", in *Strategic Thinking about the Korean Nuclear Crisis: Four Parties Caught Between North Korea and the United States* (New York: Palgrave Macmillan, 2007).
52. China and North Korean Borderlands, Relations, History,< http://sinonk.com/tag/cold-war/>
53. Ibid.
54. Rozman, n.51.

the 1994 Accord. Hence, it claims that its uranium programme is legitimate.[55] In May 2003, North Korea had nullified the 1992 pact with South Korea for denuclearisation of the Korean Peninsula and by October 2003, North Korea declared that it was using "plutonium separated from the 8,000 fuel rods to fabricate nuclear weapons for the purpose of deterrence".[56] States which realised the importance of hard power, and feared having to remain under the security umbrella of a strong state, pursued their indigenous missile development programme (such as India's Integrated Guided Missile Development Programme) or proliferated missile technology from other countries (Pakistan proliferated missile technology from China like the M-9 and M-11, and from North Korea.). When Pakistan was on the verge of becoming a nuclear weapon state, China had clearly declared that it did not have a policy of providing nuclear umbrellas to other countries.[57]

States like Israel, South Korea, Taiwan, Brazil, Argentina and India have defence industrial sectors which have unique symbolic importance as indicators of modernisation and are a dominating factor in setting overall scientific and technical priorities. The ability to produce weapons would bolster the morale of these countries and enable them to display their technical prowess.[58] The 2005 Defence White Paper of South Korea had laid stress on becoming more self -reliant.

Turkey is reported to be one of the most capable countries in the Middle East with the capacity of building the bomb. If threat perceptions increase, Turkey could become a nuclear weapon state with possible help from Russia or China or even Pakistan. Japan's "large-scale plutonium recycling program" is creating suspicion that Japan might possess enough fissile material to produce nuclear weapons. [59]

55. R.S.N.Singh, *North Korea, Asian Strategy and Military Perspective* (New Delhi: Lancer Publishers and Distributors, 2005).
56. Frederick N. Mattis, "Problematic States", *Banning Weapons of Mass Destruction,* (New Delhi: Pentagon Press, 2009).
57. Elisabeth Rosenthal, "Chinese Delegation Seems to Deny Pakistan a Nuclear Umbrella", *The New York Times,* May 21, 1998.
58. Janne E. Nolan, "Proliferation: The Case of Ballistic Missiles", Eric H. Arnett, ed., *New Technologies for Security and Arms Contro: Threat & Promise* (Washington DC: AAAS Publications, 1989).
59. Robyn Lim, "No More American Umbrella?: Nuclear Temptation in Japan, *The New York Times,* April 15, 2002.

In 2009, Egypt's President Hosni Mubarak had rejected the nuclear umbrella offered by the United States.

China does not support the idea of extended deterrence and, hence, is opposed to the idea of a nuclear umbrella provided by nuclear weapon states to non-nuclear weapon states.[60] On the other hand, China indulges in nuclear and missile proliferation. For example, when Pakistan wanted to become a nuclear weapon state, it looked for a Chinese nuclear umbrella, but that did not succeed. Instead, Pakistan had to indulge in nuclear proliferation with other states and missile proliferation with North Korea and China. North Korea, on the other hand, received technology from Pakistan and Iran to build solid propelled ballistic missiles.

In 2009, Egypt's President Hosni Mubarak, had rejected the nuclear umbrella offered by the United States. According to him, such an umbrella "would imply accepting foreign troops and experts"[61] on Egypt's territory which was not acceptable to the Egyptians. It would also make the region nuclearised which could have a domino effect and lead other states to develop nuclear weapons, and, hence, jeopardise peace and stability in the region. When talks were on about a missile defence shield in Turkey by NATO, Iran had adopted the necessary measures such as long range missiles in the air.[62] Russia perceived missile defence as being against it and started to improve its ballistic missile capabilities. In 2007, the existing Pac-2 systems in Kuwait and Qatar were replaced with the more advanced Pac-3s. Such systems were feared to create an obstacle for a Missile Free Zone in the Middle East as Iran could work towards improving its missile programmes so that its delivery systems could not be intercepted by the Patriots.

60. Yao Yunzhu, "Chinese Nuclear Policy and the Future of Minimum Deterrence", *Strategic Insights*, vol. IV, issue 9, September 2005.
61. Fareed Mahdy, "Egypt Rejects U.S. Nuclear Umbrella", <http://ipsnews.net/news.asp?idnews=48156>
62. "Iran Missiles Under Protective Umbrella", *PRESS TV*, September 25, 2011.

SECTION IV

LIMITATIONS OF AN UMBRELLA

In the 1960s, Germany was exposed to nuclear blackmail by the Soviets, and, at the same time, there were apprehensions about the American nuclear umbrella as the Germans felt that it was weakening or on the verge of being withdrawn.[63] South Korea has been apprehensive to support the theatre missile defence programme of the United States

The Cuban Missile Crisis of 1962 raised questions about whether extended deterrence was preventive or provocative. The United States arms build-up and missile deployment in Turkey and in the rest of the European countries and "assertions of strategic security" had increased Soviet strategic insecurities. [64]

Japan's Defence Minister Fumio Kyuma has stated that deterrence would strengthen only when the US explicitly states: "If you drop one nuclear bomb on Japan, the US will retaliate by dropping ten on you".[65] China, on the other hand, feels that Japan is taking advantage of the US-Japan ties to "impede the reunification of China and Taiwan" and also provide military support to the US in case there is a conflict over the issue of Taiwan.[66] The United States' security assistance to Taiwan under the Taiwan Relations Act pledges the United States to maintain military capabilities to ensure peace in the Western Pacific, but it does not require the United States to intervene on Taiwan's behalf in the event of an attack from Mainland China.[67]

Under the European Security and Defensive Policy, Europe would be under the US' defence umbrella to strengthen the US-European security alliance. Turkey wanted to be a part of the European Union defence and security mechanism, but since it was not a part of the European Union, its bid was rejected. However, one could argue that the efficacy of the nuclear

63. As put forward by Wolfgang Kreiger, "The Germans and the Nuclear Question", *Fifth Alois Memorial Lecture*, 1995.
64. Richard Ned Lebow, "Extended Deterrence: Military Fact or Political Fiction?", in Eric. H. Arnett, ed., n.58.
65. Quoted in "Concepts", *Nuclear Deterrence in the 21st Century* (RAND Corporation, 2012).
66. Li, n.30.
67. Matthew Kroeing, "Israel's Nuclear Program: French Assistance and US Resistance", *Exporting the Bomb* (Cornell University Press, 2010).

Few Europeans believed that the United States would risk going into a nuclear war if European security was at threat.

umbrella was lost once the Soviets gained the nuclear weapons too in 1949. Few Europeans believed that the United States would risk going into a nuclear war if European security was at threat. North Korea had objected to the nuclear umbrella over South Korea provided by the United States then as it thought that it would make the Korean Peninsula more susceptible to a nuclear war. This also made Japan suspicious of the United States. The umbrella in both South Korea and Japan could lead to the two countries actually building nuclear weapons due to conflicts, thereby making the Northeast Area peninsula a nuclearised area. Both Japan and South Korea are involved in the Takeshima Dogdo Island conflict and, hence, these countries becoming nuclear weapon states could lead to a severe catastrophe. The Korean People's Army in North Korea has adopted a forward deployed offensive posture and placed its weapons like the long range artillery systems in the Demilitarised Zone; it has also started to develop nuclear weapons in order to reduce its vulnerability to a possible American nuclear attack. In such a case, North Korea would attack Seoul with conventional weapons, thereby causing massive destruction in the Korean Peninsula. During the Cold War, the United States had a wide variety of nuclear weapons stationed in Seoul ranging from surface-to-air missiles to 8-inch howitzer artillery shells. At some point, there were around 950 nuclear warheads stationed at the southern half of the peninsula.[68] North Korea has made it very clear that denuclearisation of North Korea would be possible only when the United States' nuclear threat is removed and there is no nuclear umbrella area in South Korea. Sometimes, states prefer to remove the nuclear weapons of the umbrella state and, at the same time, expect the umbrella security to be given to them. This becomes a complicated situation, as seen in the German case. The Germans of late had demanded the removal of American nuclear weapons stationed in their territory. At the same time, Germany expects to be under the security

68. Chuck Krauss, "Nuclear Vacuum Zone: Extended Nuclear Deterrence, China and North Korea", April 23, 2012, <http://sinonk.com/2012/04/23/nuclear-vacuum-zone-extended-nuclear-deterrence-china-and-north-korea/>

umbrella. NATO members consider the move by Germany of wanting to stay under the nuclear umbrella and, at the same time, trying to transfer the responsibility of maintaining the nuclear weapons to other states, as "irresponsible".[69] In the recent past, there has been a series of failed US-Israel anti-missile tests which raised questions on the US goal of providing an "umbrella" to defend its allies against an Iranian nuclear attack. This also increased Israel's concerns over a possible nuclear attack by Iran against which there would be no viable defence, thereby making the Israelis more worried. Even during the Gulf War—Operation Desert Storm in 1991—the US deployed the Patriot anti-missile systems in Israel, and Saudi Arabia could not intercept Iraqi ballistic missiles. Moreover, Israel faces threats from rockets launched from the Gaza Strip by terrorist organisations like the Hezbollah and Hamas, which would not give it enough time to deploy any adequate defence. There is no guarantee that under a security umbrella, the weaker states would not indulge in developing nuclear weapons. While Japan has not deployed nuclear weapons and remains under the umbrella of the US, there have been reports that the country has used its "electrical utility companies as a cover to allow the country to amass enough nuclear weapons materials to build a nuclear arsenal larger than that of China, India and Pakistan combined".[70]

It must be noted that South Korea maintains good relations with China and Russia in spite of the US security umbrella. In fact, what is noteworthy is that during the fall of the Soviets, Moscow rejected the ideology of North Korea, and instead, sought South Korean capital goods, technology and credit. In spite of the US nuclear umbrella, Turkey has acquired weapons from China like the WS-1 302mm multi-launch rocket systems, or TR-3000 rockets. In 2010, China also conducted a joint military exercise with Turkey in Anatolia.[71] Turkey is desperately trying to modernise its military and China

69. Judey Dempsey, "Germany Is Chastised for Stance on Nuclear Arms", *The New York Times*, February 8, 2010.
70. Joseph Trento, "United States Circumvented Laws to Help Japan Accumulate Tons of Plutonium", *DC Bureau*, April 9, 2012.
71. For more on this, see Debalina Chatterjee, "The Sino-Turkey Defence Relations", *Revue Defense Nationale*, November 2011.

could be the "best option" for "cheap and efficient defence equipment".[72]

There is also no guarantee that the state which is under the security umbrella would be provided with the weaponry systems that it wants. For instance, in spite of being under the defence umbrella of the United States, Japan did not receive the F-22 Raptor aircraft from it due to the ban on its export by the US Congress. Umbrellas become complicated in a multipolar world as there are too many powers "to permit any of them to draw clear and fixed lines between allies and adversaries and too few to keep the effects of defection low".[73] The main problem of extended deterrence in East Asia is the "ineffective nature of extended nuclear deterrence in East Asia, ….an ineffective policy is woven into the fabric of East Asian security management". [74] US allies like Australia realise that the US nuclear 'umbrella' is getting smaller, but it is "certainly not contracting abruptly". Many analysts are of the view that the umbrella is still broad enough to cover the allies' strategic concerns and interests. The only issue with the US umbrella is the problem of convincing allies that their national interests would be as important to the United States as its own.[75] For example, at present given Japan's interest in an indigenous nuclear weapon system, it would be a challenge for the United States to convince the Japanese. In 2002, Ozawa Ichiro, a Japanese politician had mentioned that Japan could become a nuclear weapon state if it felt threatened by Beijing's bullying. The Japanese are aware that the Chinese "could build missiles faster" than the United States could "build their missile defenses to protect Japan and American bases" in Japan.[76] The Japanese are also apprehensive of the Theatre Missile Defence (TMD) system as they fear that it would jeopardise Tokyo's relations with China and Russia and could isolate Japan in Northeast Asia.[77]

72. Ibid.
73. Kenneth N. Waltz, "The Spread of Nuclear Weapons".
74. Kevin Kallmyer, "North Korea and the US Nuclear Umbrella: US Posture, Changes, Allies and Consultations, *Centre For Strategic and International Studies*, September 10, 2010.
75. Rod Lyon, "The US Nuclear Posture Review: What's New, What's Not", *Australian Strategy Policy Institute*, April 8, 2010.
76. Robyn Lim, "No More American Umbrella?: Nuclear Temptation in Japan", *The New York Times*, April 15, 2002.
77. Peter Van Ness, "Hegemony, Not Anarchy: Why China and Japan are Not Balancing US Unipolar Power", *Working Paper, 2001/2004.*

States like China have a policy of not providing a nuclear umbrella to other states. However, this does not stop them from providing nuclear technical assistance. China has had a history of assisting Iran in developing nuclear technology. China trained Iran in building a "primary research facility and also agreed to provide Iran with sub-critical zero-yield nuclear reactors" but under International Atomic Energy Agency (IAEA) safeguards.[78] However, after being charged by the United States, China stopped providing assistance.

There is no guarantee that just because a state has provided a security umbrella to a state, it would not assist that state with nuclear or missile technology. There have been reports that the United States has also provided sensitive information on nuclear technology to Israel, thereby encouraging it to develop its own nuclear weapon programme.

It has been stated that a nuclear umbrella provided by the United States violates the NPT wherein Article 1 commits the five nuclear weapon states not to transfer nuclear weapons and technology to non-nuclear weapon states and Article II commits the non-nuclear weapon states to refrain from receiving them.[79] There have been arguments that the American overseas military presence should be withdrawn since it provides security to the US allies that they should provide for themselves. It also ensures America's involvement in other states' conflicts in areas of less than vital interest, potentially threatens the balance of power in those regions, and drains US resources, thereby reducing America's economic competitive advantage. However, the major concern of states today is whether the United States' nuclear umbrella would be credible with its declining capability. Hence, this apprehension could lead not only America's foes but also its friends to indulge in nuclear proliferation. It has also been feared that the missile defence umbrella in the European countries to counter ballistic missile threats from Tehran and Pyongyang could be

78. Geoffrey Kemp, "China's Return to The Greater Middle East", in *The East Moves West: India, China and Asia's Growing Presence in Middle East* (Washington D.C.: Brookings Institution Press, 2010).
79. "The Nuclear Umbrella States", *ILPI Nuclear Weapons Project*, 2012. Note: The United States had confirmed that since the US forces control these weapons, it was not a breach of the NPT.

US extended deterrence could become substantially less credible as the strategic balance shifts in Asia over the coming decades, especially if the US strategic primacy gradually approaches its expiry.

destabilising and could result in preventing the world from moving towards disarmament. US extended deterrence could become substantially less credible as the strategic balance shifts in Asia over the coming decades, especially if the US' strategic primacy gradually approaches its expiry or as other powers enhance the credibility of their own nuclear deterrents.[80] The umbrella concept of the United States also has its limitations in that the weaker states have not been adaptable to the American model and also the Americans are facing stiff competition from the rising powers.[81] It must be understood that too much dependency could lead to loss of sovereign control over foreign policy. An independent capability of producing weapons protects the weaker states from losing sovereign control by "empowering them within the alliance, while simultaneously providing a hedge against possible abandonment".[82] The very existence of nuclear weapons is a direct threat to humanitarian law and, for that matter, any state whether pursuing an independent nuclear weapon programme or under a nuclear umbrella, becomes a direct challenge to humanitarian law. It also becomes a challenge to international law as a whole. The Rarotonga Treaty of 1985 calls for a South Pacific Nuclear Weapons Free Zone whereby New Zealand is not under the nuclear umbrella of the United States. However, Australia is under the nuclear umbrella in spite of signing the treaty.

80. Views expressed by Raoul E. Heinrichs, "Australia's Nuclear Dilemma: Dependence, Deterrence or Denial", *Security Challenges,* vol.4, No.1, (Autumn 2008).
81. Robert Singh, "The United States: The Eagle Untamed", in *Multipolarity in the 21st Century: A New World Order.*
82. Michael Jonathan Green, "US-Japan Co-development of the FSX", in Pia Christina Wood, David S. Sorenson, eds., *International Military Aerospace Collaboration: Case Studies in Domestic and Intergovernmental Politics* (England: Ashgate Publishing Ltd., 2000).

Does the Umbrella Actually Provide Stability?

If nuclear weapons and their delivery systems provide the best deterrence, then a nuclear umbrella could be said to have a stabilising effect. Even if a state does not develop its own nuclear weapons, the fact that there is a powerful state to provide them, could deter an enemy state from attacking. There could be a dilemma over whether the powerful state intends to come to the rescue of the umbrella state when it needs military help. However, the fact that there is the presence of a powerful state in the umbrella state also creates a dilemma of 'what if they do?'. This could prevent states from entering into a conflict as there would be fear of retaliation from the other side. Hence, even if China possesses nuclear weapons, the fact that there is a nuclear umbrella over Japan does make China uncomfortable. In a world without nuclear weapons, there would surely be 'virtual' nuclear arsenals existing. This means that a robust nuclear infrastructure would exist, which would involve both the civil and military, and can give the countries the capacity to build or reconstitute their nuclear weapons in case a threat arises. Hence, the United States would need to reassure its allies that in case of zero nuclear weapons in the world, the reconstitution of US nuclear forces can take place in a "timely way".[83] From a neo-realist perspective, with the prevalence of the Hobbesian system, states would never be completely confident about the willingness of a foreign state to come to their aid in an emergency, unless it serves the state's own strategic interests.

83. James E.Goodby, "A World Without Nuclear Weapons: Fantasy or Necessary?", *SIPRI YEARBOOK 2010: Armaments, Disarmament and International Security* (New York: Oxford University Press, 2010). The above analysis was given by James E. Goodby in this article.

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