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Contributors

- Jayadeva Ranade • Sana Hashmi • Deep Jyoti Burman
• Group Captain Rajiv Kumar Narang • Group Captain Ashish Gupta
• Wing Commander MK Sharma • Air Vice Marshal Rajesh Isser
• Chandra Rekha • Nidhi Prasad

CENTRE FOR AIR POWER STUDIES, NEW DELHI

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EDITOR'S NOTE

Scholars remain intensely concerned with China and the cyber world and this issue of the *Journal* gives due importance to these themes. The other issues addressed are, *inter alia*, the 'Make in India' concept, Indo Russian cooperation and an article that discusses operations to provide humanitarian assistance.

China is too important to be ignored. No wonder that the news that the Chinese military was to be restructured and reorganised was grist to the mill of strategic analysts. The process was announced late last year and has gained needed traction from early this year. However, it will be some time before the impact of the changed systems will be felt or even completed, but the decision to change and to get the People's Liberation Army (PLA) to agree to the changes including a lowering of their strength by 300,000 personnel is a feather in the cap of President Xi Jinping. One of the foremost exponents on China, **Jayadeva Ranade**, explains the implications of the changes, the difficulties likely to be faced and how the changes will impact India. The article is a 'must read' by all those interested in the China and the Chinese military.

In another article on China, **Sana Hashmi** writes of the growth of Chinese naval capabilities and their plans to have overwhelming superiority in naval capabilities in the region. A major objective of Chinese naval expansion is to ensure sovereignty over the islands it claims in the East China Sea and the South China Sea. The Chinese claims, often based on dubious historical precedents, are challenged by a number of countries in the region and will require deft statesmanship and arm twisting by China to get the others to accept its claims. So far, the nations involved have maintained strong uncompromising positions. It is necessary to look at the history of the disputes, and the author discusses the historical stands and

later events in a non-partisan manner. The article is a good starting point for an appreciation of the disputes and the likely happenings in the near future. The question that must be addressed is whether China is willing to work towards a mutually satisfactory resolution of the problem in a spirit of give and take? Also what is the role of outside parties particularly the US?

In discussing sea based nuclear deterrence, **Deep Jyoti Burman** argues that the sole purpose of nuclear weapons is to deter the use of such weapons, and hence examines as to what is the utility of a triad and what is the role of the sea based leg of the triad. He traces the history of nuclear thought from the beginning of the nuclear era and discusses the different theories and their relevance at the time they were propounded. More importantly, the theories represent classic thought of the times and present day analysts have built on some of their work to fashion doctrines more applicable to the present times. The author analyses the pros and cons of the three vectors comprising the deterrent and unequivocally states that as the SSBNs are possibly impervious to a first strike, they have distinct value as a deterrent, possibly more than that of the other two vectors. That is an opinion shared by many but with the uncertainties involved in the march of technology, it behoves nuclear powers to retain more options.

Gp Capt Narang draws a distinction between the 'Make in India' philosophy and indigenisation. His argument that mere making of aircraft and helicopters in India instead of in foreign lands is different from creating support systems that further real indigenisation is compelling. Joint ventures have limitations and they must be fashioned to make then engines of real growth in indigenisation. The concept is unexceptionable and the author suggests that joint research and development is the way forward. Once again, his advice is unexceptionable, and the moot point is how, do we get foreign parties to accept our needs? He makes a number of sound recommendations that would further indigenisation and the article tends to appeal to our sensibilities.

The threat of cyber attacks is all too real. The impact of such attacks is undeterminable but, if successful, is likely to be severe and debilitating. Defences can, and should be, built but there is no guarantee that the defensive

systems will be adequate. This has led many analysts to suggest that like nuclear deterrence, nations could resort to a form of cyber attack deterrence. **Gp Capt Ashish Gupta** says that nuclear deterrence and cyber deterrence are not analogous. The main difference is one of deniability and difficulty in ascertaining the source of the attack. Another major difference is that whilst the nature of a continuing nuclear exchange cannot be predicted, the damage causing capability of nuclear weapons is so great that reticence in the use of such weapons is an attractive proposition. Therefore, almost as a rule, deterrence is in place. The impact of cyber attacks cannot be as damaging and, more importantly, the sequence of attack and defence and counter attack will probably continue. Also, cyber attacks could well be accompanied by other means of attack and it is problematic to establish a deterrent posture. He, therefore, suggests that there is a need to establish a national strategy for cyber deterrence.

Staying with the cyber world, **Wg Cdr MK Sharma** addresses how we can, and must protect our National Critical Information Infrastructure (NCII). The national critical information is often inter-related and inter-dependent and we must have a system that will permit functioning of institutions in the face of varied and, may be even concurrent cyber attacks. This has to be a national endeavour and national security could well be related to the effectiveness of such systems that support our critical infrastructure. The article is a result of considerable study and merits attention.

We live in a region prone to natural disasters and the Indian Air Force (IAF) has often been tasked to provide Humanitarian Assistance and Disaster Relief (HADR). **Air Vice Mshl Rajesh Isser**, an experienced aviator with considerable first-hand experience in guiding and effecting relief operations discusses the leadership challenges associated with these operations, wherein the crew and aircraft are often taken to the limits of their capability. These operations do not follow a set pattern and the relief requirements can also be vastly different, demanding the qualities of willingness to rapidly take stock and guide the forces even if the information available is often inadequate. The article should be read and absorbed by all those who may be called upon to control or execute HADR operations.

The erstwhile Soviet Union and, then, Russia has been India's strongest strategic partner over many decades. **Chandra Rekha** briefly traces the history of this historic relationship and recommends how greater economic cooperation is essential to strengthen the relationship in these fast changing times. The author examines the trade imperatives over the years and recommends how the bilateral trade can be increased manifold to mutual advantage. The article is the result of good research and the suggestions cover many areas of possible bilateral trade. It should be read by all those interested in the growth of this rather important relationship.

For the US, military bases are an inescapable requirement if they are to continue to police their interests globally. **Nidhi Prasad**, in a philosophical study, discusses the challenges that the US faces in its proclaimed pivot to the Pacific and argues that the for, need and maintenance of, military bases demand bilateral understanding and the consent of the host nations.



Happy reading.

CHINA'S MAJOR MILITARY REFORMS AND THEIR IMPLICATIONS FOR INDIA

JAYADEVA RANADE

Over the New Year, Chinese President Xi Jinping demonstrated his authority and grip over the People's Liberation Army (PLA) by commencing implementation of the crucial second phase of military reforms announced earlier on September 3, 2015. The reorganisation and restructuring of the 2.3 million-strong People's Liberation Army (PLA), described by Chinese analysts as the most "extensive" ever and which has been on the drawing board since well before 2011, is the most critical reform initiative taken by Xi Jinping since he took over in November 2012. It is only the second time in the history of the People's Republic of China (PRC) that the PLA – an intrinsic, vital part of Communist China's power structure – is being radically reformed. Designed to qualitatively upgrade the PLA's capabilities, the objective is to prepare the PLA to assist the Chinese Communist Party (CCP) realise the 'China Dream' and protect China's overseas national interests. There are clear implications for India as well.

While the reforms have yet to be fully implemented, an initial assessment of the difficulties in their implementation and scope would be useful. A blend of compromise, coercion and consultation preceded implementation of the reforms, clear contours of which are now visible.

Jayadeva Ranade is the President of the Centre for China Analysis and Strategy, New Delhi. He is also an Honorary Distinguished Fellow at the Centre for Air Power Studies, New Delhi.

Though the plans had been drafted in 2011, it took Xi Jinping and his predecessor, Hu Jintao, considerable time and effort to build the requisite consensus in the PLA to begin this phase of the reforms involving structural reorganisation and personnel downsizing.

visited colleges, went to the plateaus, visited the borders, sat in driving seats and cockpits, taking the pulse of reform with soldiers.”

Commentaries in both the official newspapers added that the “Small Leading Group for Deepening Reform of National Defense and the Military” collected opinions from more than 900 current and former senior officers and experts, issued questionnaires and received thousands of online suggestions. Between March and October 2015, there were more than 800 meetings about the reforms, covering almost 700 military bases and units. Both vice chairmen of the CMC, namely Gen Fan Changlong and Gen Xu Qiliang, travelled in September 2015, to all seven Military Regions (MRs) to explain the reforms to middle and lower ranking PLA officers. China analyst Peter Mattis quantified the efforts as entailing 860 seminars, 900 officer surveys, and several Party plenary conference work reports. The efforts sought to assuage the concerns of numerous PLA officers. They also confirmed that resistance in the PLA to downsizing the 2.3 million strong army has been considerable, including at senior levels where many of the approximately 1,144 serving PLA General Staff officers apprehend being rendered redundant, transferred to Beijing and deprived of functional posts. It would mean loss of authority and perquisites such as housing, which they currently enjoy. There has been institutional resistance too, with

Though the plans had been drafted in 2011, it took Xi Jinping and his predecessor, Hu Jintao, considerable time and effort to build the requisite consensus in the PLA to begin this phase of the reforms involving structural reorganisation and personnel downsizing. In addition to setting up the “Small Leading Group for Deepening Reform of National Defence and the Military” in March 2014, a lengthy front page commentary in the *People’s Liberation Army Daily* and *People’s Daily*, quite unusually, separately disclosed that “Chairman Xi went into offices and

different Services resisting downsizing of their personnel strengths and reduction in their share of the budget. This resistance has delayed implementation of the reforms and the PLA's downsizing is now expected to be completed only by 2017.

There was indication of this resistance in the official Chinese media. At least two signed articles in the *Liberation Army Daily (LAD)* on September 9, 2015, publicised this resistance. The first article cautioned that implementation of military reforms would be difficult and "would require an assault

on fortified positions to change mindsets and root out vested interests, and that the difficulties would be unprecedented." Asserting that their implementation was essential, the article observed that "if these reforms failed, measures still to come would be nothing more than an empty sheet of paper". Reiterating the difficulties in implementing reforms, another article in the same paper said that as reforms begin to be implemented "there could be significant structural contradictions and an accumulation of institutional obstacles". Its author, Ma Depao, formerly associated with the Academy of Military Sciences (AMS) is now probably with the *PLA Daily*.

Resistance was considerably neutralised by Xi Jinping's high-risk decision at the Third Plenum of the National People's Congress (NPC) to bring the PLA within the ambit of the Party's anti-corruption watchdog body, the Central Discipline Inspection Commission (CDIC). It was a deft move to get the PLA to fall in line with his reform plans. CDIC investigations were swift and thorough and, within weeks, China's official media reported that Maj Gen Gu Junshun was under investigation and that he was part of a network which included senior officers. Numerous PLA generals were soon listed by the CDIC's official website as either under detention or investigation. Many, like VAdm Ma Faxiang and RAdm Jiang Zhonghua, committed

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suicide to avoid shame and allow their families to receive post-retirement financial benefits. In a stunning move, in January and February 2015 alone, 30 generals were placed under detention for investigation on corruption charges. Considering that the PLA has 32 generals, 134 lieutenant generals and 978 major generals in service, the number is sizeable. A total of 4,300 officers, or 30 percent of the PLA's officer cadre, were under investigation by the end of 2015.

This effort was supplemented by the "education" campaigns of the PLA's General Political Department (GPD). In addition, the reforms were supported by Xi Jinping's fellow 'princelings' and loyalists in senior echelons of the PLA, as well as younger, more professional officers. Support was facilitated also by the 40 per cent hike in salaries and allowances awarded to PLA personnel in late 2014.

The troop reduction of 300,000 announced on September 3, 2015, is far less than the 800,000 envisaged in 2011. In April 2011, the Beijing-owned Hongkong-based *Wen Wei Po* publicised plans for reducing the PLA's size by 800,000 personnel. While the report was denied by China's Defence Ministry, Professor Han Xudong of China's National Defence University (NDU), commenting on the *Wen Wei Po* report to the *Global Times*, a subsidiary of the authoritative CCP newspaper *People's Daily*, disclosed that the *Wen Wei Po* report was the personal opinion of a retired PLA general formerly in charge of downsizing. He added, though, that the Defence Ministry's denial did not mean there would be no reductions in the future. Hinting at the extent of personnel cuts, he elaborated that since the US has a 1.4 million army and India a 1.2 million army, a 1.5 million strength for the PLA would be adequate.

Separately, Chinese military officers commenting on the *Wen Wei Po* report on the background to *Jane's*, said the central authorities were working out targets for future downsizing, but big cuts are unlikely. Reductions, they said, could be expected in 2-3 years. However, they would not affect the PLA's capabilities as it would extensively use information technology, and science and technology for advanced modern weaponry. PLA personnel would be better educated, better trained and more proficient. These

comments as well as the appearance of the report in *Wen Wei Po* together with excerpts from the “PLA’s Development Outline for Cultivating Armed Forces Talent before the Year 2020”, provided insights into the PLA’s restructuring plans.

Commenting on the personnel cuts announced in September 2015, retired Maj Gen Xu Guangyu, a senior consultant at the Chinese Military Disarmament Control Council and an expert on Chinese contemporary military affairs, justified the reforms and said “these reductions are an effort to stay on this path and increase quality, not numbers”. Col Yang Yujun, spokesman for China’s Ministry of National Defence (MND), clarified that the troops to be disbanded are those “equipped with outdated armaments and office staff and personnel of non-combat organizations”. Separately, the authoritative official news agency Xinhua said on September 3, 2015, that “non-combat units and administrative staff will be cut, and units with older weapons and equipment will reportedly be targeted for demobilization”.

After the release for internal circulation of the “PLA’s Development Outline for Cultivating Armed Forces Talent before the Year 2020” (referred to only as the ‘Outline’), which spelt out plans for restructuring the PLA, official documents described the five-year (2011-15) period as “crucial” in the PLA’s development. The plans received a substantive push when the Chinese Communist Party’s Third Plenum, which was held in November 2013, approved proposals for major organisational restructuring and technological upgradation of the PLA. Within days after the Third Plenum, CMC Vice Chairman and former PLA Air Force (PLAAF) Commander Xu Qiliang asserted that the reforms will be implemented, that non-combatant personnel would be “eliminated”, and that the reforms will enable the PLA to “win wars”.

On March 15, 2014, China’s authoritative official news agency Xinhua announced the creation of a new “Small Leading Group for Deepening Reform of National Defense and the Military”. It was set up as a sub-committee of the Central Military Commission (CMC) under the chairmanship of Xi Jinping assisted by two deputy chairmen who were also the vice chairmen of the CMC, namely, Gen Fan Changlong and Gen Xu

The “Guideline” asserts that the main objective of the reforms is to equip the PLA for “theatre battles”, in other words, replace existing military regions with Theatre Commands.

Qiliang. The names of the other members were not disclosed, but the outspoken Gen Liu Yuan, a high-ranking ‘princeling’ close to Xi Jinping, and political commissar of the PLA’s General Logistics Department (GLD), could have been one member.

Chinese President Xi Jinping’s public announcement downsizing the PLA at the grand military parade on September 3, 2015—with former Chinese Presidents Jiang Zemin and Hu Jintao present on the dias—was a major event.

It signalled that the final stages of reform and reorganisation of the PLA would begin now that internal consensus had been reached. Despite the transparently thin attempt to package the 300,000-personnel troop reduction as a move towards promoting peace, the troop reduction is actually part of a long-planned effort to streamline and strengthen the PLA and fashion it into a hi-tech, lethal, “informationized” force capable of defending China’s national interests at home and abroad, while expanding China’s strategic space.

On December 31, 2015, while conferring flags on the new formations, Xi Jinping outlined the future direction of the PLA in an official speech known as *Xun Ci* literally translated as ‘admonishing words.’ Xi Jinping is only the second Chinese Communist leader to give a *Xun Ci* since the founding of the PRC. The other leader to have delivered a *Xun Ci* to the military in China’s 67-year history was Mao Zedong, who did so in 1952 and 1953. Xi Jinping’s decision to deliver the *Xun Ci* is a sign of his confidence and indicates that he is consolidating authority to implement major military reforms.

The substantive contours of these reforms are fast becoming clearly visible. On January 1, 2016, the Central Military Commission headed by Xi Jinping issued the full text of the 4,993-character “Guideline on Deepening National Defence and Military Reform”. The “Guideline” emphasised the political nature of the PLA and its subordinate relationship to the Chinese Communist Party (CCP). The central features of these are: strengthened political and

ideological education; expansion of the Chinese Communist Party (CCP) organisation in the military; strict political discipline, organisational discipline and personnel discipline; financial discipline and discipline regarding secrecy; strict action against “political and organisational liberalism”; thorough implementation of the resolutions of the Party’s 18th Congress and the Third, Fourth and Fifth Plenums, Marxism Leninism, Mao Zedong Thought, Deng Xiaoping Theory, the important thought of “Three Represents” (of Jiang Zemin), the guidance of Scientific Development Concept (of Hu Jintao) and the teachings of Chairman Xi Jinping’s series of “important speeches”.

The “Guideline” asserts that the main objective of the reforms is to equip the PLA for “theatre battles”, in other words, replace existing military regions with Theatre Commands. Simultaneously, it said a joint operational command system would be established and military-civilian integration would be promoted. Asserting that the PLA will have the capability of “winning the information war” and effectively carrying out “mandated missions by a military system with Chinese characteristics”, the “Guideline” asserted that these reforms would be achieved by 2020. This coincides with Xi Jinping’s declared objective of the “Two 100s” (namely, well-off society by 2021 and fully developed nation by 2049) to realise “the Chinese dream of the great rejuvenation of the Chinese nation”.

The “Guideline” also disclosed that while in 2015, the focus was on organising implementation of the leadership and management system and reforming the joint operational command system, in 2016, the reforms will focus on downsizing the PLA and its organisation, reforming the “military combat force structure” and institutions, and basically completing the

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reforms. The period between 2017 and 2020 is to be devoted to making further adjustments to specific areas of reform and optimising and improving the reforms that have been implemented. Attention will be paid to the development of military and civilian integration. Underscoring the need for reorganising the command structure, the "Guideline" stipulated that there is "need for a joint operational command at the CMC level and at the theatre level, a two-level operational command system; and an integrated command system for peacetime and especially a main and capable strategic and tactical command system". Outlining the Theatre Command configuration, it said the reform will establish a three-tier "CMC battle zone commands troops command" system and an administration system that runs from the CMC through various services to the troops.

The main features of the "Guideline" are:

- Regarding military scale and structure, the focus will be on fewer but better troops with 'Chinese characteristics' and a switch from quantity to quality and greater efficiency. There will be a reduction of military personnel by 300,000, whereby 2.3 million troops will be reduced to two million. There will be a proportionate reduction in the number of non-combatant personnel and institutions. Old equipment will be eliminated and there will be developments in new equipment.
- Depending on the strategic tasks and operational requirements and the need to enhance functions and create more synergy, the structure of the reserve forces and militia will be optimised.
- New military academies will be built for training new military personnel; there will be emphasis on military training and practice to improve the early, middle and higher three-tier training system; the size and structure of colleges and universities will be optimised.
- The human resources policy and military personnel classification system will be revised and adapted to establish a rank-dominated hierarchy and promote professional military service officers, non-commissioned officers, and civilians. Military wages, housing, insurance and other systems will be reformed.

- Reforms will focus on civil-military integration, developing a high level of civil-military integration, focussing on market-led demand and effective institutional policy incentives.
- The armed forces command system will be strengthened under the centralised leadership of the CMC.
- The system of Military Law, especially rules and regulations in the military counsel system, military justice, discipline inspection, supervision and inspection system, will be reformed.

On January 2, 2016, the state-run *Global Times* summarised the contents of the “Guideline” released by the Central Military Commission on New Year’s Day. In brief, the *Global Times* observed:

- “China’s national interests and current international situation are constantly changing, so is the task of the Chinese Army. Hence, the PLA and relevant mechanisms have to be adjusted accordingly to keep up with the pace of China’s rise”.
- “The task that confronts China’s armed forces is arduous and more than just safeguarding the nation’s maritime and land territories.....As China’s international cooperation grows, more Chinese enterprises go global and the country embraces greater responsibility to maintain regional and world peace, a strong Chinese Army is needed”.
- “China must have a strong military... China doesn’t need to worry about military aggression. But there is more about national security....During China’s rise, friction with the US has gone beyond broad geopolitics. If China has a big gap with the US in terms of military prowess, this will affect its international position and other countries’ attitude toward China”.
- “With a strong army, China can be more politically appealing, influential and persuasive, and will make it easier to network. As we gain more trust from other countries, many of them will no longer be dependent on the US for security and on China for economic benefits”.
- “Our military strength has to be demonstrated to the world. The army needs to be able to fight battles and provide real deterrence. The supreme art of war is to subdue the enemy without fighting”.

Chinese-language media reports additionally revealed:

- Zone (Theatre) Commands would not directly command troops, which will be under the individual People's Liberation Army, People's Liberation Army Navy, People's Liberation Air Force (PLA, PLAN, PLAAF) Commands in each theatre, except in times of war. In times of war, the troops will be placed under a Joint Command which would be established in each theatre.
- Personnel strength of the PLA (ground forces) will be reduced to 360,000.
- Personnel strength of the PLAN and PLAAF will increase in ratio.
- The GSD will be upgraded and include high-ranking officers from all service branches. It will be a higher echelon organisation than the other General Departments. It will be entrusted with planning functions and providing advice to the chairman of the CMC and be modelled on the US Joint Chiefs of Staff. Also, the GLD and GAD will be merged into one GLD.
- The People's Armed Police Force (PAPF) will be transformed into a National Guard and will additionally absorb a considerable number of the demobilised PLA personnel.
- The number of military academies will be reduced from the present 150 to 29.

Retired PLA Maj Gen Xu Guangyu was quoted by the official state-run *Global Times* on September 6, 2015, as separately speculating that the ratio of ground, air and naval forces would finally be 2:1:1, a dramatic shift from the currently estimated about 4:2:1.

Implementation has moved rapidly since the beginning of January 2016 with the *Global Times* noting that on December 31, 2015, at a ceremony in Beijing attended by all its members, the CMC had announced establishment of the PLA General Command of the Army, the PLA Rocket Force and the PLA Strategic Support Force. Xi Jinping conferred military flags to all three new organisations on the occasion and also announced the names of their commanders and political commissars, indicating that they are now formal, separate, independent entities. Gen Li Zuocheng and Gen Liu Lei

were appointed commander and political commissar of the PLA's General Command of the Army; the commander and political commissar of the PLA Rocket Force are Gen Wei Fenghe and Gen Wang Jiasheng respectively; and Gen Gao Jin has been appointed commander of the new PLA Strategic Support Force, and Gen Liu Fulian as its political commissar. Establishment of these organisations, it was stressed, was "to realise the Chinese dream and the dream of a strong military, and a strategic initiative to build a modern military power system with Chinese characteristics".

Xi Jinping described the PLA Rocket Force as "China's core strategic deterrence power" and asked the new rocket force to develop "nuclear deterrence and counter-strike capability which is credible, reliable, medium and long-range precision strike ability, as well as strategic check and balance capacity to build a strong modern rocket force". The Second Artillery has essentially been renamed the PLA Rocket Force. Some Chinese language news sources speculate that the Second Artillery was restructured due to the realisation that it would be unable to adapt to the future strategic needs of the PLA and to simplify the process of three-dimensional combat missions. The new force, they say, might integrate the missions of strategic nuclear submarines and strategic bombers. The suggestion is apparently that the new rocket force will control, and have in its inventory, missiles with a range of over 300 km and control and coordinate the SSBNs (Sea Submersible Ballistic Nuclear) and strategic bombers.

Commenting on the new "PLA Strategic Support Force", Xi Jinping said that it "is a new type combat force to maintain national security and an important growth point of the PLA's combat capabilities". The indication is that its responsibilities could include technical reconnaissance, electronic warfare, space-based warfare, innovation and missile Research and Development (R&D). Suggesting that it would cater to the requirements of all the different Services, Yao Yunzhu, a senior researcher at the PLA Academy of Military Science, said the establishment of the Strategic Support Force will integrate the support forces of different Services to improve efficiency and save costs.

The PLA's General Command of the army appears to effectively be the headquarters of the ground forces – since 2011 described in official Chinese

documents, including the Defence White Papers, as the PLA. It will likely absorb some of the functions of the erstwhile General Political Department, General Logistics Department and General Armaments Department while some would be merged into the CMC. The "Guideline", however, indicated that these PLA General Departments would remain. Lou Yaoliang, head of Military Strategy Studies at the National Defence University (NDU), described establishment of the PLA's General Command of the army as a "highlight", adding that modernisation of the ground force had been hindered till now by the more than 20 PLA central departments in charge of various aspects of the ground force. He observed too that "establishment of the Army Headquarters also means the PLA has begun to change its long-held Army-centered mentality".

In addition to formalising these new PLA organisations, 15 organisations including major departments like the General Staff Department (GSD), General Political Department (GPD), General Logistics Department (GLD) and General Armaments Department (GAD) have been absorbed directly into the Central Military Commission (CMC). Of these, the Political Department has already begun receiving noticeably more importance, indicating that the CCP leadership is determined to ensure that PLA officers are 'politically reliable' and that the PLA remains the Party's army.

Other departments directly under the CMC are: CMC General Office, CMC Equipment Development Department, CMC Training Management Department, CMC National Defence Mobilisation Department, CMC Discipline Inspection Commission, CMC Political and Legal Affairs Commission, CMC Science and Technology Commission, CMC Strategic Planning Office, CMC Reform and Formation Office, CMC International Military Cooperation Office, CMC Audit Office, and CMC General Affairs Administration.

Meanwhile, the US-based Chinese news service Boxun reported that restructuring of the existing 150 military academies and merging them into 29 had already begun under the supervision of Gen Liu Yuan, political commissar of the PLA's General Logistics Department (GLD) and close associate of Xi Jinping. Gen Liu Yuan, who is the son of former Chinese President Liu Shaoqi and a ranking 'princeling', supports the military reforms pushed by

Xi Jinping and has publicly spoken out against corruption in the PLA. The remaining academies will be transferred to the local civilian administration. Only military academies catering solely to the PLA, like the Army Non-Commissioned Officer Academy, the Officer College, Staff and Command College, Logistics College, Military Engineering College, Armaments and Equipment College and Strategic Artillery Academy will be retained.

Institutes like the National Defence University (NDU), Defence University of Science and Technology, Military Museum, PLA Archives, Military Academy of Medical Sciences, Engineering Design Institute, armaments research institutes affiliated with the general headquarters and military service branches, and science and technology and academic research organisations, will all be incorporated into the national defence administrative system. A major reform is that officers of these establishments will be demobilised and no longer have military ranks, but will be designated as civilian personnel. The NDU will, however, continue to be responsible for training senior military cadres.

Separately, the *Washington Times* reported on January 7, 2016, that as part of downsizing the PLA and structural reforms, the PLA Culture Work Units under the PLA's General Political Department (GPD) had been dismantled after 63 years. Incidentally, earlier in 2013, credible reports said that Maj Gen Luo Yuan favoured the closure of the PLA's Song and Dance Division under the PLA's General Political Department (GPD). Xi Jinping's wife, Peng Liyuan, is a major general in this division!

On January 6, 2016, Hongkong's *South China Morning Post* and China's authoritative official news agency Xinhua publicised the list of commanders of the new Theatre Commands/Zones and those appointed to top PLA posts consequent to the restructuring and reorganisation. It described the appointments as "temporary". The new PLA appointments follow the same criteria as the promotions effected earlier by Xi Jinping, with the emphasis on professional competence, experience in battle or Military Operations Other Than War (MOOTW) and political reliability.

Those elevated to the new posts are: Gen Fang Fenghui, born in 1951 and till now head of the PLA's GSD, who has been appointed to head the newly

Of special interest to India is the West Zone, which merged the erstwhile Lanzhou and Chengdu MRs. Comprising more than half China's land area, 22 percent of its population and more than one-third of China's land-based military, the newly constituted West Zone represents a strengthened military formation.

created Joint General Staff. The youngest Military Region (MR) commander at one time, he is an expert in the digital battlefield and an electronics enthusiast whose hobby is developing integrated military command software; 1953-born Gen Xu Fenlin, till now commander of Guangzhou MR is the new deputy chief of the Joint General Staff; Gen Li Zuocheng, a battle veteran of the 1979 Vietnam War who is reputed to have preferred delayed promotions rather than buying his rank and was till recently commander of the Chengdu MR, now heads the ground forces as commander of the PLA Army (PLAA); 63-year old Adm Sun Jianguo, a submariner and a former president of the

PLAN Submarine Academy, is the new PLAN commander, replacing Wu Shengli. He has been the front-runner candidate for the post of PLAN chief since 2012; 1958-born Gen Yi Xiaoguang who joined the PLAAF at the age of 16, takes over from Ma Xiaotian as PLAAF commander. A fighter pilot born into a family with a military tradition, he has been regarded a rising star of the PLAAF since his tenure as the DCOS in charge of Training and Headquarters Affairs when he was the second youngest PLAAF officer holding a corps level post. He composed "The Chinese/English Manual for Jet Pilots" in 1992; Gen Wei Fenghe, erstwhile commander of the Second Artillery continues as chief of the new PLA Rocket Force; and Gen Gao Jin is head of the new PLA Strategic Support Force. Born in 1959, both Gen Gao Jin's parents were PLA officers. Gao Jin served in the Second Artillery throughout his career except since December 2014 when he was appointed president of the PLA Academy of Military Science. He became the youngest regional-level commander in the PLA when he was 55 years old.

Among the new zone commanders, Liu Yuejun, till recently commander of the Lanzhou Military Region, is commander of the East Zone; Wang

Jiaocheng heads the South Zone; Song Puxan has taken over as commander of the North Zone and Han Weiguo as the commander of the Central Zone. All Military Region commanders have been accommodated in the new Zone Commands except for the former commander of the Nanjing Military Command, 61-year-old Gen Cai Yingting, who was a secretary to the late CMC Vice Chairman Zhang Wannian, a close aide to Jiang Zemin. He has been moved as president of the prestigious PLA Academy of Military Science (AMS).

His credentials indicate he was handpicked for this post. Gen Zhao Zongqi is fluent in Arabic and has experience of Tibet.

Of special interest to India is the West Zone, which merged the erstwhile Lanzhou and Chengdu MRs. Comprising more than half China's land area, 22 percent of its population and more than one-third of China's land-based military, the newly constituted West Zone represents a strengthened military formation. Merger of the Lanzhou and Chengdu MRs will improve joint planning, coordination and operations. Incorporation of the Qinghai region in the West Zone will facilitate the rapid induction and deployment of high altitude acclimatised and trained troops into Tibet and across Ladakh while making it difficult to monitor their training and movement. Establishment of the West Zone also reveals China's abiding military interest in the region in addition to facilitating focus on "threats in Xinjiang and Tibet as well as Afghanistan and other states that host training bases for separatists and extremists". Safeguarding China's investments in the northern areas of Pakistan will be a major task for the West Zone and there are adequate indications that China will maintain military pressure on India, including by pressing its territorial claims. Significant in this context are the backgrounds of the PLA, PLAAF and PLAN commanders.

Equally pertinent is the appointment of Gen Zhao Zongqi, till recently Jinan MR commander, as commander of the new West Zone. His credentials indicate he was handpicked for this post. Gen Zhao Zongqi is fluent in Arabic and has experience of Tibet. He is a war hero, having participated in the Sino-Vietnam War in 1979 when he is reported to have often disguised himself as a Vietnamese to gather information. He served over 20 years in

Tibet as Deputy Chief of Staff (1984-99) and Chief of Staff (1999-2004) of the Tibet Military District (TMD). Born in 1955, Gen Zhao Zongqi has foreign service experience and was posted in Tanzania as defence attaché. He was also military consultant for a drama serial on the PLA in 2006. Incidentally, the new PLAA Chief Gen Li Zuocheng also has experience of Tibet, having served in the Chengdu MR.

China's ongoing military reforms are an important indicator of Beijing's strategic ambitions and the role envisaged for the PLA. Reflective of the thinking in the higher echelons of China's military is the annual conference on the "Global Military Situation" organised by the PLA's prestigious Academy of Military Sciences (AMS) on January 9, 2015, which discussed the regional security situation in the Asia-Pacific, Europe and the Middle East. Attended by over 150 senior PLA officers and experts, including from the CMC, the four General Departments, NDU and the commandant and political commissar of the AMS, the conference concluded that "unprecedented changes are taking place in the global military situation; military force in international relations is more widely used; and the situation in the Asia-Pacific has worsened".

The reforms are based on these and similar high-level official assessments and intended to streamline the PLA and equip it to effectively to defend China's claimed maritime domain and "fight and win wars". Chinese President Xi Jinping, who as secretary (*mishu*) to Chinese Defence Minister Geng Biao in 1979 had a ringside view of how Deng Xiaoping thoroughly reformed the PLA, will guide implementation of these far-reaching reforms designed to make China strong and realise 'China's Dream'.

SOUTH CHINA SEA DISPUTE: ROLE OF REGIONAL POWERS

SANA HASHMI

INTRODUCTION

Territorial disputes have defined Asia's security architecture in much of the late 20th century and continue to shape relationships among several countries in the 21st century too. With respect to China, it is least threatened by its land boundary disputes and is more focussed on its maritime disputes. As rightly put by Robert Kaplan, "China, whose land borders are more secure than at any time since the height of the Qing dynasty at the end of the eighteenth century, is engaged in an undeniable naval expansion. It is through sea power that China will psychologically erase two centuries of foreign transgressions on its territory, thereby, forcing every country around it to react".¹

China's rising military capabilities, coupled with its ever-rising aggressive behaviour in the Asian region and its maritime claims have caused concerns, especially among countries which are involved in protracted maritime disputes with China.² China's defence spending does concern its

Ms **Sana Hashmi** is a consultant at the Indian Ministry of External Affairs, New Delhi. At the time of submission of this article, she was an Associate Fellow at the Centre for Air Power Studies, New Delhi.

1. Robert D. Kaplan, "The South China Sea is the Future of Conflict", *Foreign Policy*, August 15, 2011, <http://foreignpolicy.com/2011/08/15/the-south-china-sea-is-the-future-of-conflict/>. Accessed on November 2, 2015.
2. Sana Hashmi, "The South China Sea Imbroglio: An Indian Perspective", *Air Power Journal*, vol. 8, no. 1, Spring 2013, p. 149.

In 2014, China's defence spending stood at US\$ 132 billion which rose to approximately US\$ 145 billion in 2015. By 2020, the figure is expected to rise to US\$ 260 billion.

immediate neighbour, India, and other major powers, the United States, Japan, Australia, etc. In 2014, China's defence spending stood at US\$ 132 billion which rose to approximately US\$ 145 billion in 2015. By 2020, the figure is expected to rise to US\$ 260 billion.³ In the coming years, most of its defence spending will be used to further modernise its naval capabilities. The neighbouring countries see the relentless growth in China's military spending—a double-digit increase almost every year for the past two decades—as going hand-in-hand with a determination to settle sovereignty disputes in its near-seas, that is, the Yellow, East China and South China Seas, on China's own terms.⁴

Clearly, China has been involved in naval modernisation for a long time now. It is building a modern powerful navy with a limited but growing capability for conducting operations beyond China's near-seas region.⁵ China's naval modernisation effort encompasses a broad array of platform and weapon acquisition programmes, including Anti-Ship Ballistic Missiles (ASBMs), Anti-Ship Cruise Missiles (ASCMs), submarines, surface ships, aircraft, and supporting C4ISR (Command and Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance) systems, and its naval modernisation effort also includes improvements in maintenance and logistics, doctrine, quality of personnel, education and training and exercises.⁶ At present, the People's Liberation Army Navy (PLA Navy) has a total strength of 235,000 officers and men, and commands three fleets, namely, the Beihai Fleet, Donghai Fleet and Nanhai Fleet, and each fleet has

3. "China's Defence Spending Almost Doubles by Close of Decade, IHS Says", *IHS Jane's*, September 2, 2015, <http://press.ihs.com/press-release/aerospace-defense-security/chinas-defence-spending-almost-doubles-close-decade-ihs-say>. Accessed on October 5, 2015.
4. "China's Military Spending: All the Double", *The Economist*, March 15, 2014, <http://www.economist.com/news/china/21599046-chinas-fast-growing-defence-budget-worries-its-neighbours-not-every-trend-its-favour>. Accessed on November 5, 2015.
5. Ronald O' Rourke, "China Naval Modernization: Implications for U.S. Navy Capabilities—Background and Issues for Congress", *Congressional Research Service Report*, November 23, 2015, <https://www.fas.org/sgp/crs/row/RL33153.pdf>. Accessed on December 2, 2015.
6. *Ibid.*

fleet aviation headquarters, support bases, flotillas and maritime garrison commands, as well as aviation divisions and marine brigades.⁷ On September 25, 2012, China's first aircraft carrier, the *Liaoning*, which was made in Russia, was commissioned into the PLA Navy. The acquisition of an aircraft carrier has had a profound impact on building a strong PLA Navy in order to safeguard its maritime security.⁸ China is now building its second aircraft carrier indigenously in the northern port of Dalian. In December 2015, China's Defence Ministry spokesperson, Yang Yujun, at a monthly press briefing, remarked that this aircraft carrier, with a displacement of 50,000 tonnes, will be a base for J-15 fighters and other types of aircraft.⁹

China's maritime interests have three components: reunification with Taiwan; defending the boundaries of its claimed Exclusive Economic Zones (EEZ) and preventing an outside attack on China's coastal areas; and finally, exercising sovereignty over the claimed islands in the East and South China Seas.

China's maritime interests have three components: reunification with Taiwan; defending the boundaries of its claimed Exclusive Economic Zones (EEZ) and preventing an outside attack on China's coastal areas; and finally, exercising sovereignty over the claimed islands in the East and South China Seas.¹⁰ China's three-digit defence budget with rising military capabilities has become a cause of concern for several countries, especially for the countries which are involved in intractable maritime disputes with China. Of all China's ongoing disputes, the South China Sea dispute is one of the most formidable disputes in the

7. Ministry of National Defence, People's Republic of China, "White Paper on The Diversified Employment of China's Armed Forces", April 16, 2013, <http://eng.mod.gov.cn/Database/WhitePapers/2012.htm>. Accessed on April 20, 2013.

8. Ibid.

9. "China Building Second Aircraft Carrier", *Xinhua*, December 31, 2015, http://news.xinhuanet.com/english/2015-12/31/c_134968258.htm. Accessed on December 31, 2015.

10. Thomas J. Bickford, "Uncertain Waters: Thinking about China's Emergence as a Maritime Power", Centre for Naval Analyses (CNA), September 2011, <http://www.cna.org/sites/default/files/research/uncertain%20waters%20china's%20emergence%20as%20a%20maritime%20power%20d0025813%20a1.pdf>. Accessed on September 20, 2013.

While China rests its claim on a mixture of historical accounts and international law, all the other claimants claiming sovereignty over the islands – Brunei, Malaysia, the Philippines and Vietnam – base their cases on the UNCLOS, to which China is also a party since 1996.

contemporary times, involving China and several countries of the Southeast Asian region. Chinese President Xi Jinping's statement, "We are strongly committed to safeguarding the country's sovereignty and security, and defending our territorial integrity," indicates China's assertive behaviour towards the South China Sea dispute.¹¹ What makes the dispute all the more tricky is the uncompromising stand of the parties involved as well as the involvement of non-claimants such as the US, India, Japan and Australia.

BACKGROUND: LOOKING INTO THE HISTORY

The South China Sea has long been labelled as troubled waters or a flashpoint, whether viewed from the aspect of regional security or in terms of living and non-living marine resources.¹² China, Taiwan and key Southeast Asian nations, namely, Brunei, Malaysia, the Philippines and Vietnam, have overlapping claims on a number of islands in the South China Sea. China has been referring to the disputed islands in the South China Sea as its inalienable territory since time immemorial. Former Chinese Premier Wen Jiabao referred it to as "China's historical territory since ancient times". China and Vietnam have overlapping claims on the Spratly and Paracel Islands, whereas China and the Philippines have contesting claims on Scarborough Shoal. China refers to the Paracel Islands as the Xisha Islands and the Scarborough Shoal as the Huangyan Islands. Malaysia and Brunei also lay claim on the territory in the South China Sea that they say falls within their EEZ, as defined by the United Nations Convention on the Law

11. Quoted in "China's Maritime Disputes: A CFR Info Guide Presentation", Council on Foreign Relations, <http://www.cfr.org/asia-and-pacific/chinas-maritime-disputes/p31345#!/#overview>. Accessed on December 23, 2015.

12. Nein-Tsu Alfred Hu, "South China Sea: Troubled Waters or a Sea of Opportunity", in Nein-Tsu Alfred Hu and Ted L. McDorman's, eds., *Maritime Issues in the South China: Troubled Waters or A Sea of Opportunity* (Oxon: Routledge, 2013), p. 1.

of the Sea (UNCLOS); however, the difference is that Brunei does not claim any of the disputed islands, but Malaysia claims a small number of islands in the Spratlys.¹³ Interestingly, while China rests its claim on a mixture of historical accounts and international law, all the other claimants claiming sovereignty over the islands – Brunei, Malaysia, the Philippines and Vietnam – base their cases on the UNCLOS, to which China is also a party since 1996.¹⁴ The Chinese leadership refers to the Spratly Islands as Nansha Islands and claims that it was the first country to discover, name, develop, conduct economic activities on, and exercise jurisdiction over, the Nansha Islands.¹⁵

To counter China's expansive claims on the disputed sea, Vietnam claims that China had never claimed sovereignty over the islands before the 1940s and Vietnam has actively ruled over both the Paracels and the Spratlys since the 17th century and has the historical documents to prove it.¹⁶ Therefore, it was only from the 1970s onwards that China has been enjoying control over the Paracels and a few islands in the Spratlys, and has become assertive only in the recent past. Here, it may be noted that China's assertiveness in the South China Sea has been in tandem with its growing stature and it is only in the past few years that China has acquired the capability to project power in the neighbourhood and that power is growing.¹⁷ The other claimant, the Philippines, bases its claims on the account of its geographical proximity to

It was only from the 1970s onwards that China has been enjoying control over the Paracels and a few islands in the Spratlys, and has become assertive only in the recent past.

13. Jianming Shen, "China's Sovereignty over the South China Sea Islands: A Historical Perspective", *Chinese Journal of International Law*, vol. 1, no. 1, 1998, pp. 94-157.

14. "A Good Neighbor Policy for Peace in the South China Sea", *Bloomberg News*, August 12, 2012, <http://www.bloombergvew.com/articles/2012-08-12/a-good-neighbor-policy-for-peace-in-the-south-china-sea>. Accessed on September 5, 2015.

15. Ministry of Foreign Affairs of the People's Republic of China, "The Issue of South China Sea: Historical Evidence to Support China's Sovereignty over Nansha Islands", November 17, 2015, http://www.fmprc.gov.cn/mfa_eng/topics_665678/3754_666060/t19231.shtml. Accessed on September 2, 2015.

16. "Q & A: South China Dispute", *BBC News*, October 27, 2015, <http://www.bbc.com/news/world-asia-pacific-13748349>. Accessed on November 4, 2015.

17. "China Will Have to 'Rethink Approach' on South China Sea", *The Strait Times*, November 21, 2015, <http://www.straitstimes.com/asia/east-asia/china-will-have-to-rethink-approach-on-south-china-sea>. Accessed on December 2, 2015.

the sea. Understanding that it cannot overpower China in terms of military muscle, the Philippines relies more on the interpretation of international law than on historical proof, while seeking the US' support as a back-up in case of an armed conflict.

Going back to history, it was in 1951, at the signing of the San Francisco Treaty, that Japan gave up its claims on the South China Sea. China denounced this treaty by claiming that the territorial clause in the draft peace treaty with Japan was perfectly suited to the requirements of the American government, of occupation, and aggression and expansion.¹⁸ China further stated that the Xisha and Nansha Islands are inalienable Chinese territories and that China has inviolable sovereignty over these islands.¹⁹ The origin of the dispute may be traced back to the Kuomintang period in 1947, two years before the establishment of the Chinese Communist Party (CCP). Signs of China's plans to establish itself as a maritime power began as early as the 1940s when Chiang Kai-shek issued an official map containing the eleven-dash line to stress China's claims in the South China Sea. This stand was later adopted by Taiwan. The claims on the islands in the South China Sea were maintained by the new Chinese Communist government too, but it simplified its claims to just nine-dashes. One of the main reasons behind cutting down the claim to the nine-dash line was China's friendly relations with North Vietnam. The CCP allowed the North Vietnamese (Communist) regime to build a radar station and goods transit point on one of the South China Sea island chains, in a spirit of "comradeship and brotherhood" and in 1957, they even signed a secret agreement ceding Bailongwei (White Dragon Tail) Island in China's archipelago to the Hanoi government.²⁰ However, by the 1950s and 1960s, other parties to the conflict began to claim sovereignty over mostly uninhabited islands in the South China Sea. For example, while the Philippines claimed to have discovered the so-called

18. "Foreign Minister Zhou Enlai Statement on the US-British Draft Peace Treaty with Japan and the San Francisco Conference", *Xinhua*, August 21, 1951, http://news.xinhuanet.com/ziliao/2004-12/15/content_2337746.htm. Accessed on December 5, 2015.

19. *Ibid.*

20. Wei Pu, "How The Eleven-Dash Line Became a Nine-Dash Line, And Other Stories", *Radio Free Asia*, August 16, 2015, <http://www.rfa.org/english/commentaries/line-07162015121333.html>. Accessed on September 20, 2015.

Kalayaan Islands and declared them to be Philippines territory, Vietnam began to occupy some islands in the Paracel and Spratly groups of islands.²¹

These claims and counter-claims did not attract much attention till the 1970s. This was mainly due to the internal volatility in the Southeast Asian region as also in China such as the Cultural Revolution in China (1966-76), Indochina War, military coups in South Vietnam (1963-64) and one in Cambodia which ousted the King of Cambodia, Norodom Sihanouk (1970). It was the 1973 Paris Peace Accord that changed the situation. With signs of reconciliation between North Vietnam and South Vietnam, military confrontations between China and South Vietnam began to take place. In 1974, PLA Navy troops began to occupy the western part of the Paracel Islands by planting flags on several islands and seizing a South Vietnamese garrison which led China to build a military installation, including an airfield and artificial harbour on Woody Island, the largest of the Paracels.²² In early 1974, China got involved in a direct military confrontation with the Republic of Vietnam (South Vietnam), popularly known as the Battle of the Paracel Islands, which led to the killing of at least 70 Vietnamese soldiers. The upshot of the confrontation was China gaining control over a major part of the area in the Paracel Islands. Again, in 1988, both militaries confronted each other which resulted in the sinking of a Vietnamese supply vessel, and the drowning of as many as 60 Vietnamese sailors. As a result, China took possession of six islands of the Spratly group of islands. In 1995-96, China also had a military stand-off with the Philippines and took charge of Mischief Reef. Again, in early 2012, China and the Philippines got engaged in a lengthy maritime stand-off, accusing each other of intrusions in the Scarborough Shoal.²³

Several efforts have been made by the claimants, particularly the Southeast Asia's flagship organisation, the Association of Southeast Asian Nations (ASEAN) to come up with a mutually acceptable solution to the dispute. Given that China is militarily as well as economically superior to countries

21. Jianming Shen, "International Law Rules and Historical Evidence Supporting China's Tide to the South China Sea Islands", *21 Hastings International & Comparative Law Review*, vol. 40, 1997, pp. 1-75.

22. "Timeline: China's Maritime Disputes", Council on Foreign Relations, 2014, <http://www.cfr.org/asia-and-pacific/chinas-maritime-disputes/p31345#/>. Accessed on September 2, 2015.

23. n. 16.

On November 4, 2002, ASEAN and China adopted the Declaration on the Conduct of Parties (DoC) in the South China Sea. The DoC was signed to provide the foundation for long-term stability in the area and foster understanding among the countries concerned by reaffirming the limits of the declaration in preventing the escalation of tensions and the occurrence of skirmishes and other incidents in the region.

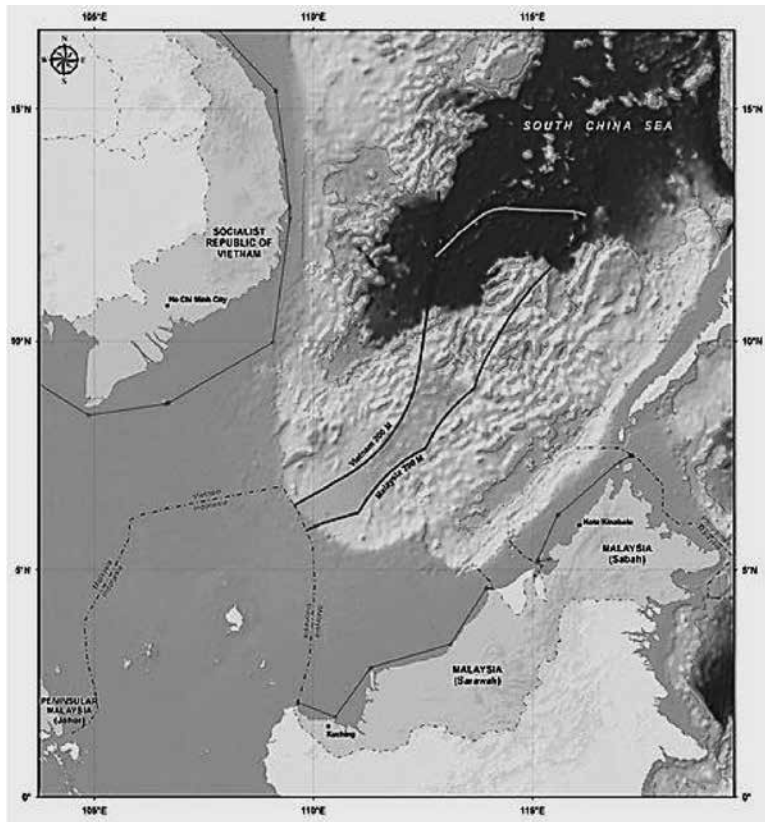
such as Vietnam and the Philippines, the Southeast Asian countries wanted ASEAN to be in the driver's seat for resolving the South China Sea dispute. On November 4, 2002, ASEAN and China adopted the Declaration on the Conduct of Parties (DoC) in the South China Sea. The DoC was signed to provide the foundation for long-term stability in the area and foster understanding among the countries concerned by reaffirming the limits of the declaration in preventing the escalation of tensions and the occurrence of skirmishes and other incidents in the region.²⁴ Enmity between China and individual countries was at its least in the early 2000s as China and ASEAN also inked the Treaty of Amity and Cooperation (TAC) in 2003. With that,

China became the first non-Southeast Asian country to sign the TAC. However, despite all these moves to curtail the animosity at the multilateral level, differences began to crop up at the bilateral level. On May 7, 2009, Malaysia and Vietnam submitted their joint claim to the United Nations Commission on the Limits of the Continental Shelf (UNCLCS).²⁵

24. Tran Truong Thuy, "The Declaration on the Conduct of Parties in the South China Sea and Developing Maritime Energy Resources", in Clive Schofield, ed., *Maritime Energy Resources In Asia Energy And Geopolitics (NBR Special Report #35)*, December 2011, pp. 173-198.

25. For more details on the Joint Submission to the UNCLCS by Malaysia and Vietnam, see "Commission on the Limits of the Continental Shelf (CLCS)-Outer limits of the continental shelf beyond 200 nautical miles from the baselines: Submissions to the Commission: Joint Submission by Malaysia and the Socialist Republic of Viet Nam", *United Nations- Ocean and Law of the Sea*, May 7, 2009, http://www.un.org/depts/los/clcs_new/submissions_files/submission_mysvnm_33_2009.htm. Accessed on October 26, 2015 and "Joint Submission to the Commission on the Limits of the Continental Shelf Pursuant to Article 76, Paragraph 8 of the United Nations Convention on the Law of the Sea 1982 in Respect of the Southern Part of the South China Sea", United Nations, May 2009, http://www.un.org/depts/los/clcs_new/submissions_files/mysvnm33_09/mys_vnm2009executivesummary.pdf. Accessed on October 26, 2015.

Fig 1: Malaysia and Vietnam's Joint Submission to the UN



Source: "Executive Summary of the Joint Submission to the Commission on the Limits of the Continental Shelf Pursuant to Article 76, Paragraph 8 of the United Nations Convention on the Law of the Sea 1982 in Respect of the Southern Part of the South China Sea", United Nations, May 2009, http://www.un.org/depts/los/clcs_new/submissions_files/mysvnm33_09/mys_vnm2009executivesummary.pdf.

In retaliation, China strongly opposed the joint submission by Malaysia and Vietnam to the UN which referred to the continental shelf beyond 200 nautical miles (nm) by stating that the joint submission seriously infringed China's sovereignty, sovereign rights and jurisdiction in the South China Sea and that it would seriously request the commission not to consider their submission.²⁶ Further, it was mentioned by the

26. Nong Hong, *UNCLOS and Ocean Dispute Settlement: Law and Politics in the South China Sea* (Oxon: Routledge, 2012), p. 20.

Following in the footsteps of Malaysia and Vietnam, China also submitted a u-shaped map containing the nine-dash line covering the entire South China Sea, to the UN.

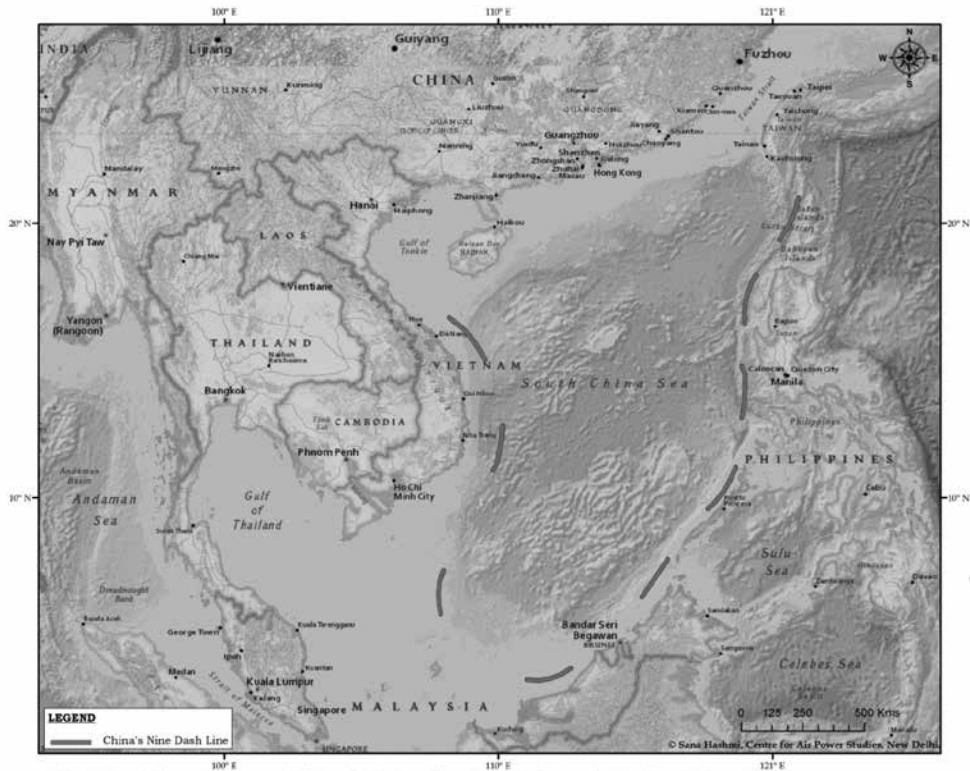
Permanent Mission of the People's Republic of China to the UN that "China has indisputable sovereignty over islands in the South China Sea and the adjacent waters, and enjoys sovereign rights and jurisdiction over the relevant waters as well as seabed and subsoil thereof. The above position is consistently held by the Chinese Government and is widely known by the international community."²⁷ Following in the footsteps of Malaysia and Vietnam, China also submitted a u-shaped map containing the nine-dash line covering the entire South China Sea, to the UN. In response to China's objections, Vietnam clarified:²⁸

The Paracels (Hoang Sa in Vietnam) and the Spratlys (Truong Sa in Vietnam) archipelagos are part of Vietnam's territory and Vietnam has indisputable sovereignty over these archipelagos. China's claims over the islands and adjacent waters in the South China Sea (Eastern Sea in Vietnam) has no legal, historical or factual basis, therefore, is null and void.

27. For details, see "Note No. CML/18/2009 from the Permanent Mission of the Republic of the China to the Secretary-General of the United Nations referring to the Joint Submission of Malaysia and the Socialist Republic of Vietnam to the Commission on the Limits of the Continental Shelf, United Nations, May 7, 2009, http://www.un.org/depts/los/clcs_new/submissions_files/mysvnm33_09/chn_2009re_mys_vnm_e.pdf. Accessed on October 2, 2015.

28. For details, see "Note No. 86/HC-2009 from the Permanent Mission of the Socialist Republic of Vietnam to the Secretary-General of the United Nations, United Nations, May 8, 2009, http://www.un.org/Depts/los/clcs_new/submissions_files/vnm37_09/vnm_re_chn_2009re_vnm.pdf, Accessed on January 5, 2016.

Fig 2: Chinese' Submission of Claim in the Form of the Nine-Dash Line to the UN



Interestingly, not only did China oppose Malaysia's and Vietnam's joint submission, the Philippines also expressed its resentment against their joint submission. The Philippines lodged a note with UN Secretary-General Ban Ki-Moon asking UNCLOS to refrain from considering the joint submission by Malaysia and Vietnam as the said submission overlapped that of the Philippines.²⁹ Vietnam responded to the Philippines note to the UN by

29. For details, see "Note No. 000819 from the Permanent Mission of the Republic of the Philippines to the Secretary-General of the United Nations referring to the Joint Submission of Malaysia and the Socialist Republic of Vietnam to the Commission on the Limits of the Continental Shelf", United Nations, May 4, 2009, http://www.un.org/Depts/los/clcs_new/submissions_files/mysvnm33_09/clcs_33_2009_los_phl.pdf, Accessed on January 5, 2016.

remarking:³⁰

Vietnam's submission has been made without prejudice to matters relating to the delimitation of the boundaries between States with opposite or adjacent coasts as well as the positions of States which are parties to land or maritime disputes... All disputes must be settled through peaceful negotiations, in accordance with the international law, especially with the 1982 UNCLOS and DOC.

Malaysia's response to the objections of both China and the Philippines was rather diplomatic and it stated: "The Government of Malaysia had informed both China and the Philippines of its position prior to their joint submission to the Commission on the Limits of the Continental Shelf."³¹ Despite the Philippines' resentment against their joint submission, the Philippines and Vietnam represent the same side in the context of protesting against the Chinese stand. While China maintains that by claiming the South China Sea, it is just attempting to protect its sovereignty and avert containment from countries like the US and Japan, the Philippines and Vietnam regard it as merely another manoeuvre by China to acquire the resources of the South China Sea and eventually dominate Southeast Asia and, for that matter, the whole of the Asia-Pacific.³²

Since 2009, there has been a significant increase in the non-military confrontation between China and Vietnam and also the Philippines. In early 2011, China and the Philippines confronted each other by sending patrol vessels to Scarborough Shoal. Later, on June 21, 2012, during the

30. For details, see Note No. 240HC-2009 from the Permanent Mission of the Socialist Republic of Vietnam to the Secretary-General of the United Nations, United Nations, August 18, 2009, http://www.un.org/Depts/los/clcs_new/submissions_files/mysvnm33_09/vnm_re_phl_2009re_mys_vnm_e.pdf, Accessed on January 6, 2016.

31. For details, see "Note No. HA 24/09 from the Permanent Mission of Malaysia to the Secretary-General of the United Nations, United Nations, May 20, 2009, http://www.un.org/Depts/los/clcs_new/submissions_files/mysvnm33_09/mys_re_chn_2009re_mys_vnm_e.pdf and "Note No. HA 41/09 from the Permanent Mission of Malaysia to the Secretary-General of the United Nations, *United Nations*, August 21, 2009, http://www.un.org/Depts/los/clcs_new/submissions_files/mysvnm33_09/mys_re_phl_2009re_mys_vnm_e.pdf. Accessed on January 6, 2016.

32. Hashmi, n. 2, p. 152.

13th National Assembly of the Socialist Republic of Vietnam, the Law of the Sea of Vietnam was passed which made it compulsory for foreign navies to take permission from Vietnam before sending their ships to Vietnam's maritime area.

Former Vice Foreign Minister Zhang Zhijun summoned the Vietnamese Ambassador to China, Nguyen Van Tho, and conveyed that "China strongly protests and firmly opposes such a move by Vietnam and that Vietnam's unilateral action has complicated and escalated the problem and violated the consensus reached by both leaders, as well as the spirit of the DOC... Vietnam's action is illegal, invalid and detrimental to peace and stability in the South China Sea."³³ Of all the claimants, tension between China and Vietnam has been rising. In May 2014, the Chinese state-owned oil company, China National Petroleum Corporation (CNPC) sent its oil rig into the waters claimed by Vietnam and, consequently, their naval and coast guard vessels confronted each other around the rig, and anti-China riots erupted in Vietnam.³⁴ The deployment of the US\$ 1 billion deep-water rig (the Haiyang Shiyu 981) about 120 nm off Vietnam's coast, in what Vietnam considers its EEZ, led to the worst breakdown in relations since a brief border war in 1979.³⁵

In early 2015, the news of China reclaiming land and building artificial islands in the disputed South China began to surface. It is believed that as of mid-2015, China reclaimed at least 2,000 acres (approximately 800,000 square metres) of land, mostly in Fiery Cross Reef, and has also reportedly developed infrastructure in the form of ports, fuel storage depots, airstrips and radar sites which would be used as military outposts by China.³⁶

33. "China Opposes Vietnamese Maritime Law over Sovereignty Claim", *Xinhua*, June 21, 2012, http://news.xinhuanet.com/english/china/2012-06/21/c_131668632.htm. Accessed on October 4, 2015.

34. Joshua Kurlantzick, "A China-Vietnam Military Clash", *Council on Foreign Relations*, September 2015, <http://www.cfr.org/china/china-vietnam-military-clash/p37029>. Accessed on December 25, 2015.

35. "China Oil Rig To Keep Drilling In Waters Disputed With Vietnam", *Reuters*, August 25, 2015, <http://www.reuters.com/article/us-southchinasea-china-vietnam-idUSKCN0QU0UG20150825>. Accessed on November 13, 2015.

36. Rahul Mishra, "China's Land Reclamation in the South China Sea: Implications for the Region", *ICWA Viewpoint*, June 16, 2015, <http://www.icwa.in/pdfs/VP/2014/ImplicationsfortheRegionvp.pdf>. Accessed on July 2, 2015.

China claims that the construction of artificial islands and lighthouses in the South China has been restricted to efforts to improve civilian infrastructure and step up the surveillance in the sea.

Apart from China, Vietnam has also been engaged in the process of reclaiming land in the South China Sea. According to the Asia Maritime Transparency Initiative, in the last several years, Vietnam has added approximately 65,000 square metres to West Reef and 21,000 square metres to Sand Cay, where it is also developing military facilities.³⁷ China claims that the construction of artificial islands and lighthouses in the South China has been restricted to efforts to improve civilian

infrastructure and step up the surveillance in the sea. However, China has been facing scathing criticism from various countries, particularly Vietnam, the Philippines and the US over this.

RELEVANCE OF THE SOUTH CHINA SEA

The South China Sea is not only one of the main sea lines of communication, 80 percent of the global sea-borne trade also passes through it. It joins the Southeast Asian states with the Western Pacific, functioning as the throat of global sea routes; here is the centre of maritime Eurasia, punctuated by the Straits of Malacca, Sunda, Lombok, and Makassar.³⁸ The oil transported through the Strait of Malacca from the Indian Ocean, en route to East Asia through the South China Sea, is more than six times the amount that passes through the Suez Canal and 17 times the amount that transits the Panama Canal; in essence, roughly two-thirds of South Korea's energy supplies, nearly 60 percent of Japan's and Taiwan's energy supplies, and about 80 percent of China's crude oil imports come through the South China Sea.³⁹ Though it is difficult to determine the amount of oil and natural gas available in the South China Sea because of under-exploration and territorial disputes,

37. "Sandcastles of their Own: Vietnamese Expansion in the Spratly Islands", Asia Maritime Transparency Initiative, Centre for Strategic and International Studies, May 7, 2015, <http://amti.csis.org/vietnam-island-building/>. Accessed on September 7, 2015.

38. Kaplan, n. 1.

39. Ibid.

the US Energy Information Administration (EIA) estimates that the sea has approximately 11 billion barrels (bbl) of oil reserves and 190 trillion cubic feet (tcf) of natural gas.⁴⁰ In 2010, China surpassed the US to become the largest energy consumer in the world and is the second largest oil consumer after the US. Given that China's energy demand on the domestic front is bound to increase in the coming years, it is looking for diversifying its energy supplies and eventually becoming self-sufficient. By gaining control over the islands in the South China Sea, China will be a step closer to its dream of becoming self-sufficient in the energy domain.

Strategically, the Chinese have for long felt vulnerable from the sea, and their current maritime strategy seeks to reduce that vulnerability by extending a ring of maritime control around China's periphery.

Strategically, the Chinese have for long felt vulnerable from the sea, and their current maritime strategy seeks to reduce that vulnerability by extending a ring of maritime control around China's periphery.⁴¹ China desires to acquire control over the Spratlys, or at least the ability to prevent external powers from interfering with its naval movements in an area that would extend to the Strait of Malacca.⁴² As pointed out by former PLA Navy Commander Adm Liu Huaqing, whoever controls the Spratlys, will reap huge economic and military benefits.⁴³

CHINA'S STRATEGIC INTERESTS AND POSITION: IS BEIJING WILLING FOR A RESOLUTION?

The Chinese official position on the South China Sea dispute has been: "China has incontestable sovereignty over the islands in the South China

40. "South China Sea: International Energy Data and Analysis", U.S. Energy Information Administration, February 7, 2013, <https://www.eia.gov/beta/international/regions-topics.cfm?RegionTopicID=SCS>. Accessed on December 5, 2015.

41. Peter A. Dutton, "China's Maritime Disputes in the East And South China Seas", *Naval War College Review*, January 14, 2014, p.7.

42. Leszek Buszynski, "The South China Sea: Oil, Maritime Claims And US-China Strategic Rivalry", *The Washington Quarterly*, vol. 35, no. 2, Spring 2012, p. 146.

43 Quoted in M.Taylor Fravel, "China's Strategy in the South China Sea", *Contemporary Southeast Asia: A Journal of International and Strategic Affairs*, vol. 33, no. 3, December 2011, pp. 292-319.

Sea.” It claims that it has been exercising control over the islands in the South China Sea since the mid-1940s. After Japan’s surrender in 1945, the Chinese government sent senior officials to the Paracel Islands aboard military vessels and a ceremony for taking over the islands was held the following year.⁴⁴ It further claims that in 1959, the Chinese government established the Administration Office for the Xisha, Zhongsha and Nansha Islands and in January 1974, the Chinese military drove the invading army of South Vietnam from Shanhu Island and Ganquan Island of the Xisha Islands.⁴⁵ Recently, on the issue of the Philippines’ filing the case of the South China Sea dispute in the arbitration court against China, the latter responded assertively by affirming that “China has sovereignty over the South China Sea Islands and lawful rights and interests in the South China Sea. No one, no country and no entity but the Chinese government has the right to make the decision on behalf of the 1.3 billion Chinese people.”⁴⁶

China seems unwilling to opt for speedy resolution of the South China Sea dispute in the near future. Moreover, whenever China does go in for the resolution process, it will not prefer a multilateral resolution of the dispute and will opt for resolving the dispute with the other claimants at the bilateral level only. On July 7, 2015, Chinese Ambassador to the Philippines, Zhao Jianhua, stated that China’s door for bilateral consultation and negotiation is still open and will remain open forever as it prefers peaceful means and bilateral talks to resolve issues.⁴⁷ Several reasons may be cited for such an approach from China’s side. Though, officially, China claims that the DoC as well the future Code of Conduct (CoC) is not for dispute settlement, but for conflict management to maintain peace, security and stability in the

44. “History of Chinese Sovereignty over the Xisha Islands”, *Xinhua*, June 11, 2014, http://news.xinhuanet.com/english/video/2014-06/11/c_133399259.htm. Accessed on November 25, 2015.

45. *Ibid.*

46. “*People’s Daily*: China is Observing International Law In The True Sense”, *Xinhua*, December 18, 2015, http://news.xinhuanet.com/english/2015-12/18/c_134931462.htm. Accessed on December 20, 2015.

47. “China Prefers ‘Peaceful Means, Bilateral Talks’ in Resolving Maritime Rows”, *Xinhua*, July 7, 2015, http://www.chinadaily.com.cn/world/2015-07/07/content_21199454.htm. Accessed on December 5, 2015.

region⁴⁸, it does not want to be confronted with all the ten ASEAN states at the same time. Secondly, multilateral negotiations with ASEAN will not work to China's advantage as this will place China in a weaker position at the negotiating table and it will be compelled to provide concessions to countries such as Vietnam and the Philippines.

Seemingly, China will not go for military confrontation in the South China Sea dispute. There are a few disadvantages for China if it decides to confront any of the opponents militarily. First, the Philippines and Vietnam are much closer geographically to the islands than China. The main Chinese naval bases in the South China Sea, Yulin on Hainan Island and Zhanjiang, the headquarters of China's South Seas Fleet on the mainland, are much farther from the disputed islands than are the bases of the other claimants.⁴⁹ In addition, with the collapse of the Union of Soviet Socialist Republics (USSR), China now has the world's second largest submarine fleet, after the US, but the problem is that all of the PLA Navy's diesel powered boats are based on Soviet designs of the 1950s and only 46 of the fleet's 100 boats are on active duty.⁵⁰ Therefore, though China is less accommodative with respect to the claims of other parties, it is less likely to risk its relations with ASEAN and its member states over the issue of the South China Sea.

SOUTHEAST ASIAN COUNTRIES' RESPONSES

Since the early 2000s, ASEAN, as a regional grouping, has been trying to bring the parties to the South China Sea dispute to the negotiating table. Its official position has been to urge for peace, security, respect for international law and freedom of navigation in the highly trafficked waters.⁵¹ In addition,

48. Ramses Amer and Li Jianwei, "Recent Developments in the South China Sea: Assessing the China-Vietnam and China-Philippines Relationships", in Wu Shicun and Nong Hong, eds., *Recent Developments in the South China Sea Dispute: The Prospect of a Joint Development Regime* (Oxon and New York: Routledge, 2014), p. 40.

49. Lyle Goldstein, "Chinese Naval Strategy in the South China Sea: An Abundance of Noise and Smoke, but Little Fire", *Contemporary Southeast Asia: A Journal of International and Strategic Affairs*, vol. 33 no. 3, December 2011, pp. 320-347.

50. Tai Ming Cheung, "Lacking Depth," *Far Eastern Economic Review*, February 4, 1993, p.11.

51. Quoted in Sok Khemara, "Leaked ASEAN Document Repeats Call for Code of Conduct in South China Sea", *Voice of America*, November 9, 2015, <http://www.voanews.com/content/leaked-asean-document-repeats-call-for-south-china-sea-code-of-conduct/3050632.html>. Accessed on December 12, 2015.

ASEAN's appeal to all parties to adhere to the principles of the DoC and TAC with respect to the South China Sea may be seen as a step in this direction. ASEAN has been calling for a legally binding CoC for the South China Sea dispute resolution.

Nevertheless, there is a consensus among most of the Southeast Asian nations about the failure of the regional multilateral diplomacy between China and ASEAN in moving forward for promoting confidence building, cooperation, or more urgently, in agreeing on conflict avoidance measures and other rules of conduct in the disputed areas.⁵² The reasons why ASEAN has not been able to achieve momentum in pushing through the settlement between China and the Southeast Asian countries are: first, while ASEAN consists of 10 countries, only 4 countries (Brunei, Malaysia, the Philippines and Vietnam) have overlapping claims in the South China Sea. What has made the conflict all the more complex is that the Southeast Asian countries themselves are not united in projecting a common stand on the dispute. In addition, the non-claimants do not want to be a part of the conflict and jeopardise their relations with China which is the largest trading partner for almost the whole of Southeast Asia. Secondly, there is no official mechanism/tribunal within ASEAN to resolve the dispute in a meaningful manner. In fact, ASEAN has a limited role to play in conflict resolution – it can play only the role of a facilitator and not an active mediator.⁵³

Till now, China has been successful in dividing ASEAN on the issue of the South China Sea dispute by strengthening bilateral relations with non-claimants and somewhat neutral countries in Southeast Asia. What is further delaying a comprehensive settlement is the divided approach of the ASEAN member states. For instance, in November 2015, due to China's intervention, the 3rd ASEAN Defence Ministers Meeting (ADMM) Plus failed to issue a joint statement. China did not want the South China Sea

52. Aileen S.P. Baviera, "The South China Sea Territorial Disputes in ASEAN-China Relations", file:///C:/Users/Sana%20Hashmi/Downloads/9_baviera%20-%20the%20scs%20disputes%20in%20asean.pdf. Accessed on December 4, 2015.

53. For details on ASEAN's role in the South China Sea dispute management, see Ramses Amer, "The Dispute Management Approach of the Association of Southeast Asian Nations: What Relevance for the South China Sea Situation?", in Shichun Wu and Keyuan Zou, ed., *Non-Traditional Security and the South China Sea* (Surrey: Ashgate, 2014), pp. 47-72.

dispute to be a part of the talks in the ADMM Plus but countries such as the Philippines, Vietnam and the US wanted the host country, Malaysia to include the issue of land reclamation and construction of artificial islands in the agenda. This deadlock in the talks led to the non-issuance of the joint statement. Similarly, in 2012, for the very first time in the history of ASEAN, a joint communiqué was not issued at the end of the ASEAN Summit, chaired and hosted by Cambodia, China's most reliable friend in Southeast Asia. In fact, on March 25, 2015, Cambodian Prime Minister Hun Sen, at a graduation ceremony of students at the National Institute of Education, proclaimed that the issue is not one of the whole ASEAN, but between the claimant countries and China, which need to negotiate with each other.⁵⁴

Vietnam and the Philippines have a somewhat similar approach towards China with respect to the issue of the South China Sea. The two Southeast Asian countries are as assertive as China and reluctant to compromise on their respective stands. These two countries also favour internationalising the issue of the South China Sea dispute by mentioning it at several international fora and advocating the presence of countries such as the US, Japan and India in the region. For example, Vietnam has offered Cam Ranh Bay as a repair facility to all navies in the world in an effort to encourage the presence of foreign navies in the South China Sea.⁵⁵ The Philippines has requested the US to have joint military patrols in the waters of the South China Sea. The Philippines Department of National Defence spokesman, Peter Paul Galvez, during his visit to the US in January 2016, suggested, "The Philippines and the US also patrol the area together. There is a need for a more collaborative presence in the South China Sea".⁵⁶ Going a step further, the Philippines has also filed a case against China in the International Court of Justice (ICJ) under the framework of the UNCLOS. Justice Antonio T. Carpio, senior associate justice at the Supreme Court of the Philippines,

54. Quoted in "South China Sea Dispute Not Between ASEAN, China: Cambodian PM", *China Daily Europe*, March 26, 2015, http://europe.chinadaily.com.cn/world/2015-03/26/content_19914009.htm. Accessed on September 26, 2015.

55. M. Taylor Fravel, "China's Strategy in the South China Sea", *Contemporary Southeast Asia: A Journal of International and Strategic Affairs*, vol. 33, no. 3, December 2011, pp. 292-319.

56. "Philippines Urges Patrols with U.S. Amid Sea Dispute with China", Reuters, <http://www.reuters.com/article/us-southchinasea-philippines-usa-idUSKCN0US0WJ20160114>. Accessed on December 23, 2015.

Despite having a sovereignty claim over the Louisa Reef, a small atoll in the South China Sea that overlaps with the Chinese (and Malaysian) claims, the Sultanate of Brunei has not occupied any of the territory and tends to downplay the issue with Beijing by focussing on multilateral mechanisms for dispute resolution and joint development.

during his speech at the Indian Council of World Affairs, New Delhi observed, “The Philippines is not asking the tribunal to rule what state owns certain islands, or rocks above water at high tide but it is asking the tribunal to rule what is the extent of the maritime entitlements (0, 12, or 200 nm) of certain islands or rocks, regardless of what state owns them; and whether certain geologic features are LTEs or not. All these are maritime disputes”.⁵⁷

The other two claimants, Brunei and Malaysia, are playing safe. Brunei’s approach, particularly, has been to be submissive for a very long time. Despite having a sovereignty claim over the

Louisa Reef, a small atoll in the South China Sea that overlaps with the Chinese (and Malaysian) claims, the Sultanate of Brunei has not occupied any of the territory and tends to downplay the issue with Beijing by focussing on multilateral mechanisms for dispute resolution and joint development.⁵⁸ Malaysia’s approach is not very different from that of Brunei. Malaysia continues to follow the same strategy on the South China Sea issue, pursuing a combination of diplomatic, legal, economic, and security initiatives that can secure its interests as a claimant state while being careful not to disrupt its vital bilateral relationship with China.⁵⁹

57. For details, see Speech of Justice Antonio T. Carpio, “Eighteenth Sapru House Lecture on South China Sea/West Philippines Sea Dispute”, ICWA, August 6, 2015, <http://www.icwa.in/pdfs/ssreports/2014/Speechon18SHL.pdf>. Accessed on August 7, 2015.

58. Prashanth Parameswaran, “China and Brunei: Ties that Bind?”, *The Jamestown Foundation, China Brief*, vol. 12, issue 21, November 5, 2012, http://www.jamestown.org/regions/chinaasiapacific/single/?tx_ttnews%5Btt_news%5D=40069&tx_ttnews%5BbackPid%5D=663&cHash=137f83d9674bd2caae5a03528e9e8107#.Vpi74Sp97IU. Accessed on September 25, 2015.

59. Prashanth Parameswaran, “Malaysia’s Approach to the South China Sea and Implications for the United States”, Centre for a New American Security, February 2015, p. 4.

Though Indonesia is not a direct party to the dispute, it has raised concerns about its EEZ in the Natuna archipelago in the South China Sea. Deviating from its traditional stand of not being vocal about the issue, Indonesia's Chief Security Minister, Luhut Pandjaitan indicated, "The nation could turn to an international tribunal over disputed claims involving the Natuna archipelago, parts of which intersect with China's nine-dash line". He promulgated that the position of Indonesia is clear at this stage, "We do not recognise the nine-dash line because it is not in line with international law."⁶⁰ He further stated, "We do not want to see any power projection in this area and we would like a peaceful solution by promoting dialogue. The nine-dash line is a problem we are facing, but not only us. It also directly impacts the interests of Malaysia, Brunei, Vietnam, and the Philippines."⁶¹ As far as the other Southeast Asian states, which are non-claimants, are concerned, these countries are attempting to stay out of the conflict while hoping for a speedy and peaceful resolution of the dispute.

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ROLE OF THE US

China has always expressed its displeasure against any other country's intervention in the South China Sea dispute, which China refers to as its internal matter. According to the 2015 White Paper on China's military strategy:⁶²

60. Quoted in Steve Mollman, "Indonesia is the Next Challenger to Beijing in the South China Sea", *Quartz*, November 12, 2015, <http://qz.com/547796/indonesia-may-be-the-next-challenger-to-beijing-in-the-south-china-sea/>. Accessed on December 25, 2015.

61. *Ibid.*

62. For details on China's White Paper on China's Military Strategy, see Ministry of National Defence, People's Republic of China, "White Paper on China's Military Strategy", May 26, 2015, http://eng.mod.gov.cn/Press/2015-05/26/content_4586805.htm. Accessed on May 26, 2015.

On the issues concerning China's territorial sovereignty and maritime rights and interests, some of its offshore neighbors take provocative actions and reinforce their military presence on China's reefs and islands that they have illegally occupied. Some external countries are also busy meddling in South China Sea affairs; a tiny few maintain constant close-in air and sea surveillance and reconnaissance against China. It is, thus, a long-standing task for China to safeguard its maritime rights and interests.

In an apparent message to the US and India, at the *Deccan Herald's* dialogue on "The Asia-Pacific Country: India and Big Power Engagement" in New Delhi on December 19, 2015, Le Yuchneg, Chinese ambassador to India, declared that "countries which are from outside or have nothing to do with the region should not meddle into these issues. This will make it worse."⁶³ Nevertheless, the inability of the disputant countries to deter China in the region is pushing them towards extra-regional powers such as the US, India, Japan and Australia, which have, directly or indirectly, put diplomatic pressure on China.⁶⁴ Of all the extra-regional countries, the presence of the US is considered as the most satisfying to the Southeast Asian countries. Given that the US is still the sole superpower, these countries are aware that no other country can deter China better.

The Asia-Pacific region has witnessed more China-US brinkmanship and diplomatic upheavals lately than any other part of the world. This is largely because of the US' involvement in the South China Sea dispute. The US, which is a strong proponent of the freedom of navigation, is actively opposing China's moves in the South China Sea. In May 2015, White House spokesman Josh Earnest said, "President Barack Obama considered the South China Sea security situation critically important to US national security and the global economy and Washington is committed to working with other

63. "South China Sea—Other Countries Shouldn't Meddle: Chinese Envoy", *Indian Express*, December 20, 2015, <http://indianexpress.com/article/india/india-news-india/south-china-sea-other-countries-shouldnt-meddle-chinese-envoy/#sthash.911wD038.dpuf>. Accessed on December 19, 2015.

64. Rahul Mishra, "Storm on the South China Sea", *The Indian Express*, January 15, 2016, <http://indianexpress.com/article/opinion/columns/storm-on-the-south-china-sea/>. Accessed on January 15, 2016.

Asia-Pacific states to protect the free flow of commerce there”.⁶⁵ The US has also been offering to mediate in the dispute which triggered opposition from the Chinese side. Former Chinese Foreign Ministry spokesperson Jiang Yu asserted, “We resolutely oppose any country which has no connection to the South China Sea getting involved in the dispute, and we oppose the internationalisation, multilateralisation or expansion of the issue. It cannot solve the problem, but can make it more complicated. China tells the US to keep out of South China Sea dispute”.⁶⁶ Further, the involvement of the Obama Administration has been categorised as attempting to cosy up to the ASEAN countries and strengthen US influence in the region so as to contain China by forcing countries to take sides.⁶⁷

Of late, the China-US rivalry has gained traction with the latter sending aircraft, including bombers, close to the China built artificial island. In December 2015, a B-52 bomber ‘mistakenly’ flew near the Cuarteron Reef in the Spratly archipelago which is within 2 nm of Chinese-claimed territory in the South China Sea.⁶⁸ In October 2015, the US sent its guided missile destroyer, the USS *Lassen* within 12 nm of the Subi Reef. These postures are considered as provocative by the Chinese and are leading to strained relations in the short-term and strategic mistrust in the long-run. Nevertheless, Vietnam and the Philippines are counting on the US to restrict the ever-increasing Chinese assertiveness in the South China Sea dispute.

INDIA’S INTERESTS AND POTENTIAL ROLES

Though India is not a direct party to the conflict, the Southeast Asian countries that have overlapping claims perceive India as a counterweight

65. Quoted in Megha Rajagopalan, “China to Extend Military Reach, Build Lighthouses In Disputed Waters”, *Reuters*, May 26, 2015, <http://www.reuters.com/article/us-china-defence-idUSKBN0OB0CA20150526>. Accessed on June 23, 2015.

66. Quoted in Ben Blanchard, “China Tells U.S. to Keep Out of South China Sea Dispute”, *Reuters*, September 21, 2010, <http://www.reuters.com/article/us-china-seas-idUSTRE68K1DB20100921>. Accessed on December 2, 2015.

67. Quoted in Lyle J. Morris, “Incompatible Partners: The Role of Identity and Self-Image in the Sino-US Relationship”, *Asia Policy*, no. 13, January 2012, pp. 133-165.

68. Fergus Ryan, “South China Sea: US Bomber Angers Beijing With Spratly Islands Flypast”, *The Guardian*, December 19, 2015, http://www.theguardian.com/world/2015/dec/19/south-china-sea-us-bomber-angers-beijing-with-spratly-islands-flypast?CMP=Share_AndroidApp_Tweet. Accessed on December 24, 2015.

to China in the region. Due to India's rising stature and its proximity to the region, Vietnam and the Philippines want India to play a bigger security role. Nevertheless, India, till now, has been hesitant, and has not played a pivotal role.

India has raised the issue of the South China Sea in the recent past with some of the major powers. The South China Sea dispute was also mentioned in the India-Japan joint statement during Japan's Prime Minister Shinzo Abe's India visit in 2015. Additionally, during US President Barack Obama's India visit and Prime Minister Narendra Modi's visit to the US, the South China Sea dispute was mentioned in the official press releases and joint statements. At the ADMM Plus meet, India's Defence Minister, Mohan Parrikar stated, "India hopes that all parties to the disputes in the South China Sea region will abide by the 2002 DoC, ensure its effective implementation, and work together to ensure a peaceful resolution of disputes. We also hope that the CoC would be concluded at an early date by consensus".⁶⁹ India is also raising its concerns on the freedom of navigation in the South China Sea.

There is certainly an enhanced Indian interest in the South China Sea issue and, thus, change in its previous position of staying away from the dispute to being vocal is noticeable. However, India's latest stand on the issue can be seen under the following arguments: first, India is also embroiled in a long drawn out boundary dispute with China. Raising a voice on the issue of the South China Sea might act as a pressure tactic against China, and China might be persuaded to go for the boundary dispute resolution with India, as it has done in the past. When confronted with bigger challenges, China has settled its land boundary disputes to accrue benefits and to garner support. In the case of the South China Sea, China is confronted with a bigger power, the US and the somewhat stable economies of the Southeast Asian region. Clearly, China is least prepared to confront another country that is strong in the region. Therefore, so as to secure its maritime interests by keeping India out of the South China Sea dispute, China might consider resolving the dispute with India. Second, India is aware that though China-ASEAN

69. "India Calls for Early Conclusion of South China Sea Code of Conduct", *The Indian Express*, November 5, 2015, <http://indianexpress.com/article/india/india-news-india/india-calls-for-early-conclusion-of-south-china-sea-code-of-conduct/>. Accessed on November 25, 2015.

economic cooperation is unmatched, the Southeast Asian countries are still anxious about China's South China Sea postures. Therefore, given that the Southeast Asian countries, particularly Indonesia, Myanmar, the Philippines and Vietnam are looking for reliable partners in the Asian region too, India's increased presence in the Southeast Asian region will strengthen its position in the economic as well as strategic realms. Third, according to EIA data, India is the fourth-largest energy consumer in the world after China, the US and Russia. Despite having large coal reserves and a healthy growth in natural gas production over the past two decades, India is increasingly dependent on imported fossil fuel.⁷⁰ India has been involved in oil exploration activities in the waters of the South China Sea with Vietnam. However, in 2012, it had to withdraw due to China's opposition as well as non-availability of oil in the site of exploration. Due to the increasing demand for energy resources in India, it is looking for further avenues to resume oil exploration activities in the South China Sea with the littoral states.

It remains to be seen whether India would be ready to take up a larger role in the South China Sea dispute and want to be a part of a greater strategy to contain China. It is certainly widening the scope of its Act East Policy by mentioning the dispute every now and then. Seemingly, it is reassuring its Southeast Asian neighbours of its economic and political commitment as a growing regional power, while, at the same time, avoiding any intentional provocations against China.

RESPONSES FROM OTHER COUNTRIES: TAIWAN, JAPAN AND AUSTRALIA

Taiwan

Though it was Chiang Kai-shek who started raising questions on China's maritime boundary in the South China Sea in the mid-1940s, Taiwan never sided with China on this matter. The Taiwan leadership does not support China's policies on the South China Sea. It was stated by former

70. "India: Overview", U.S. Energy Information Administration, <https://www.eia.gov/beta/international/analysis.cfm?iso=IND>. Accessed on December 2, 2015.

Taiwan also has overlapping claims of sovereignty in the South China Sea, but it does not make public proclamations about its claims. Given that Taiwan has bigger issues to resolve with China, it downplays the issue of the South China Sea.

President Ma Ying-jeou that “the dispute should be resolved through international law, and that man-made islands do not form the basis for territorial sovereignty, and that the dark sands and rocks on the seabed that are exposed at low tide aren’t the territory of any country”.⁷¹ In fact, the newly-elected President of Taiwan, Tsai Ing-wen has also called for freedom of navigation in the disputed South China Sea and peaceful resolution of the dispute.⁷²

Taiwan also has overlapping claims of sovereignty in the South China Sea, but it does not make public proclamations about its claims. Given that Taiwan has bigger issues to resolve with China, it downplays the issue of the South China Sea. While Taiwan’s official position does not say much about its disposition to maintain its claim, it simply cannot abandon its claims in the South China Sea due to its constitutional compulsions. Article 4 of the Constitution of the Republic of China dictates, “The territory of the Republic of China within its existing national boundaries shall not be altered except by a resolution of the National Assembly”.⁷³ China’s claims in the South China Sea are similar to those of Taiwan’s and the difference is of just two lines. Nevertheless, while Taiwan remains low-key, it does not back China’s claims and favours a peaceful solution under the framework of international law.

Japan

China might be confronted with a new player in the maritime wrangling

71. Wei Pu, “How The Eleven-Dash Line Became a Nine-Dash Line, And Other Stories”, *Radio Free Asia*, July 16, 2015, <http://www.rfa.org/english/commentaries/line-07162015121333.html>. Accessed on January 10, 2016.

72. Quoted in “Taiwan President-Elect Calls for Freedom of Navigation in South China Sea”, *Reuters*, January 16, 2016, <http://in.reuters.com/article/taiwan-election-southchinasea-idINKCN0UU00R>. Accessed on January 16, 2016.

73. “The Constitution of the Republic of China”, *Taiwan Documents Project*, <http://www.taiwandocuments.org/constitution01.htm>. Accessed on January 2, 2016.

in the South China Sea. On November 19, 2015, Shinzo Abe, on the sidelines of the Asia-Pacific Economic Cooperation (APEC) summit in Manila, told US President Barack Obama that in order to defuse tensions, Japan will consider dispatching its Self-Defence Forces to the South China Sea.⁷⁴ It is certainly injecting a new life to its Southeast Asia policy by committing to increase its presence in the region. In a recent move, Japan's Defence Ministry and Self-Defence Forces have allowed the country's P-3C patrol aircraft to stop at bases of countries facing the South China Sea when returning from anti-piracy activities off the coast of Somalia, according to Japan's national newspaper, *Yomiuri Shimbun*.⁷⁵ There might be several reasons behind Japan's vigorous approach and diplomatic manoeuvres in the South China Sea. First, by issuing statements on the South China Sea and siding with the US and the Philippines, Japan is attempting to restrain China strategically, which is, by and large, attributed to its maritime dispute in the East China Sea with China. Second, Japan is looking for an expanded market for its defence-related exports after lifting the ban on its military exports, and the South China Sea claimants could potentially serve the Japanese interest well. In late 2015, Japan and the Philippines broadly agreed on a pact for the transfer of defence equipment and technology, as they step up their cooperation over China's muscle flexing in the regional waters.⁷⁶ Despite its proactive moves, Japan will not get engaged militarily. However, it is certainly willing to play a bigger role in the dispute.

74. Quoted in "Abe to Mull SDF Dispatch to South China Sea", *The Japan Times*, November 20, 2015, <http://www.japantimes.co.jp/news/2015/11/20/national/politics-diplomacy/abe-obama-discuss-anti-terrorism-steps-light-paris-attack-weigh-beijings-south-china-sea-moves/#.VpuanTZYmb9>. Accessed on November 26, 2015.

75. "Japan Expands Military Presence in the South China Sea Amid Tensions with China", *Sputnik News*, January 14, 2016, <http://sputniknews.com/military/20160114/1033119169/japan-aircraft-china-sea.html#ixzz3xDzHB7up>. Accessed on January 14, 2016.

76. "Japan, Philippines Strike Broad Accord on Defense Equipment Transfer", *The Japan Times*, November 20, 2015, <http://www.japantimes.co.jp/news/2015/11/20/national/politics-diplomacy/japan-philippines-strike-broad-accord-defense-equipment-transfer/#.Vpuj-jZYmb->. Accessed on December 25, 2015.

Australia

China's greater assertiveness has become a major cause of concern for Australia too. It has no severe issues with China, but amid escalation of tension in the South China Sea, Australia is stepping up its military surveillance. One of the reasons why Australia is waking up to the need to be vigilant of China's move in the South China Sea is that approximately 60 percent of Australia sea-borne trade passes through the disputed sea and for its own interests, Australia endorses freedom of navigation in the South China Sea. It was in this context that Australia's Defence Minister Marise Payne remarked that Australia has a legitimate interest in the maintenance of peace and stability, respect for international law, unimpeded trade and freedom of navigation and overflight in the South China Sea.⁷⁷ However, at the same time, Australia will not risk its relations with China; thereby, sending mixed signals to the US and other countries involved in the dispute.

WAY AHEAD

The South China Sea dispute has been one of the biggest turning points in China's relations with its neighbouring countries. With a number of regional and extra-regional countries getting involved in the South China Sea dispute, it is going to be the next flashpoint of the region. From China's perspective, dealing with the Southeast Asian countries is not the biggest challenge but to constrain the involvement of other countries, particularly that of the US, is more worrisome. However, the other side of the coin is that the resolution of the conflict may be achieved through bilateral negotiations and the other extra-regional countries' involvement may not be advantageous for the future of the South China Sea dispute. This is mainly because the involvement of countries such as the US and India is symbolic and these countries would not want to be a part of a complicated dispute, particularly when these countries themselves have long-standing issues to resolve with China. In essence, the US would not have participated

77. "Minister for Defence – Statement – Freedom of Navigation in the South China Sea", October 27, 2015, <http://www.minister.defence.gov.au/2015/10/27/minister-for-defence-statement-freedom-of-navigation-in-the-south-china-sea/>. Accessed on November 15, 2015.

in the dispute, had it not been for the dramatic rise of China. Aspiring great power or not, India would not (perhaps) have looked at the conflict, had it not been for its long drawn out boundary dispute with China and the latter's support to Pakistan.

China practically cannot, and should not, do anything to stop other countries' proactive engagement with the Southeast Asian countries. It should first lay emphasis on conflict prevention and then shift to conflict management. Given that no claimant is inclined towards using force in the South China Sea dispute, *status quo* may be reinforced by all the parties involved. Meanwhile, measures such as hotlines between China and the two Southeast Asian countries, the Philippines and Vietnam, are required. Second, while no claimant is likely to compromise on its respective stand, resource sharing for the purpose of maintaining peace in the South China Sea seems to be a viable option. The sharing of resources among the major stakeholders might entice China to come to the negotiating table for the final settlement.

While these short-term incentives will be sufficient for keeping direct confrontation at bay, resolving the dispute is the only way out for long-term peace and stability in the region, the possibility of which seems bleak at the moment. Nevertheless, if China desires to avert other countries' involvement, it needs to soften its stand and speed up the bilateral negotiations while giving a fillip to the multilateral efforts to strengthen stability in the region, particularly by pushing for the implementation of the CoC.

BUILDING THE CASE FOR SEA-BASED NUCLEAR DETERRENT

DEEP JYOTI BURMAN

This paper undertakes the task of engaging with the concept of nuclear deterrence and the debates surrounding the efficacy of various nuclear delivery vectors, in order to flag the role of the sea-based nuclear deterrent role carried out by SSBN (Ship Submersible Ballistic Nuclear) submarines. The paper accomplishes this task by measuring the utility of all three nuclear delivery vectors against the gradient of strategic stability. Strategic stability is defined as an equilibrium situation where the belligerents have no incentive for launching a preemptive attack against one another. The ideal stabilising weapons would have two characteristics: high probability of pre-launch survival and high Circular Error Probability (CEP), so that they cannot be used for counter force missions. This paper maintains that the inherent value of nuclear weapons is to deter the use of such weapons and nuclear weapons are not meant for nuclear war-fighting. With this axiom in place, the paper asks the following questions: is a nuclear triad absolutely necessary to have a valid nuclear deterrent? How have the technological advancements in submarine design, missile accuracy, and anti-submarine warfare capabilities impacted on SSBNs from carrying out their traditional role of nuclear deterrence?

Mr **Deep Jyoti Burman** is an Associate Fellow at the Centre for Air Power Studies, New Delhi. He has recently submitted his doctoral thesis at the Centre for International Politics, Organisation, and Disarmament, Jawaharlal Nehru University, New Delhi.

It was only after the nuclear bomb was mated with a missile did offence gain superiority over defence and the following lessons were driven home: first, there was no high confidence defence against incoming missiles and no large-scale shelter for the population against a nuclear blast.

BACKGROUND

The last days of World War II saw the introduction of two new weapons, namely, the missile and the nuclear bomb. The subsequent years saw the inevitable mating of these two weapons into one system, revolutionising warfare and shaping the national defence strategies of almost all major nation-states. It is important to note that the point of departure was post mating of the nuclear warhead and ballistic missile delivery system, and not when long-range bombers were the sole means of nuclear delivery. Although Stanley Baldwin in 1932 famously predicted in the British Parliament that “the bomber will always get through”, the experiences of World War II have shown the limitations of bombers in delivering gravity bombs. The early days of Allied bombing runs inside Germany, especially day-time bombing, saw heavy losses inflicted on low-flying bombers by anti-aircraft guns and fighters.¹ The survival increased significantly after long-range fighter escorts were provided and the bombing ceiling was raised to avoid flak; which, however, greatly reduced the accuracy of the bombs.² To compensate for lower accuracy, a greater number of bombers was allocated to each target. This strategy could not be adopted in the case of nuclear weapons, at least in the initial years after World War II, as neither the United States nor the Soviet Union had sufficient numbers of nuclear weapons to arm hundreds of bombers, and the technological development of fighters (with jet engines and swept wings) was ahead of the bomber technology.

1. Several studies have shown that most pilots released their bombs way short of their designated target in order to escape heavy anti-aircraft fire near vital target locations. Furthermore, the rudimentary Norden bombsights in these bombers were highly inaccurate, not guaranteeing a high confidence in hitting the target even when the bombs were dropped in their designated weapons release points.
2. Horst Boog, Gerhard Krebs, and Detlef Vogel, *Germany and the Second World War: Volume VII The Strategic Air War in Europe and the War in the West and East Asia 1943-1945* (Oxford: Clarendon Press, 2006), pp. 46-47.

It was only after the nuclear bomb was mated with a missile did offence gain superiority over defence and the following lessons were driven home: first, there was no high confidence defence against incoming missiles and no large-scale shelter for the population against a nuclear blast. Although the Soviet Union and United States, along with Britain, engaged in building nuclear shelters and talked about nationwide Anti-Ballistic Missile (ABM) shields, it was widely believed that a few warheads would always get through, and although the top leadership could be protected for a limited time period in underground bunkers, there were no concerted nationwide efforts to build underground bunkers for the population.³Second, since active defence against incoming nuclear missiles became difficult, nation-states began to contemplate deterrence strategies for national defence.⁴

One of the primary reasons given by experts for the utility of nuclear bombers was their long flight time and theoretical ability to be recalled at the last minute, thereby allowing negotiations to be carried out till the moment of weapon release, and diplomatic signalling.

Deterrence theorists have been grouped together into three succeeding waves of thought by scholars, even though their works differ significantly in scope, content, and conclusions. The first wave theorists, writing at the dawn of the nuclear era, such as Bernard Brodie, Arnold Wolfers, and Jacob

3. The Soviet Union tried to build large-scale nuclear bunkers for a certain percentage of its population, a relatively earnest effort compared to that undertaken by the US and Britain, at least until the mid-1960s. For an informed analysis on the issue, see Tricia Ann Vislay "A Comparison of US and Soviet Strategic Defensive Doctrine," Master's Thesis (Monterey: Naval Postgraduate College, 1987).

Later, there was a convergence in Soviet and American thinking on nuclear war and the Soviet Union's preference for the nuclear war-fighting doctrine was debunked for the American doctrine of nuclear deterrence. See Donald W. Hanson "Is Soviet Strategic Doctrine Superior?" *International Security*, vol. 7, no. 3, Winter 1982-82, pp. 61-83.

4. Although Bernard Brodie contemplated way back in 1946 in his book *The Absolute Weapon*, that the chief purpose of the military has changed from winning wars to preventing them, and that the only defence against a nuclear attack was a retaliatory strike in kind, the American leadership was still under the hysteresis of a conventional war mindset. This is evident from US nuclear strategy during the 1950s, which contemplated using nuclear weapons on Soviet cities and industrial hubs to prevent Soviet expansionism in Western Europe and Gen McArthur's demand to President Eisenhower to use nuclear weapons against China during the Korean War, etc.

Viner, accepted the awesome power of nuclear weapons as a marked point of departure in our thinking on war, and propagated a deterrence strategy as being superior to nuclear war-fighting. However, these theorists were largely ignored by the American political leadership.⁵ The second wave theorists such as Thomas Schelling, Glen Snyder, and Albert Wohlstetter emerged in the late 1950s, with the maturity of the Soviet nuclear arsenal and the emergence of bipolarity and the undermining of the United States' credibility in meeting a Soviet aggression with nuclear retaliation. These theorists promulgated the rational choice theory as the analytical tool to understand nuclear deterrence. The third wave theorists such as Robert Jervis, Alexander L. George and Richard Smoke who emerged during the 1970s and 1980s criticised the hyper-rational actor model of the previous wave theorists. These theorists instead used the case-study approach and drew on the recent breakthroughs in social-psychology to emphasise the behavioural and organisational deviations of decision-makers from established patterns of rationality. According to some scholars, there is a new wave, termed as the fourth wave in deterrence research, which breaks away from the realist paradigm of previous waves. These fourth wave scholars use the constructivist and interpretative approach to question the classical empirical issue of state versus nuclear deterrence and to focus on new emergent threats such as terrorism, rogue states, ethnic conflicts, etc. While this paper recognises the valuable contributions made by the first and fourth waves to deterrence literature, the topic of this paper concerns itself primarily with the theories of the second and third waves.

The primary difference between defence and deterrence is that the latter hinges on an expectation that hostilities would not break out, while the former is a strategy to mitigate damage when hostilities do break out. Defence is about limiting the damage done to oneself by the adversary, while deterrence is a psychological attempt to prevent the enemy from attempting to harm oneself in the first place. There are two kinds of deterrence: first, deterrence by denial incorporates defence strategies to blunt an enemy's

5. Robert Jervis "Deterrence Theory Revisited," *World Politics*, vol. 31, no. 2, January 1979, pp. 289-324.

attack and extract heavy costs from him on the battlefield, so that he does not contemplate an attack for fear of being unsuccessful; second, deterrence by punishment aims to deter an aggressor by making him believe that his attack would invite retaliatory actions which would offset any expected gains from his attack. The similarities between the two kinds of deterrence is that they both rely on convincing the opponent that the deterrer has the capability and resolve to deter, and the expectation that the opponent is rational and there is no information asymmetry (private information, perceptual biases, etc.) regarding the threat issued. The difference between the two is that while deterrence by denial entails active defence and battlefield failure as the plank on which deterrence success is based, deterrence by punishment relies on convincing the adversary to abstain from initiating an attack for fear of punitive strikes. In the age of nuclear weapons, the ultimate guarantee from a nuclear attack rests on the ability of a state to absorb a nuclear first strike and still have enough surviving nuclear capability to deliver a debilitating nuclear strike on the attacker.

MUTUALLY ASSURED DESTRUCTION AND ASSURED SECOND STRIKE CAPABILITY

Two technological developments ushered in the golden era of nuclear deterrence when economists and mathematicians made forays into the erstwhile domain of political scientists and military professionals. First, during the 1950s and early 1960s, the United States became increasingly aware of the Soviet nuclear forces which surpassed American estimates. Furthermore, the growth of the Soviet nuclear arsenal coupled with conventional Soviet superiority in Europe created doubts about the credibility of the American nuclear guarantee to Western Europe. How could the threat of massive retaliation ever be credible when carrying it out would definitely result in a devastating counter-retaliation? The American threat of massive retaliation against a Soviet aggression in Western Europe or damage limitation strikes against American soil lost credibility as any aggressive move on the part of the Soviet Union would mean mutual suicide. American decision-makers felt that in the absence of a credible nuclear deterrent, they would fall prey

to the Soviet Union's 'salami-slicing tactics'. Schelling recognised that the credibility of the United States' nuclear arsenal depended on creating fear in the Soviet Union that any escalation could result in an explosive escalation to general nuclear war. In the case of a Soviet aggression, the United States would take steps which would increase the likelihood of a general nuclear war.⁶ The fulcrum of this deterrence strategy rested on making threats that left "something to chance". Schelling suggested that both belligerents should create an array of limited options each of which could serve to raise the risk of an explosive escalation to a general war. No single option would by itself mean such a war, but would merely increase the risk of a spasmodic nuclear release. By incorporating the risk of a general war built into the array of options, the risk of escalation to a general war could be manipulated, thereby offering the adversary a spectrum of risk. This created space for competitive risk-taking by demonstrating resolve and, thereby, allowed bargaining during a crisis.⁷

The second development was the maturation of the Inter-Continental Ballistic Missile (ICBM) capability of both the United States and Soviet Union, along with nascent SSBNs, which rendered at least some weapons invulnerable to a first strike. The inability of either state to carry out a successful disarming first strike became the hallmark of the modern nuclear age. This invulnerable nuclear force meant that the state could retaliate in nuclear kind even after suffering a debilitating nuclear first strike; thereby possessing assured second strike capability. The usual weapons of retaliation are ballistic and cruise missiles launched from fixed land-based silos, Transport Erector Launchers (TELs), SSBNs, and bombers or attack aircraft. The value of any nuclear delivery vector has to be measured against the gradient of its survival factor. The higher the survival factor, the more stabilising effect the delivery mechanism possesses. Contrarily, vulnerability to the enemy's first strike makes a weapon system strategically unstable.

6. Thomas Schelling, "Nuclear Strategy in Europe," *World Politics*, April 1962, p. 428. Also see Bernard Brodie, *Escalation and the Nuclear Option* (Princeton, New Jersey: Princeton University Press, 1966), p.25; Glenn Snyder, *Deterrence and Defense* (Princeton, New Jersey: Princeton University Press, 1961), pp.104-110.

7. Schelling, *Ibid.*, pp.421-428.

STRATEGIC STABILITY

Traditionally, strategic stability has been defined as the absence of meaningful incentives for preemption by either belligerent. For any weapon system to be classified as strategically stable, it should fulfill two criteria: first, it must be invulnerable to an enemy's attack; and, second, it should not threaten the adversary's nuclear weapons.⁸ Bernard Brodie wrote way back in 1946 in *The Absolute Weapon* that once deterrence fails, the pressure to use the bomb might reach unbearable proportions as either side would feel that its relative position regarding its ability to use the bomb might deteriorate as the war progresses, and that if it fails to use the bomb while it has the chance to, it might not have the chance later on.⁹ Building on Brodie's work, Thomas Schelling, in 1958, using a mathematical model, showed the instability in the deterrence relationship between two adversaries even if there is a modest temptation (due to the probability of carrying out a successful first strike) for each side to carry out a preemptive strike.¹⁰ According to Schelling, the only solution to dispel the fear of preemption is to exchange hostages as collateral.¹¹ To achieve a level of strategic stability, Schelling proposed increase in the survivability of the US retaliatory capacity by increasing the size and alertness level of the US' nuclear arsenal, and stalling the development of first strike weapons which might be used for damage limitation against the Soviet arsenal.¹² Schelling's recommendations became the major source for the change in the US nuclear strategy towards Mutual Assured Destruction (MAD), which till date remains the fundamental rubric of every nation's nuclear strategy.

After establishing the fundamental concepts of nuclear deterrence, this paper will now tackle the primary question posed at the beginning

8. Robert D. Glasser, "Ending Misconception of Strategic Stability: The Role of Nuclear Missile-Carrying Submarines," *Journal of Peace Research*, vol. 29, no. 1, February 1992, pp. 23-37.

9. Bernard Brodie, *The Absolute Weapon: Atomic Order and World Order* (New Haven, Connecticut: Yale Institute of International Studies, 1946), p.46.

10. Thomas Schelling, *The Reciprocal Fear of Surprise Attack* (Santa Monica, California: RAND Corporation, 1958).

11. Ibid.

12. Thomas Schelling, "Surprise Attack and Disarmament," in Klus Knorr, ed., *NATO and American Security* (Princeton, New Jersey: Princeton University Press, 1959), p.194;

Thomas Schelling, "Reciprocal Measures for Arms Stabilization," *Daedalus*, vol. 89, no. 4, Fall-1960, pp.892-914.

While land-based ICBMs are excellent counter-force weapons, they are also reciprocally susceptible to enemy attack. The high accuracy and high vulnerability nature of land-based ICBMs fosters strategic instability and impedes stable nuclear deterrence.

of the paper. The following sections will make brief forays into the technology and strategy of each nuclear delivery vector to synthesise an understanding on the efficacy of the nuclear triad.

Air-Delivered Nuclear Deterrent

The first platforms to deliver nuclear weapons were propeller driven bombers from land bases and aircraft carriers. In the mid-1950s, jet powered bombers replaced the propeller driven bombers, reducing the nuclear delivery transit duration to 6-10 hours. Despite the development of Inter-Continental Ballistic Missiles (ICBMs) and Sea-Launched Ballistic Missile (SLBMs) in the late 1950s and early 1960s, the nuclear bombers were retained for the nuclear delivery role by all nuclear weapon states. One of the primary reasons given by experts for the utility of nuclear bombers was their long flight time and theoretical ability to be recalled at the last minute, thereby allowing negotiations to be carried out till the moment of weapon release, and diplomatic signalling.¹³ Another reason for retaining nuclear capable bombers during the early days of missiles was their warhead delivery accuracy (as missiles lacked terminal guidance), ability to carry diverse warheads, and flexibility of use under various war-fighting scenarios. Furthermore, in the initial days of liquid-fuelled ICBMs, the bomber was considered more survivable than the missile. George J. Rufuto draws two interesting scenarios to illustrate the synergistic relationship between ICBM silos and bombers.¹⁴ According to the first scenario, the varying flight time (depending on the location of the missile launch) of ICBMs and SLBMs, and the inaccuracy of

13. Scott Sagan and Jeremy Suri showed how President Richard Nixon ordered the Strategic Air Command to increase the alertness level of bombers to signal to the Soviet Union to exert its influence on Vietnam during the Paris Peace Talks in 1969. See Scott D. Sagan and Jeremy Suri, "Madman Nuclear Alert: Safety, Signaling, and Safety in October 1969", *International Security*, vol. 27, no. 4, Spring 2003, pp.150-183.

14. George J. Rufuto, *Evolution of the US Sea-Based Nuclear Missile Deterrent* (United States: Xlibris Corporation), pp.67-68.

SLBMs (at least, until the Trident) meant that the SLBMs would be used against air bases and not ICBM silos. When the SLBMs are detected, the ICBMs would still be en route, thereby giving the adversary enough time to launch a counter-strike. In the second scenario, the ICBMs are launched ahead of the SLBMs to enable the simultaneous arrival of ICBM and SLBM warheads at their respective target groups. The long flight time of the ICBMs and their detection by multiple early-warning satellites, air and ground-based radars would make the bombers become airborne in anticipation of impending SLBM strikes on air bases. These two scenarios demonstrate the necessity of retaining bombers, at least before SLBM

Morganstern's central argument was that the presence of strategic bomber and ICBM bases within the continental United States readily created a sizeable counter-force target (leaving aside high-priority counter-value targets, such as the seat of the US leadership, important industrial and population centres, etc.), resulting in potential warhead saturation over the US mainland.

accuracy increased to carry out counter-force strikes. The Strategic Air Command (SAC) retained control over both land-based missiles and nuclear bombers under its command so that in case of a Soviet first strike, at least one more leg of the triad would survive, along with the sea deterrent. Another use of the nuclear bombers was as a "slow" counter-force weapon during the inter-war period (if negotiation breaks down and fighting resumes) to bomb Peak Overpressure Vulnerability Number (PVN) targets which were unused during the first exchange or are/could be reloaded by reserve ICBMs.¹⁵ As technology progresses, bomber survivability increases with increased speed, lower radar signatures, ability to terrain-mask (low level penetration), stealth, and, lastly, the ability to deploy long-range stand-off nuclear munitions. The main argument against keeping nuclear bombers is that they need a base to operate from which cannot be hardened against a nuclear attack or sabotage.

15. Ibid., pp.68-69.

Land-Based ICBM Deterrent

Historically, the land-based ICBM in hardened underground bunkers has been the most accurate and survivable nuclear delivery mode. These nuclear silos containing ICBMs or cruise missiles are built conformal to the earth and hardened by layers of cement and steel and have very high PVN characteristics, requiring the direct ground-burst nuclear detonation to be neutralised. Table 1 shows the Single-Shot and Double-Shot Kill Probabilities (SSPK and DSPK) for the US ICBM and SLBM warheads attacking active Russian silo types¹⁶:

Table 1

Warhead	Yield	CEP	SSPK (SS-18, Silo Type III-F)	DSPK (SS- 18, Silo Type III-F)	SSPK (SS- 11/19, Silo Type III-G	DSPK (SS- 11/19, Silo Type III-G	SSPK SS(SS-11/19, Silo Type III-G MOD)	DSPK SS(SS-11/19, Silo Type III-G MOD)
W76 (Trident I)	100	500	0.022	0.044	0.024	0.047	0	0
W76 (Trident I)	100	229	0.103	0.195	0.112	0.211	0	0
W76 (Trident II)	100	183	0.155	0.286	0.169	0.309	0	0
W76 (Trident II)	100	129	0.286	0.490	0.309	0.523	0	0
W62 (MM III)	170	183	0.230	0.407	0.254	0.443	0.183	0.333
W78 (MM III)	335	183	0.360	0.590	0.403	0.644	0.299	0.509
W88 (Trident II)	475	183	0.442	0.689	0.496	0.746	0.375	0.609
W88 (Trident II)	475	129	0.687	0.902	0.744	0.934	0.608	0.846
W87-O (MX)	300	91	0.805	0.962	0.848	0.977	0.726	0.925

Courtesy: The U.S. Nuclear War Plan: A Time for Change, National Resources Defence Council (2001).

16. For Trident I and Trident II warheads, a range, if given, for Circular Error Probability (CEP).

Table 1 shows that the warhead yield and accuracy of land-based ICBMs exceeds those of modern SLBMs and they have high kill probability even for the most hardened Russian nuclear missile silos. While land-based ICBMs are excellent counter-force weapons, they are also reciprocally susceptible to enemy attack. The high accuracy and high vulnerability nature of land-based ICBMs fosters strategic instability and impedes stable nuclear deterrence. While ICBMs impede nuclear deterrence, they have excellent nuclear war-fighting qualities. The high number of land-based ICBM silos ensures that they will absorb a huge quantity of the enemy's nuclear arsenal, and thereby deplete their nuclear stockpile in counter-force operations, leaving precious little to be used against counter-value targets. However, in reality, targets are not purely counter-force or counter-value, and often nuclear silos, air bases, and submarine bases are located close to population centres, thereby, blurring the counter-force and counter-value targets dichotomy. A major disadvantage of land-based ICBMs are that they are expended after firing a single shot and since pre-launch survival is low, they are on launch on warning alert status.

While silo-based ICBMs might be vulnerable to first-strike weapons, the canister launched ICBMs on TELs have higher probability of survivability due to their mobility. The invulnerability of such weapon systems from enemy attack is not conditioned on the accuracy of the enemy's missiles but on precise intelligence on their position. However, such systems when deployed are susceptible to theft by non-state actors, sabotage from covert enemy forces or peace groups, etc.¹⁷ Furthermore, if these weapons are deployed during times of crisis, they can be interpreted by the adversary as attempts at coercion by aggressive signalling, or worse, as an indication of an imminent nuclear strike, increasing the probability of preemption.

Hardening Draws Fire Thesis

While the previous two sections elaborated on the various advantages and disadvantages of air-delivered nuclear warheads and land-based ICBMs,

17. RAdm Raja Mohan (Retd.), *A Nuclear Strategy for India* (New Delhi: Sage Publication, 2000), pp.220-224.

there is a common disadvantage shared by both these two nuclear delivery vectors. Oskar Morganstern, who was a mathematical economist from Yale University, forwarded an argument for the sea-based nuclear deterrent. He propounded that there was a fundamental problem with hardening of strategic bomber and missile bases within what he referred to as the Zone of Interior (ZI)¹⁸, or continental United States, in order to achieve invulnerability against a Soviet first strike.

It was shown how hardening of SAC and missile bases draws fire and how the better the hardening, the more the fire increases. Heavier and heavier bombs with yields in the high megaton range have to be used. The better our anti-air and anti-missile defense becomes, the more bombs will be used in any onslaught. This goes for fixed installations. Air bases will always be fixed, and if the placements of planes are to be made mobile, they will have to travel from one base to the other, requiring many bases. Or they will have to be kept in the air. At any rate, they retain their dependency on fixed bases that they must use at intervals of a few hours.

Missiles could conceivably be moved around within the country. This would be a formidable operation and is out of the question at present, since the missiles require large towers, complicated electronic gear and long count-down periods before being ready for firing.

The attacker's fire is drawn into the Zone of Interior if we hold out the main force there and harden it. This is the tendency now developing. We also hold some of our retaliatory forces in allied countries.¹⁹

Although Morganstern was writing at a time when the primary mode of nuclear delivery comprised the lumbering B-47 and B-52 bombers located throughout the continental United States along with non-silo configured SM-65D Atlas D ICBMs, the thesis is still valid the modern day. Although basing of strategic bombers and ICBMs allied in countries can dissipate some of the first strike threat, they are subjected to lengthy diplomatic

18. Oskar Morganstern, *The Question of National Defense* (New York: Random House, 1959), p.82.

19. *Ibid.*, pp.81-82.

parleys, domestic political considerations, and are the focus of the anti-nuclear lobbies of neighbours.

Morganstern's central argument was that the presence of strategic bomber and ICBM bases within the continental United States readily created a sizeable counter-force target (leaving aside high-priority counter-value targets, such as the seat of the US leadership, important industrial and population centres, etc.), resulting in potential warhead saturation over the US mainland. In other words, any attempt to create passive or active defence of the US nuclear deterrent force within the continental United States would increase enemy efforts (in terms of increased warhead allocation to each target)²⁰. Morganstern recommended moving the strategic nuclear deterrent or retaliatory force out of the ZI and into the oceans:

Basically, this amounts to moving our main strategic retaliatory force out of the United States, out of the Zone of Interior, but not into the lands of our allies. This is the alternative to hardening the Zone of Interior.

Holding our main retaliatory force at sea makes the greatest immediate contribution to the defense of the country: it protects the force proper and it frees the country thereby from direct and indirect effects of a possible attack on the force itself.²¹

Morganstern's suggestion translated into theoretically minimising the nuclear strike impact on the continental United States by removing counter-force targets such as bomber bases and ICBM bases from the mainland and alternately deploying them on sea-based platforms. Morganstern believed that this shift of fixed bases on land to mobile bases at sea was to be accomplished by nuclear-armed and jet-propelled sea planes (somewhat like the Soviet era's Erkanoplanes) and nuclear armed submarines. Although the former nuclear delivery method was never pursued seriously, the United States followed the second suggestion in great earnest.

20. This is based on the assumption that the US and USSR nuclear strike forces are of comparable technological level. Otherwise, better technology in terms of higher penetrability probability would make part of the argument null.

21. Morganstern, n.18, pp.81-82.

The increased accuracy of SLBMs has urged many scholars to refute the status of the SLBM as a strategically stable weapon system.

Sea-Based Nuclear Deterrent

SSBNs are nuclear powered and carry long range SLBMs, and their deployment schedules and deployment areas are kept secret, guaranteeing high confidence in pre-launch survival. Furthermore, SLBMs can be fired at depressed trajectories from close to the enemy's coast, thereby limiting missile flight-time and decreased detection and response time. Both these components paired with

the increased accuracy of SLBMs, make the SSBN the most potent nuclear delivery mechanism. The high confidence in the deterrent role performed by SSBNs can be gauged by Britain's decision in 1982 to retire its nuclear capable Avro Vulcan bombers and make the Vanguard Class SSBNs the sole means of Britain's nuclear delivery mechanism.

The exceptional pre-launch survivability of a deployed SSBN and inability of SLBMs for counter-force strike roles made many deterrence theorists, especially the proponents of MAD, support the idea that both United States and Soviet Union should move their entire retaliatory capability into the ocean. The enthusiasm for SSBNs as the sole nuclear deterrent rested on the assumptions that SSBNs enhanced strategic stability. Thomas Schelling and Morton Halprein stated:

...there is a growing recognition that the Polaris submarine may embody many of the qualities that we and our potential enemies would be seeking through arms control to embody in our strategic weapon systems...it may prove to be an ideally 'retaliatory' and 'deterrent' weapon, particularly if possessed by both sides...²²

EVALUATING THE STRATEGIC STABILITY VALUE OF SSBNs

The initial enthusiasm for SSBNs as weapons promoting strategic stability was based on the erroneous assumption that the submarine technology of

22. Thomas Schelling and Morton Halprein, *Strategy and Arms Control* (New York: Twentieth Century Fund, 1961), p.53.

the United States and Soviet Union was at the same level. Soviet analysts had little reason to be confident that any of their own submarines would survive in a war with the West; at least in the initial phase of SSBN deployment. McNamara states that in 1965, the Soviets had only 8 to 10 nuclear powered submarines, of which only 2 or 3 carried SLBMs (the 700 nautical mile range SS N-5) that could be launched under water.²³ However, these submarines were very noisy and they could only launch their weapons on the US from areas that had a high concentration of US Anti-Sea Warfare (ASW) assets.²⁴ The Soviet

submarines based at Murmansk had to transit the Greenland-Iceland-UK gap to reach the open waters, while those based at Vladivostok had to travel through the Kunashir Channel. The ability of Soviet submarines to gain access to the open waters became even more difficult after the United States set up sonar arrays under the Sound Surveillance System (SOSUS). This could be one of the primary reasons for the Soviet bastion strategy for their SSBNs; the fear of detection and thereby constantly being trailed by US nuclear powered hunter killer submarines. Moreover, Soviet ASW capabilities were abysmal compared to those of the United States, which, during times of crisis, would put asymmetrical pressure on submarine commanders of the US and Soviet Navies to launch their SLBMs; thereby creating incentive for preemption. Another reason for the Soviet Union's limited reliance on SSBNs was the fact that Soviet SLBMs had electro-mechanical locks to prevent submarine crews from firing their missiles

All matured nuclear powers either have SSBNs or canister-launched ICBMs on TELs, or both, which guarantee the survival of sufficient numbers of nuclear weapons to fulfill the deterrent role. This invulnerability of land-based nuclear weapons is independent of missile accuracy.

23. Robert McNamara, Statement of Secretary of Defense Robert McNamara before a Joint Session of the Sub-Committee on Department of Defense Appropriation on Fiscal Year 1968-72 Defense Program and 1968 Defense Budget (Washington, D.C.: US Government Printing Office, January 23, 1967), pp.59-61, in Robert Glasser, "The Role of Nuclear Missile-Carrying Submarines", *Journal of Peace Research*, vol. 29, no. 1, February 1992, pp.23-37.

24. Tom A. Stefanik, *Strategic Antisubmarine Warfare and Naval Strategy* (M.A.: Lexington, Books, 1987), p.279.

without first receiving an 'unlock' code from the Soviet Naval Command.²⁵ In this case, a successful counter Command, Control and Communications (C3) strike would render the SLBNs inside Soviet SSBNs unusable.²⁶ The clinching argument against the strategic stability value of SSBNs actually comes from within the US Navy. The SLBM production programme was neglected by the US Navy for fear of diverting funding from other high-priority navy projects. The US Navy's interest in acquiring SLBMs peaked only after the report of the Technological Capabilities Panel (also referred to as the Killian Report) of 1955 concluded that the US nuclear deterrent was seriously threatened by Soviet nuclear weapons, and recommended rapid deployment of land-and sea-based ballistic missiles. The Killian Report suggested that land-based ICBMs were more cost-effective than SLBMs; it was the fear that funding would go to the air force that made the US Navy emphasise the importance of force survivability.²⁷ Furthermore, the lengthy maintenance schedules on SSBNs ensures that even during times of high alert, a certain percentage of the SSBN fleet would remain at port, thereby vulnerable to attack.

It should also be mentioned that although the nuclear powered submarines can theoretically remain at sea for decades, in reality, they need frequent maintenance at port facilities. Robert Glasser states that during peace-time, 50 percent of the US SSBN fleet and only 25 percent of the Soviet fleet is deployed.²⁸ This number can be increased to 80 percent for the US fleet and 60 percent for the Soviet fleet during times of high alert. This means that SSBNs are also susceptible to sneak attacks. Glasser also states that if a Soviet first-strike wipes out 50 percent of the US SSBN force, which equates to 720 vulnerable warheads at each of the four SSBN bases by devoting two warheads per base, they can destroy about 2,100 warheads

25. Robert D. Glasser, "Ending Misconception of Strategic Stability: The Role of Nuclear Missile-Carrying Submarines," *Journal of Peace Research*, vol. 29, no. 1, February 1992, p.26.

26. An alternative explanation for Soviet reliance on land-based ICBMs (silo-based and on transporter erector launchers) could be accredited to the geography and low population density of Soviet Union, when compared to countries such as the Britain, France, and United States.

27. Harvey M. Sapolsky *The Polaris System Development, Bureaucratic Pragmatic Success in Government* (Cambridge, M.A: Harvard University Press, 1972), p.41.

28. Glasser, n.25, p.27.

at a cost of only eight to ten warheads.²⁹ The vulnerability of SSBNs at port drives home the lesson, “An SSBN not at sea, is not a nuclear deterrent”. The induction of SLMBs with Multiple Independent Reentry Vehicles (MIRVed) has made the sea-based nuclear deterrent more robust. For example, the UGM-133 Trident II or Trident D5 can potentially carry 14 thermonuclear warheads (W88 and W76 warheads of 100 KT yield) and even if a modest force survives, it can deliver a punishing retaliatory strike; thereby fulfilling its deterrent role. The increased vulnerability of the SSBN at port is offset by increasing the destructive capacity of an individual boat.

While invulnerability from enemy attack is only half the criteria necessary for achieving strategic stability, the other criteria is the inability to target the enemy’s nuclear weapons; which translates into limited accuracy of the weapon system. SLBMs suffered from high Circular Error Probability (CEP) due to the inability of the SSBN to accurately measure its position and velocity relative to its environment. This made land-based ICBMs more accurate relative to SLBMs; at least, until the deployment of the UGM-133 Trident II (Trident D5) which uses astro-inertial guidance with inputs from global positioning satellites, and brings its CEP under 90 m after travelling a distance of 12,000 km. The increased accuracy of SLBMs has urged many scholars to refute the status of the SLBM as a strategically stable weapon system. The lack of accuracy is an unwarranted criterion for a weapon to qualify as a stable system for two primary reasons: one, as technology progresses, missiles are bound to have increased range, higher speeds, increased accuracy, be more portable, etc. It is unrealistic to assume that technology would remain constant. Two, all matured nuclear powers either have SSBNs or canister-launched ICBMs on TELs, or both, which guarantee the survival of sufficient numbers of nuclear weapons to fulfill the deterrent role. This invulnerability of land-based nuclear weapons is independent of missile accuracy. This paper posits that the invulnerability of a weapon system from first strike weapons, when deployed, should be a sufficient condition for a weapon system to enhance strategic stability.

29. Ibid.

CONCLUSION

The paper started with the assumption that the primary purpose of nuclear weapons is to maintain nuclear deterrence and the deterrent value of any nuclear weapon system is measured against the gradient of strategic stability. The paper challenged the criterion of 'reduced accuracy' of the nuclear weapon system as a necessary condition for strategic stability and demonstrated that the 'invulnerability' criterion is a sufficient condition for strategic stability. In this light, long range bombers and attack aircraft are the most destabilising weapon systems because air bases cannot be hardened against a nuclear attack by passive defence, and active defence systems (such as anti-ballistic missiles) have not yet achieved the desired level of kill probability. Although the advancements in stealth technology, low level penetration, electronic counter-measures, use of long range stand-off munitions, etc. have increased the survivability of bombers/attack aircraft on missions, the air bases remain vulnerable to the enemy's first strike. The strategy of keeping a few squadrons of bombers/attack aircraft on continuous nuclear deterrence patrol is not cost-effective, and is susceptible to accidents. However, the efficacy of the air leg of the nuclear triad dramatically increases in the inter-war period. Unlike missiles which are spent after a single use, bombers and other nuclear aircraft can be used again during a limited nuclear war. The silo-based nuclear deterrent is vulnerable to the enemy's attack and the TEL-based ICBMs cannot be deployed without signalling escalation to the adversary during times of crisis, and are vulnerable to accidents, theft, and sabotage if continuously deployed. In contrast, deployed SSBNs are invulnerable to the enemy's first-strike and can retaliate from anywhere with high confidence in carrying out the mission. This makes the sea-based nuclear deterrent the most potent and stable system.

BALANCING MAKE IN INDIA: AEROSPACE SECTOR

RAJIV KUMAR NARANG

India and Russia signed 16 agreements, including a deal worth \$1 billion to build 200 KA-226 Light Utility Helicopters (LUH) in India during the 16th India-Russia Annual Summit at Moscow on December 23, 2015¹. These helicopters would be manufactured in India in collaboration with the public sector unit, Hindustan Aeronautics Limited (HAL). The KA-226 will be the first 'Make in India' aviation project, which is being undertaken in collaboration with one of India's trusted partners, Russia. 'Make in India' received a boost for the private sector when Reliance Defence signed a deal worth \$6 billion with the Russian company Almaz-Antey, which builds air defence systems, to establish manufacture and maintenance facilities in India on the sidelines of the summit meet.² These defence deals are likely to improve India's capability in manufacturing and Maintenance, Repair and Overhaul (MRO) of defence equipment. In another deal, India signed an agreement to procure 36 Rafale fighter planes during the French president's visit to India in January 2016, whose the financial aspects are still being

Group Captain **Rajiv Kumar Narang** is a Senior Fellow at the Centre for Air Power Studies, New Delhi.

1. Manu Pubby, "India and Russia to Jointly Manufacture Kamov 226 Helicopter Under 'Make In India'", December 24, 2015, <http://economictimes.indiatimes.com/news/defence/india-and-russia-to-jointly-manufacture-kamov-226-helicopter-under-make-in-india/articleshow/50316231.cms>. Accessed on December 27, 2015
2. "Reliance Defence Signs \$6 Billion Pact with Russian Arms Firm as Modi Visits Moscow", December 24, 2015, <http://www.firstpost.com/business/reliance-defence-signs-6-billion-pact-with-russian-arms-firm-as-modi-visits-moscow-2558678.html>. Accessed on December 27, 2015.

The joint ventures in design, development and manufacturing have many advantages and are necessary for the growth of the indigenous aerospace manufacturing industry.

worked out.³

A closer look at the history of India's indigenous aircraft projects indicates that such deals in the past had resulted in shelving of indigenous projects, thereby, further increasing our dependence on import from foreign suppliers. The gains made in the process of development of indigenous designs till then were lost due to the shelving of indigenous projects. India has been taking one step forward and two steps back in indigenous aerospace manufacturing.

The joint ventures in design, development and manufacturing have many advantages and are necessary for the growth of the indigenous aerospace manufacturing industry. However, even joint ventures can fill technological gaps but do not become replacements for indigenous equipment. As a result, dependence on imports has not reduced. Therefore, there is a need for us to step back and ask ourselves a few questions if we want to get the most out of these deals. Will the deals result in shelving of indigenous aircraft being built by HAL? Could we have gone for collaboration to make indigenous aircraft a success? What is the plan for using technological gains made during the process of developing indigenous aircraft? Will the KA-226 deal bring adequate Transfer of Technology (TOT) to achieve self-sufficiency in the long run? Will it help in improving indigenous manufacturing capabilities?

The present government wants to push 'Make in India' as well as 'indigenisation', therefore, there is a need to study the impact of these deals on these two key campaigns. What will be the impact of the deals on the Indian defence minister's ambitious target of 50 percent indigenisation by 2017 and 60-70 percent in the next five years.⁴ Therefore, the paper would

3. Manu Pubby, "Rafale Deal in Last Lap, may Cost Rs 60,000 Crore for 36 Fighters", January 13, 2016, <http://economictimes.indiatimes.com/news/defence/rafale-deal-in-last-lap-may-costs-60000-crore-for-36-fighters/articleshow/50553762.cms>. Accessed on January 29, 2016.

4. <http://economictimes.indiatimes.com/news/defence/2015-a-year-when-defence-manufacturing-got-a-fillip/articleshow/50365588.cms>. Accessed on December 30, 2015.

look into KA-226 deal, the LUH programme of HAL, imports, and the impact, strengths and limitations of Joint Ventures (JV), indigenisation challenges, and the need for balancing 'Make in India' to make it an engine of growth and an enabler in aerospace manufacturing.

INDIGENOUS LUH

The delays in the signing of the LUH contract with foreign vendors and the proposal by HAL had led to the birth of the indigenous LUH programme. The Indian government sanctioned the development of a three-ton weight category LUH by HAL in February 2009 with an estimated development timeframe of six years to replace the ageing Chetak/ Cheetah helicopter fleet of the armed forces.⁵ HAL had displayed its naval variant of the LUH with foldable rotors in Aero India-2015.⁶ The Initial Operational Clearance of LUH was scheduled in 2017 prior to commencing serial production in 2018.⁷ HAL had earlier signed a contract with Turbomeca in June 2015 for a JV on an MRO facility for the Shakti and Turbomeca TM 333 turbo shaft engines for the Dhruv Advanced Light Helicopter (ALH) and Light Combat Helicopter (LCH) in India.⁸ HAL had planned to integrate the Shakti engine into the LUH. The modification of the twin engines to a single engine configuration for the LUH entails designing of a new gear box and certification by the European Aviation Safety Agency (EASA). Safran demanded Rs 190 crore for modification and

The delays in the signing of the LUH contract with foreign vendors and the proposal by HAL had led to the birth of the indigenous LUH programme.

5. "LUH", http://www.hal-india.com/Product_Details.aspx?Mkey=54&IKey=&CKey=64, December 28, 2015

6. "Navy Cold on Joining HAL's Light Utility Helicopter (LUH) Program?", August 1, 2015, <http://idrw.org/navy-cold-on-joining-hals-light-utility-helicopter-luh-program/>. Accessed on December 28, 2015.

7. Rahul Bedi, "HAL Pushing for LUH First Flight in December", September 9, 2015, <http://www.janes.com/article/54146/hal-pushing-for-luh-first-flight-in-december>. Accessed on December 28, 2015

8. Ajai Shukla, "HAL-Turbomeca Sign JV in Paris for Rs 200 Crore MRO Facility for Helicopter Engines", June 18, 2015, http://www.business-standard.com/article/economy-policy/hal-turbomeca-sign-jv-in-paris-for-rs-200-crore-mro-facility-for-helicopter-engines-115061800028_1.html. Accessed on December 28, 2015.

certification of the Shakti engine for the single engine LUH.⁹ This forced HAL to talk to other engine manufacturers like Rolls Royce, Honeywell, Pratt & Whitney and General Electric.¹⁰ This stalemate resulted in uncertainty over the timelines of the LUH project, which probably played some role in the signing of the KA-226 deal.

KA-226 DEAL

The KA-226 deal is a culmination of one and half decades of struggle of the armed forces for replacing the age old Cheetah and Chetak helicopters. The Request for Proposal (RFP) for the LUH was issued in 2003.¹¹ Since then, the LUH project has seen many ups and downs. The contract for procurement of the LUH from foreign vendors was cancelled for the second time in 2014.¹² Rostec Corporation (Rosoboron Exports and Russian Helicopters Company are part of Rostec) of Russia and HAL signed a deal on December 28, 2015, for the assembly of at least 200 helicopters in India with an option of supplying to a third country.¹³ The signing of the KA-226 deal, however, happened only 12 years after the issuing of the RFP, indicating the huge delays involved in the procurement process and in meeting the needs of the armed forces.

The KA-226 deal is the first 'Make in India' deal in the aerospace sector under Prime Minister Narendra Modi's Make in India campaign. The KA-226 is equipped with two 580 hp Arrius 2G1 engines by Turbomeca, Safran of France.¹⁴ HAL beat its rival, the Anil Ambani led Reliance Defence, a private

9. <http://www.rediff.com/news/report/engine-snap-hits-hals-light-utility-helicopter/20100701.htm>. Accessed on December 28, 2015.

10. "Hal Turns to other Engine Makers for Light Helicopter Project as Turbomeca Hikes Fee", <http://www.defencenow.com/news/195/hal-turns-to-other-engine-makers-for-light-helicopter-project-as-turbomeca-hikes-fee.html>. Accessed on January 29, 2016.

11. "India's Light Helicopter Contract Hits Turbulence, Stalls. Again, Starts", March 3, 2015, <https://www.defenseindustrydaily.com/eurocopter-bell-battling-for-500600m-indian-army-contract-0725/>. Accessed on December 29, 2015

120 Vivek Bhardwaj, "HAL Light Observation Helicopter (LOH)/Light Utility Helicopter (LUH)", *Indian Armed Forces*, August 2015, <http://aeromech.in/hal-light-observation-helicopterlohlight-utility-helicopter-luhindian-armed-forces/>. Accessed on December 28, 2015.

13. "The Russian Ka-226 Helicopters Assembled in India", December 28, 2015, <http://mundo.sputniknews.com/industriamilitar/20151228/1055303794/rusia-india-helicopteros.html>. Accessed on December 30, 2015.

14. <http://www.russianhelicopters.aero/en/helicopters/civil/ka-226t.html>. Accessed on December 29, 2016.

sector entity and became the Indian partner for manufacture in India. HAL is setting up a complex in Bidarhalli Kaval village (Gubbi taluk) in Tumakuru district of Karnataka for manufacturing the helicopters. The complex will help increase the helicopter production capacity of HAL.¹⁵ HAL is likely to act as an integrator of various components of the KA-226 helicopters. The deal provides a short to medium term solution in meeting the needs of the country albeit with only a marginal reduction in dependence on the supplier since it is unlikely that core technologies would be transferred by the Russian side. The terms of joint manufacture and extent of technology transfer could decide the possible sale of KA-226 helicopters in the civil sector and export to other countries in the future.

Impact: It is a coincidence that the French engine manufacturer Safran is the common connection between the KA-226 and India's indigenous LUH. The KA-226 is fitted with the Arrius 2G1 engine built by Safran and LUH was also planned to be fitted with the Shakti engine, which was being developed in collaboration with Safran of France before the differences emerged between HAL and Safran on the costing of modification and certification. The TOT in the licensed production of the KA-226 is likely to remain limited to assembly, maintenance, overhaul capabilities and it may be premature to assume that India would get access to the core technologies associated with the manufacture of the helicopter.

HAL has invested six years of Research and Development (R&D) in the development of the LUH. The deal may adversely impact the continuation of the indigenous LUH helicopter programme of HAL. HAL becoming the production partner for the KA-226 may not be a progressive step considering the fact that now HAL would get involved in the less important task of assembly of helicopters and move away from the capability building strategy of indigenisation thereby, adversely impacting India's interests in the long run.

15. Chethan Kumar, "Boost for HAL Chopper Complex Plan in Tumakuru, Cabinet Agrees to Clear Power Lines", October 1, 2015, <http://timesofindia.indiatimes.com/india/Boost-for-HAL-chopper-complex-plan-in-Tumakuru-Cabinet-agrees-to-clear-power-lines/articleshow/49182942.cms>. Accessed on December 29, 2015

IMPORTS

India imports about 70 percent of its defence equipment from foreign vendors, amounting to 15 percent of world arms imports.¹⁶ Russia has been a trusted partner of India. India-Russia trade is worth around \$10 billion and both countries are aiming to take it to \$30 billion by 2025.¹⁷ The balance of trade has been in favour of Russia in the past. India has been importing military aircraft while giving the assembly work to the state owned HAL. After the break-up of the Soviet Union, the Indian Air Force had faced spares shortages, poor serviceability and other maintenance issues with its Russian fleet. It, therefore, looked towards the West for supply of modern military equipment, with high serviceability and reliability.

The improved economic conditions and quest for weapons made India a lucrative market. The removal of sanctions and improvement in relations with the US had made it easier for India to acquire advanced defence equipment. The US overtook Russia in becoming the leading arms supplier to India in 2014¹⁸ and India climbed the import chart in becoming the top arms importer of the world.¹⁹ However, the acquisition of military aircraft from the US was without any technology transfer. These contracts also came with a rider of India signing the End User Monitoring Agreement (EUMA) with the US.²⁰ The signing of EUMA means that the US government/supplier has the right to know where the equipment is being used. There are apprehensions that the US could leverage this clause for favourable dispensation in adverse circumstances.

Import deals with or without TOT are tricky. The 126 aircraft Medium Multi-

16. Sushant Singh, "SIPRI Data Shows India World's Biggest Arms Importer at Three Times of China", March 16, 2015. <http://indianexpress.com/article/india/india-others/india-remains-worlds-biggest-arms-importer-sipri/>. Accessed on January 04, 2015.

17. Pubby, n.1.

18. Shamil Shams, "How the New India-US Defense Deal Would Impact Regional Security", June 2, 2015, <http://www.dw.com/en/how-the-new-india-us-defense-deal-would-impact-regional-security/a-18492143>. Accessed on January 01, 2016.

19. Saroj Bishoyi, "Onus on US to Boost Defence Ties with India", December 12, 2015, <http://www.dailypioneer.com/columnists/oped/onus-on-us-to-boost-defence-ties-with-india.html>. Accessed on December 27, 2015.

20. "US Pushes India to Ink Contentious Defence Pacts", February 27, 2015, <http://timesofindia.indiatimes.com/india/US-pushes-India-to-ink-contentious-defence-pacts/articleshow/46389579.cms>. Accessed on December 27, 2015.

Role Combat Aircraft (MMRCA) deal in which Rafale had emerged as L1 with \$12 billion could have been a flawed deal since Dassault had kept several items out of the offer to keep the prices down. It was estimated that the procurement of this equipment would have taken the cost up to \$24 billion for its operational life. In addition, Dassault refused to take the guarantee of 108 Rafale aircraft, which were to be built in India.²¹ The revised agreement for the purchase of 36 Rafale fighter aircraft from France is likely to cost over Rs 60,000 crore (approximately \$9 billion) amounting to Rs 1,666 crore for each aircraft with its operational equipment.²² The cost of the Tejas as per the 2014 estimates was Rs 220 crore and even if the cost due to escalation and associated equipment is included, it would still be cheaper than any other foreign fighter aircraft of the same class²³ and is best suited to replace the depleting MiG-21 fleet.²⁴ The Indian Air Force (IAF) is planning to induct 100 Tejas aircraft, which would help it fill up the deficiency in its fighter aircraft squadron strength. The import of defence aircraft from foreign vendors is extremely expensive and limits the number of aircraft which can be bought from the taxpayers' money. The indigenous aircraft are cheaper and could be produced in greater numbers to provide self-reliance in defence aviation in the long run and must be persisted with.

Unfavourable Arms Trade Treaty (ATT): The ATT is a multilateral, legally binding arms export treaty, which was passed by the UN General Assembly on April 2, 2013, with a simple majority, with 154 in favour, 3 against (Korea, Iran and Syria) and 23 abstaining (including India, China, Russia and Pakistan). Of the 193 member states of the UN, there are 40 countries with major arms production capability and another 60 with small scale arms production capability. The treaty puts the onus on the states to control the sale of arms. The treaty can only become a law if a period of 90 days has passed after the ratification of the treaty by 50 countries. The

21. "International Relations: What is the Current Status of the India-France Rafale Deal?", <https://www.quora.com/International-Relations-3/What-is-the-current-status-of-the-India-France-Rafale-deal>. Accessed on January 31, 2016.

22. Pubby, n.3.

23. "Tejas Project to Cost Rs 55,000 Crore", February 13, 2014, <http://timesofindia.indiatimes.com/india/Tejas-project-to-cost-Rs-55000-crore/articleshow/30307248.cms>. Accessed on January 29, 2016.

24. C. Manmohan Reddy, "Affordable Air Power", April 17, 2014, <http://www.thehindu.com/opinion/op-ed/affordable-air-power/article5919437.ece>. Accessed on January 29, 2016.

The arms importing countries are susceptible to diplomatic and political pressures by the exporting countries. The import of arms may put restrictions on the independence of a nation's foreign policy and the conduct of its affairs.

treaty opened for signature on June 2, 2013 and came into force on December 23, 2014.²⁵

The arms importing countries are susceptible to diplomatic and political pressures by the exporting countries. The import of arms may put restrictions on the independence of a nation's foreign policy and the conduct of its affairs. There are apprehensions that certain provisions of the ATT could be used as an excuse by the arms suppliers for favourable dispensations. The treaty could also be used as a pretext by the

arms exporting countries to stop supply of arms.²⁶

JOINT DEVELOPMENT: ADVANTAGES AND LIMITATIONS

India had signed an agreement worth \$30 billion with Russia for co-development of the Fifth Generation Fighter Aircraft (FGFA) with a 50:50 joint venture in 2007 to produce 127 single-seat fighters in India.²⁷ However, the Russian designers were reluctant to involve Indian counterparts in the design and development process of the PAK-FA aircraft. Russia made a revised offer for TOT on the Sukhoi T-50 fighter aircraft (PAK-FA) and three prototypes at \$3.6 billion, during Prime Minister Narendra Modi's visit to Russia in December 2015.²⁸ India did not gain much from the design and development phase of the PAK-FA project. It has again reached a situation, where the technology is developed by the Russian experts and then the

25. Press Contact: Daryl G. Kimball, Executive Director, 463-8270 x107, https://www.armscontrol.org/factsheets/arms_trade_treaty. Accessed on January 28, 2016.

26. Santanu Choudhury and Tom Wright, "India Fears U.N. May Block Arms Imports", April 12, 2013, <http://blogs.wsj.com/indiarealtime/2013/04/12/india-fears-u-n-treaty-may-block-arms-imports/>. Accessed on January 4, 2015.

27. "Russia Offers Cheaper Deal On PAK-FA Fighter To India", December 23, 2015, http://www.defenseworld.net/news/14916/Russia_Offers_Cheaper_Deal_On_PAK_FA_Fighter_To_India. Accessed on December 27, 2015.

28. Sushant Singh, "PM Modi's Russia Visit: New, Cheaper Deal on Sukhoi Fighter Planes", December 23, 2015, <http://indianexpress.com/article/india/india-news-india/pm-modi-leaves-for-moscow-russia-offers-new-cheaper-deal-on-sukhoi-fighter-jets/>. Accessed on January 2, 2015.

practical aspects of assembly, maintenance and overhaul of aircraft would be passed on to India.

The US has been reluctant to share advanced defence technologies and form joint ventures with Indian companies. It continues to insist that India sign the Logistics Support Agreement (LSA), Communication Interoperability and Security Memorandum (CISMOA) and Basic Exchange and Cooperation Agreement for Geo-Spatial Cooperation (BECA), on which India has reservations.²⁹ These agreements go against the fundamental principles of the independent

policy being followed by India. The Defence Technology and Trade Initiative was created in 2012 on the direction of then Secretary of Defence Leon Panetta to provide increased US senior level oversight to overcome bureaucratic hurdles.³⁰ The intensive consultations and the renewal of the Indo-US Defence Framework Agreement in 2015 have raised hopes for greater cooperation in the defence manufacturing sector.³¹ In the meantime, India and the US have agreed to pursue cooperation in aircraft carrier and jet engine projects. This is a promising start, but without any agreement of substance. However, cooperation in the defence manufacturing sector could provide the right beginning for the long-term partnership between the two largest democracies.

The Swedish giant Saab has offered India TOT for the Gripen, developing aerospace capability, and has become a partner in developing the Light Combat Aircraft (LCA) Mk-II and Advanced Medium Combat Aircraft

The Defence Technology and Trade Initiative was created in 2012 on the direction of then Secretary of Defence Leon Panetta to provide increased US senior level oversight to overcome bureaucratic hurdles.

29. "US Pushes India to Ink Contentious Defence Pacts", February 27, 2015, <http://timesofindia.indiatimes.com/india/US-pushes-India-to-ink-contentious-defence-pacts/articleshow/46389579.cms>. Accessed on December 27, 2015.

30. <http://www.acq.osd.mil/ic/DTTI.html>. Accessed on January 01, 2015.

31. Anjana Pasricha "India and US Sign Defense Cooperation Pact", June 4, 2015, <http://www.voanews.com/content/india-and-us-sign-defense-cooperation-pact/2807023.html>. Accessed on January 1, 2016.

(AMCA).³² Saab has a reputation of maintaining a liberal policy in TOT. It won the contract to supply 36 Gripen aircraft to Brazil in 2013, beating the F-18, Super Hornet of the US and Rafale of France. Gripen is not new to the world of fighter aircraft since it is already in service with the UK, Czechoslovakia, South Africa, Hungary and Thailand. The main reason for Saab winning the contract in Brazil was its willingness to share the technology, easy financing, industrial cooperation and building 80 percent of spares locally.³³

A joint venture or collaboration may be a necessity in areas where indigenous capability is lacking. However, the success of a joint venture is largely dependent on the bigger partner or the technology provider. The huge amount of money demanded by Safran, France, for modification of the Shakti engine for the LUH indicates the limitations of joint ventures, and dependence on the bigger partner. The failure of Russia to honour its commitment for joint development of the PAK-FA fighter aircraft indicates that it may be difficult to get core technologies through joint ventures. Therefore, it would be in India's interest to collaborate with companies which are ready to share technology and/ or set up manufacturing units in India. Joint ventures or collaboration may complement indigenous capabilities but cannot completely replace them and, thus, indigenous projects must be progressed on the sidelines.

INDIGENISATION AND CHALLENGES

Prime Minister Narendra Modi was concerned that even teargas shells are imported by India.³⁴ He wants to change India's image from being the biggest arms importer to an arms manufacturer. There is a complex relationship between various stakeholders viz the government, manufacturers, R&D

32. "Saab Offers to Help India Develop AMCA in Lieu of Orders for Gripen Gen 5 Concept", December 20, 2015, <http://idrw.org/saab-offers-to-help-india-develop-amca-in-lieu-of-orders-for-gripen-gen-5-concept/>. Accessed on December 29, 2015.

33. "Saab Gets \$4.5 Billion Contract From Brazil for 36 Fighter Jets", December 18, 2013, <http://www.wsj.com/articles/SB10001424052702304866904579266332354721604>. Accessed on December 29, 2015.

34. Anand Jayaram, "Namaste Singapore: 10 Highlights from Modi's Speech at Singapore Expo", November 24, 2015 |, <http://indiatoday.intoday.in/story/namastesingapore-10-highlights-from-modis-speech-at-singapore-expo/1/530611.html>. Accessed on January 31, 2016

agencies and users, which plays an important role in the indigenisation process. The government has played the role of a facilitator, which has not been enough to produce favourable results in this sector. India's endeavours in indigenisation of defence aircraft and equipment have achieved low to moderate success. The indigenisation process in India is not a synchronised activity and the challenges to indigenisation are many, which are discussed in the succeeding paragraphs.

Public Sector Units (PSUs), with huge infrastructure and government support, have a key role in the design, development and manufacture of critically important defence equipment. They would continue to be key players in developing niche technologies, which foreign suppliers would not like to part with, and sell to us at exorbitant costs. The reports of the Controller and Auditor General (CAG) and Controller General of Defence Accounts (CGDA) highlight the unilateral approach, and the lack of accountability of the R&D agencies and their inability to take users along.³⁵ There is a perception that these agencies work in isolation and keep users and sometimes even other R&D agencies out of the loop. There is a reluctance to hand over the manufacturing process to the private sector due to its commercial viability. The focus of the PSUs towards manufacturing limits their research and development capability in niche fields. Therefore, their involvement in assembly, repair and overhaul of military aircraft and other equipment, except the sensitive technologies, could be kept to the bare minimum and, if required, offloaded to the private sector.

The PSUs, despite criticism, have designed and developed some critical technologies like missiles, aircraft, tanks, unmanned aerial vehicles and other defence equipment. They are now working on another key aspect of aircraft development i.e. the jet engine, which is essential for achieving self-reliance in aviation. The difficulties faced in the development of the critically important Kaveri and Shakti engines, with the help of foreign entities, highlight the limitations of joint development. The high cost demanded by Safran for modification of the Shakti engine for the LUH

35. Lt Gen Prakash Katoch, "Defence Manufacturing and 'Make in India' – What will it Take?", May 17, 2015, <http://www.niticentral.com/2015/05/17/arms-mafia-strikes-313630.html>. Accessed on January 4, 2015.

forced HAL to work on indigenous development of the engine. It, therefore, came up with the indigenous HTSE (Hindustan Turbo Shaft Engine) 1200 in December 2015, which would power the ALH, LCH and LUH in the future.³⁶ India is also exploring the possibility of cooperation with leading engine manufacturers to develop engines through JVs to achieve self-reliance in engine technology. The PSUs would continue to be an essential part of the aerospace eco system of the country in developing critical and elusive technologies.

There is a feeling that the users have not been included during the formulation of the concept or the initial design and development phase by the R&D agencies. The development of aircraft is normally initiated by the R&D agencies independently and the armed forces normally join later as the users. The users are involved in testing and trials of aircraft, which are developed by development agencies like HAL and Defence Research and Development Organisation (DRDO). The lack of involvement of the users from the conception stage results in differences between the user expectations and the actual equipment produced by these organisations. However, the users are sometimes also criticised for placing unrealistic demands on the R&D agencies. A Reuters report dated April 8, 2015, cited unrealistic quality demands from the users and reluctance to buy from Indian firms as some of the key impediments to 'Make in India'. The 'impossible' requirements asked by the users, which are possessed only by foreign manufacturers, limited orders and lack of commitment from the government on orders were some of the reasons for Indian firms staying away from the defence manufacturing sector.³⁷ Aspiring to get operationally proven hardware is another aspect which prevents indigenisation.

The private sector has been reluctant to enter the volatile defence production market and its role so far was limited to providing low end support to the PSUs. Its reluctance to participate in the indigenisation

36. "HAL Launches Programme to Develop Engines for Small Helicopters", December 14, 2015, http://www.business-standard.com/article/current-affairs/hal-launches-programme-to-develop-engines-for-small-helicopters-115121400935_1.html. Accessed on December 28, 2015

37. Sanjeev Miglani and Tommy Wilkes, "Lapsed Tenders Hurt Modi's 'Make in India' Defence Industry Push", April 7, 2015, <http://www.reuters.com/article/india-defence-idUSL6N0WY34D20150407>. Accessed on January 4, 2015.

process is the key reason for the lack of growth in the manufacture of defence equipment in India. The liberalisation of policies by the Government of India to facilitate ease of trade and the improved diplomatic clout have given a push to 'Make in India' in the defence sector, which is likely to provide opportunities to both the private sector and the PSUs.

Abandoning Indigenous Projects: There are many public sector entities involved in R&D of aircraft which include the National Aeronautics Limited (NAL), various labs of DRDO and HAL. These agencies come under different ministries, and difficulties are faced in coordinating design, development and manufacturing activities. Many indigenous projects have been abandoned in the past when they either did not produce the desired results or hit technical glitches or similar equipment was offered by foreign vendors. The assembly of foreign aircraft by the PSUs often resulted in putting technological gains from indigenous projects into cold storage or their becoming obsolete with the passage of time. Some of these projects had the potential to become flagship projects of India. The differences in expectations, exceeding the timelines, operational necessity, lack of ownership, or aspiration for the best, are some of the reasons for inadequate endeavours to take such indigenous projects to a logical conclusion. A case in point is the 14-seat Saras light transport aircraft, being developed by the National Aeronautical Limited working under the Ministry of Science and Technology, which appears to have been put into cold storage.³⁸ The future of such projects and the plans for preserving the technology gains from these projects are not known. This could result in losing critical technological gains made during the process of a project's development. These faultlines make India's approach to indigenisation ad-hoc and lacking synchronisation.

The advanced military aircraft technology is the domain of a few due to prolonged development timelines and the requirement of huge investments. These countries use this strength to sell these weapons at exorbitant rates to customers. The failures and shifting timelines make the users unsure and dissuade the R&D agencies of the importing country

38. "NAL's Saras Remains off Radar", June 24, 2015, <http://idrw.org/nals-saras-remains-off-radar/>. Accessed on December 28, 2015.

Its Board of Directors had approved the establishment of a Registered Society as a not-for-profit category with the objective to establish an Aerospace University, on August 30, 2014. The society will give shape to detailed requirements of establishing the university for consideration by the relevant ministries.

from continuing with indigenisation. The pressure from the users and the difficulties/challenges faced in the indigenous design and development programmes often force the government to procure military aircraft and other equipment from arms exporters. In fact, there is an opinion that sanctions help in achieving indigenisation and self-sufficiency because there is no other option but to look at indigenous R&D agencies to provide for needs. Pakistan's development of small drones³⁹ and India's achievements in the space arena are attributed to the imposition of sanctions on these countries.

India does not have sufficient technically skilled manpower to meet the present and future requirements of the aviation sector. The lack of adequate skilled manpower is an impediment in the growth of the aerospace manufacturing sector. There are not many institutions, which provide world class higher education with practical training in this sector. HAL has taken upon itself to address the deficiency of skilled manpower in aviation. Its Board of Directors had approved the establishment of a Registered Society as a not-for-profit category with the objective to establish an Aerospace University, on August 30, 2014. The society will give shape to detailed requirements of establishing the university for consideration by the relevant ministries.⁴⁰ Thereafter, it announced that it would invest Rs 100 crore initially for setting up an Aeronautical University in early 2015.⁴¹ The university would play an important role in providing skilled manpower in the technology sensitive

39. "Pakistan Successfully Tests First Indigenous Armed Drone", March 13, 2015, <http://www.dawn.com/news/1169341>. Accessed on January 4, 2015.

40. "Aerospace University", December 12, 2014, <http://pib.nic.in/newsite/PrintRelease.aspx?relid=113210>. Accessed on January 31, 2016.

41. "HAL Plans to Set up Aerospace University", January 19, 2015, http://www.business-standard.com/article/current-affairs/hal-plans-to-set-up-aerospace-university-115011900984_1.html. Accessed on December 29, 2015

aerospace industry. This initiative of HAL would enable the future aviation workers and engineers to get world class education with hands-on experience of working in the design, development and manufacture of aviation projects.

BALANCING MAKE IN INDIA

'Make in India' is aimed at strengthening the manufacturing sector in India as well as developing indigenous capabilities in elusive niche technologies. 'Make in India' needs to be complemented by 'Start up India' by the private sector and indigenisation by the PSUs in capital intensive aerospace manufacturing to achieve the defence minister's ambitious targets for increasing indigenisation as well as encouraging manufacturing in India. The process of indigenisation of the aerospace industry has been a weak area, which would need bringing various stakeholders onto one platform and synchronising the efforts of various entities involved in this endeavour to make it a success.

There is a need to give a push to 'Make in India' in the aerospace industry but with a clear emphasis on TOT and not at the cost of abandoning indigenous projects. The country offering maximum TOT and willing to set up factories in India should be given utmost priority in the awarding of aerospace contracts. TOT or setting up of factories could be used for supply to the world market on mutually acceptable terms. A similar strategy had been adopted by Brazil when it decided to buy the Gripen fighter aircraft, since Gripen offered to set up factories in Brazil and agreed to share technology. The order of large numbers should make it possible for India to get maximum TOT from foreign suppliers. It is all about making the right choices while selecting partners for 'Make in India' in the aerospace sector. India need to look for deals where it can get as close as possible to core

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technologies and have mutually beneficial arrangements with the suppliers for a win-win situation for both partners.

Joint ventures are an essential part of 'Make in India' for the growth of the aerospace sector, especially in the crucial and elusive technologies. The success of the joint ventures would depend on the bigger partners or the technology providers. India should not hesitate to form joint ventures within India or anywhere in the world. There is need to follow the innovative approach to make it lucrative for the investor to join India in joint ventures.

Indigenisation: 'Make in India' would bring best practices, processes and technologies supporting the aerospace industry but it would still not bring core technologies. The experience gained in 'Make in India' could be useful in developing core technologies. However, India would still have to depend on its own scientists for developing core technologies in order to achieve indigenisation and self-sufficiency.

The PSUs have an important role in protecting the technological gains and in developing elusive technologies. They could also be required to produce sensitive aerospace equipment. However, they have not been consistent in their approach. There is need to harness their potential in making India an aerospace hub. The successful aircraft designs remain in service for 50-60 years, sometimes extending up to 70-80 years. India, despite having built many prototypes in the past, does not have aircraft with similar success. The inability of these projects to become flag bearers of India's aviation innovations, highlights the need for correcting shortcomings and plugging gaps. The indigenous LCA, LUH, ALH and LCH projects have the potential to become the flag bearers of the country and could capture their share in the arms market of the world in their segment. There is a need to carry out a review of indigenous projects like the LCA, LCH, ALH, LUH, Rudra, Unmanned Aerial Vehicles (UAVs), etc and acquire only relevant technologies/ equipment, where scientists have hit a road block, till own scientists succeed in developing them. The support to indigenous aircraft would be a better option than importing entirely new aircraft. This strategy has been successfully followed by the Chinese to strengthen their indigenous aircraft industry. The JF-17 fighter aircraft, jointly built by China

and Pakistan, is likely to be equipped with the Russian RD-93 jet engines in order to fill the technological gap.⁴² There is a need to make these aircraft world class products. Also, there is a need to make R&D agencies and other PSUs world class entities, with each having a centre of excellence of world standards. The separate helicopter manufacturing unit of HAL being set up in Karnataka could be made the centre of excellence for military helicopter design and development on similar lines. However, the focus of these entities should be on the R&D, design and development of aircraft and associated niche technologies.

The private sector excels in producing equipment in large numbers, in a shorter time and with less money, and there is need to tap its potential. The PSUs should choose reliable private partners to offload some portion of manufacturing. This would address the users' complaint about the inability of the PSUs to produce aircraft in large numbers in a given timeframe.

Aeronautics and Astronautics Universities: Another key element needed for the success of 'Make in India' is **skilled manpower**, which is lacking. The effort by HAL to create an Aerospace University is a late but important aspect in energising the aerospace industry. However, it is still not enough. Most countries having a well established aerospace manufacturing sector had realised the importance of setting up of Aeronautics and Astronautics Universities. India too would have to consider setting up at least three to four such universities, to exclusively provide higher education on various aspects of aeronautics, astronautics engineering, manufacturing, skilling, management, import and export.

Aerospace Commission: The lack of clarity about the role of various stakeholders, the inability to synchronise the R&D endeavours and the inadequate involvement of stakeholders in the design and development process could lead to duplication of endeavours or leave certain gaps in the development of technology. The lack of understanding of strengths and limitations could generate mistrust and prove counter-productive. Therefore, there is a need to synchronise indigenisation efforts and take

42. "Pakistan: JF-17 Engine Straight from Russia", February 15, 2015, <http://airheadsfly.com/2015/02/15/pakistan-jf-17-engine-straight-from-russia/>. Accessed on January 3, 2015.

various stakeholders viz the government, PSUs, private sector and users on board to make it a success. There should also be an endeavour to address those issues, which do not fall in the domains of these stakeholders but have long-term implications for the indigenisation process.

A higher agency or commission is needed to coordinate, monitor and facilitate indigenisation, 'Make in India', joint ventures, imports and exports to give an impetus to the aerospace industry in India. This agency could facilitate coordination among the government, R&D agencies and users to give an impetus to indigenisation and export of indigenous aerospace products. Proactive government support would be essential for these endeavours. Therefore, the setting up of an Aerospace Commission is necessary to achieve these goals.

Any country importing aircraft and other arms remains dependent on foreign suppliers for maintenance, overhaul and upgrades, etc., which curbs its strategic autonomy. The procurement of aircraft and associated equipment from foreign vendors is an expensive and high cost activity, which limits the quantity of equipment that can be procured through imports. Therefore, there is a need to strengthen indigenous aerospace manufacturing capabilities, which would provide self-reliance, create jobs and could even become a source of revenue through export to other countries. Indigenisation would reduce dependence on other countries and is an essential ingredient for an independent foreign policy. Therefore, indigenisation in the aerospace industry and military equipment has to be made a core strategic policy for India.⁴³

43. Saurav Jha, "Indigenization has to be a Core Strategic Policy for India", September 28, 2015, <http://www.ibnlive.com/blogs/india/saurav-jha/indigenization-has-to-be-a-core-strategic-policy-for-india-10879-1120350.html>. Accessed on January 3, 2015.

CYBER DETERRENCE: STRATEGIC IMPERATIVES AND OPERATIONAL CHALLENGES

ASHISH GUPTA

Nuclear deterrence, in the era of the Cold War, was the single most important determinant in preventing the destruction of our planet from the scourge of nuclear weapons. During the Cold War, the deterrence theory was the lynchpin of the US' strategy for containment of the former Soviet Union, protection against nuclear attacks and nuclear blackmail. Deterrence is a broad phenomenon that involves using threats of harm, usually to be inflicted by force, to convince others not to do designated harmful things.¹ For a credible deterrence posturing, the inalienable requirement is development of commensurate capabilities, their overt visibility and frequent deployment as a way of issuing and resurrecting threats, particularly in the wake of a crisis/ confrontation. Deterrence is used to manipulate the perceptions and actions of others and altering or reinforcing behavioural responses or to contain belligerent posturing and, in case of its ineffectiveness, it entails use of coercion or threat of use of force, or overt use of force emanating from acquired deterrence capabilities.

Drawing parallels with nuclear deterrence and contextually applying these concepts for evaluating the veracity and effectiveness of 'cyber

Group Captain **Ashish Gupta** is a Senior Fellow at the Centre for Air Power Studies, New Delhi.

1. Emanuel Adler and Vincent Pouliot, *International Practices: Cambridge Studies in International Relations* (Cambridge : Cambridge University Press, 2011), p.141.

In the cyber domain, the lack of clear lines of demarcation—in terms of intent, motivation and geographical location—makes the task of identifying the true perpetrators, apportioning responsibility and undertaking reprisals a herculean one.

deterrence' might turn out to be futile and counter-intuitive due to varying nuances of intent, applicability, participants and consequences. In the context of nuclear deterrence, the potential enemy is clearly identifiable in form and intent, and deterrence will remain convincing and credible as long as the survivability of the weapon systems and delivery vehicles is ensured. A nuclear threat emanating from a non-state actor is almost non-existential. Adm Michael Rogers, commander of the US Cyber Command while appearing before the House Select Intelligence Committee, on November 20, 2014, commented,

"I often hear people use the nuclear analogy in terms of how we were able to develop the concepts of deterrence, norms and behavior. I try to remind people to remember that the challenge of the nuclear analogy is... that [nuclear weapons] were controlled by a very small number of nation-states – two really."² The main assumption underlying nuclear deterrence is to contain the threat of nuclear annihilation by stemming the motivation of states with nuclear arsenals to cross the nuclear threshold.

In cyber space, the enemy may employ disguises, masquerade or hide behind the 'digital veils' without a verifiable or discernable objective or motivation. The primary perpetrator may be an individual, an organisation, a non-state actor or a nation-state. In the cyber domain, the lack of clear lines of demarcation—in terms of intent, motivation and geographical location—makes the task of identifying the true perpetrators, apportioning responsibility and undertaking reprisals a herculean one. The problem of deterrence in cyber space is exacerbated due to several reasons: its inherent

2. *Cybersecurity Threats: The Way Forward*, Hearing of the House (Select) Intelligence Committee National Security Agency, November 20, 2014 (statement of Adm Michael Rogers, commander, U.S. Cyber Command and Director, National Security Agency), https://www.nsa.gov/public_info/_files/speeches_testimonies/ADM.ROGERS.Hill.20.Nov.pdf. Accessed on January 12, 2016.

asymmetric nature, difficulties in accurate and timely attribution of hostile activities, level of threshold above which an inimical act warrants punitive reprisals, overarching dependence on technological prowess and a plethora of potential adversaries having the requisite intent and capabilities.

The strategy of using deterrence is meant to maintain a frozen status quo. As per William Kauffman³, "Deterrence consists of essentially two basic components: first, the expressed intention to defend a certain interest; secondly, the demonstrated capability, actually to achieve the defense

of the interest in question, or to inflict such a cost on the attacker that, even if he should be able to gain his end, it would not seem worth the effort to him." The potentiality and potency of the deterrent declaration is directly proportional to its credibility. The overt demonstrations of intentions to leverage the innate, acquired or developed deterrent capabilities in order to thwart threats against targets and interests as enumerated in the deterrent declaration comprise the hallmark of effective and preponderant deterrent posturing.

In the present time, deterrence as a cornerstone to strategy has been pushed down to a lower rung on the *hierarchical ladder*. After all, the Cold War of more than 40 years ended rather unspectacularly, without the usual march of great armies, unfurling of victory flags and roars of cheerful crowds with expectant jubilation. Nuclear deterrence which was the mainstay of the Cold War era and the nuclear arsenal that supposedly saved the world from nuclear war because of the certainty of Mutual Assured Destruction (MAD), suddenly were stigmatised as liabilities rather than strategic assets. Nuclear deterrence today appears to be an antiquated solution to a dominant

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3. William W. Kaufmann, *The Requirements of Deterrence* (Princeton: Centre of International Studies Princeton University, 1954), p.4.

problem of the past. With changing times, strategic considerations have also changed and contextual solutions are emerging from ideas best suited for the present. Although deterrence is conceived and executed as part of a coercive strategy to deter unfriendly behaviour, its effectiveness is totally dependent on the consent and intent of the deterree. The efforts to shape that consent by deterrence are vastly inferior in quality in comparison to the control secured by military action which effectively deprives the enemy of the power to make a wrong move.⁴ In addition, the possibility of potential foes rejecting the perceived rational behaviour paradigm and functioning irrationally from the stand point of strategic logic, is high. The whole premise of deterrence is based on mapping the enemy's rational intent. Besides, if the intended deterree is either unwilling or unable to be deterred, then deterrence cannot work.⁵ In addition, deterrence has its limitations against asymmetrical threats which cannot be consistently and tangibly fitted into any threat evaluation model.

The classical deterrence doctrine is based on the basic premise that abidance or violation of established rules or conventions stems from the rational calculation of risk of reprisal or punishment versus potential advantages accrued from an act. A deterrence doctrine, which is capricious, uncertain and is not leveraged by commensurate capabilities, fails to be amenable to rational actors. For the deterrence doctrine to be effective and credible, it essentially requires the amalgam of three individual components in equal measure: **severity, certainty, and celerity**.⁶ The 'severity' of a punitive action will deter a rational state to commit an act of perceived wantonness or malice against another state. Punishment should be calibrated based on the extent of the crime, at an appropriate severity level. 'Certainty of punishment' is the expression of inalienable resolve to punish the offenders, irrespective of the cost. Infliction of punishment closer to the commission of an offence will reinforce the veracity of the deterrence

4. Colin S. Gray, *Maintaining Effective Deterrence* (Carlisle, PA: US Army War College, Strategic Studies Institute, 2003).

5. Colin S. Gray, *Explorations in Strategy* (Connecticut : Greenwood Press, 1996), p.32.

6. Ronald L. Akers, *Criminological Theories: Introduction and Evaluation* (New York : Roxbury Publishing Company, 1999), p.15.

posture. Deterrence works most efficaciously when it can rely, not upon the potency of explicit threats but rather upon the fears of deterrees, who are discouraged from taking action by their anticipation of the damage that adventurous behaviour would bring down upon their heads.⁷ Deterrence, for the manipulation of cost/benefit calculation and for generation of fear, is a form of coercion requiring two essential elements: the credible capability to harm and the credible intent to carry out this harm.⁸ Deterrence in cyber space aims to dissuade or discourage potential enemies from carrying out activities detrimental to perceived interest. If an adversary intends to wage war in the cyber domain, he will have to weigh his options and decide what will yield commensurate dividends: a daring cyber attack with proportionate returns or exercise of restraint to avoid the retaliatory wrath of the deterrer.

Closely associated with the theory of deterrence is the 'theory of preemption'. It is widely believed that if an adversary cannot be deterred, poses 'clear and present' danger and its threat instruments can be neutralised by the available capabilities, preemption will be a better suited option. The centrality of the theory of deterrence is somewhat limited in its unambiguous applicability across the broad spectrum of present, perceived and potential adversaries. It somewhat relies on absorbing the consequences of a hostile act, identifying the perpetrators, and then undertaking punitive actions proportionally weighted or exemplarily applied. Against irrational actors such as terrorist groups, preemption may be more appropriate as terrorist organisations have very little to lose, cannot be trusted with rational disposition or checked by threat of retaliation, and their nefarious intent needs to be nipped in the bud before it can culminate into a terrorist attack.⁹ Preemptive options, once exercised, are likely to stir up geo-political and strategic tensions. Preemption, as an instrument of policy, an adjunct to force posture and an occasional subterfuge against rogue actors, is essential. However, the policy of preemption cannot be the central strategic deterrence posture.

7. Gray, n.4

8. Austin Long, *Deterrence From Cold War to Long War : Lessons from Six Decades of RAND Research* (Santa Clara CA: RAND Corporation, , 2008), p.8.

9. Alan M. Dershowitz, *Preemption: A Knife That Cuts Both Ways* (London : W.W Norton & Company Ltd, 2006), p.10.

The applicability of traditional concepts of deterrence in an unmodified form to the realities of cyber threats has its own challenges and limitations. Cyber space does not comply with the classic definition of sovereignty as propagated by the dominant 'Westphalian conceptions'. In the realm of cyber space, the relative anonymity of an attacker makes the issue of attributability an arduous and contentious process. Cyber attacks can occur without any warning or without any obvious or subtle indications. Cyber attacks can remain undetected even when they stealthily cause intended damage—as perceptible physical manifestations of attack consequences in quantifiable attributes take time. The possibility and potentiality of a cyber attack remains the same, in war-time as well as in peace-time, without any apparent period of crisis or strained relations. Since an attacker can use the infrastructures of a third party—either in connivance with it, or under a tacit agreement, or without its knowledge—it limits the possibility of attribution and proportionate response against the true perpetrators. For credible deterrence, cyber weapons need to be developed, evaluated and checked for efficacy and factored into the overall deterrence policy. In response to a question, while appearing before the Senate Armed Services Committee (SASC), to head the US Cyber Command (USCYBERCOM) Adm Michael S. Rogers responded by stating, "The establishment of the US Cyber Command is an element of a deterrence strategy, but more work and planning will be required to evolve a solid national strategy. Classic deterrence theory is based on the concepts of threat and cost; either there is a fear of reprisal or a belief that an attack is too hard or too expensive. Cyber warfare is still evolving and much work remains to establish agreed upon norms of behaviour, thresholds for action, and other dynamics." Adm Rogers further stated, "A broad understanding of cyber capability, both defensive and offensive, along with an understanding of thresholds and intentions would seem to be the logical elements of a deterrence strategy, both for our allies and our adversaries, and as they are in other war-fighting domains."¹⁰ The uncertain causal evidence and ambiguous consequences of

10. Sanger, "N.S.A. Nominee Promotes Cyber War Units", *The Washington Times*, March 11, 2014, <http://www.washingtontimes.com>. Accessed on January 10, 2016.

cyber attacks tend to undermine deterrent postures in cyber space. Despite these challenges, a deficient or inadequate deterrent in cyber space creates vulnerabilities that could be exploited by a determined adversary.

The national interests, which a nation intends to defend, if threatened, have potentially debilitating ramifications and devastating consequences. A nation's interests consist of the physical and cyber assets of public and private institutions in several sectors: agriculture, food, water, public health, emergency services, government, defence industrial base, information and telecommunications, energy, transportation, banking and finance, and shipping. Inimical actors, ranging from mischievous hackers, to criminals, terrorists, non-state actors as also nation-states, are ready to exploit the cyber space for notoriety, power, money, state secrets or just for the thrill of it. A fraction of such attacks is reported, investigated and recorded. The origin of some could be traced behind the physical boundaries of a hostile state, thwarting even the investigative efforts, let alone concluding those with convictions. Some of them may be individual and isolated enterprises by disgruntled employees, cyber criminals, cyber terrorist groups, professional hackers, etc., while others may be closely coordinated acts of more sinister intents perpetrated by nation-states. It is difficult to discern the quantum of evidence which qualifies for retaliation. Investigating every breach in cyber space is not possible as it is a resource and effort intensive exercise. There has to be some discernible correlation between the magnitude of retaliation and the magnitude of damage. Loss of life makes a tractable threshold but cyber attacks have yet to claim their first casualty. If benchmarking a figure based on some monetary considerations justifies a retaliatory attack, how would it be communicated to the attacker that crossing this threshold would result in retaliation? The evolution of the deterrence theory/ strategy in cyber space cannot be equated with the conventional deterrence strategy, as cyber space is unique in its physical characteristic, functionality, scope and context. The unique character of cyber space presents new challenges.

Unlike in the case of conventional attacks, where the source of an attack can be conclusively and irrevocably established, in the realm of cyber warfare, the question of attributability and accountability becomes controversial.

PROBLEM OF ATTRIBUTABILITY

The anonymity and impunity with which acts of cyber terrorism and espionage are being carried out has made the process of fixing accountability and subsequent prosecution extremely difficult. Cyber space, being a common entity, shared by government, institutions, companies and individuals, does not offer a sense of security like physical/geographical boundaries do. The perpetrators with nefarious intentions do not have to undertake the arduous task of breaching the security over physical boundaries to carry out

a cyber attack. Unlike in the case of conventional attacks, where the source of an attack can be conclusively and irrevocably established, in the realm of cyber warfare, the question of attributability and accountability becomes controversial. In a hypothetical situation, let us examine a scenario in which a group in State A assimilates computers located in State B into its botnet. The group then uses the botnet to overload computer systems in State C based on instructions received from State D. Though by the conventions of laws of natural justice, the attributability of the conduct rests with State D, it will take a long legal battle to exonerate State A and State B from the responsibility of conduct.

PROBLEM OF CREDIBLE RESPONSE

Almost all forms of retaliation are directed towards the vulnerability of the target. The quantum of retaliation will depend on near-accurate prediction of vulnerabilities. Through assiduous exploration and investigating key systems vulnerable in specific ways, potential adversaries may be identified, tagged, documented and mapped in overall orchestration of deterrence policy. While such actionable information may be reassuring to a certain degree in one's ability to respond credibly on a given day, a consistent deterrence posture requires the ability to respond as long

as the deterrence policy is operative. Vulnerabilities can be discovered and patched, rendering the effectiveness of the response initiated as punitive action ineffective. The quantifiable measure of the outcomes of such attacks may also be speculative. It has been postulated that use of many kinetic weapons will have the comparable problem when used against a large variety of targets. The damage assessment after cyber attacks on information systems will only be speculative, based on their resilience and patching up of vulnerabilities. Furthermore, the extent of damage to any information system is strongly related to the reaction of its human operators: for

example, how quickly faults can be found and fixed; how easily damage can be routed around; how frequently the data is backed up; or extant contingency plans. Besides, complacency of the targets stemming from the belief that their systems face no serious threats, apart from those that have been anticipated and dealt with, may prove to be their Achilles heel. Once such targets are put at obvious risk, operators may no longer be so complacent and, thus, targets may not be so vulnerable. Greater complacency on the part of human operators makes the targets more vulnerable than they really are.

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REESTABLISHMENT OF DETERRENCE POSTURE AFTER ATTACK

After an attack in cyber space, the threats designed as part of deterrence need to be realised. This will jolt the defender from its stupor and will energise it to protect its cyber assets with much more rigour and strength. An alert defender will carry out a critical review of existing systems and plug in the associated vulnerabilities. In the wake of this, reestablishing the

deterrence posture will require designing new threats with the potential to dissuade the adversary from undertaking another misadventure. Now the task will be much more gruelling as the vulnerabilities which were exploited and exposed previously would have been plugged in the targets hardened and the associated complacency dissipated.

CYBER DETERRENCE IN LIMITING THE NUMBER OF CONTESTS

In general, a conventional conflict takes place between two warring groups. The ideological, economic, political or allegiance imperatives may bring in third party interventions or associations. However, as the cyber space is so intricately interwoven, an unsuspecting and innocent party may get affected by an act of retaliation against an adversary in cyber space. It may inadvertently draw the affected party into the conflict, thereby expanding its quantum and dimension. This may prove counter-effective as deterrence posturing is aimed at controlling escalation.

EFFECTIVENESS OF CYBER DETERRENCE IN SAFEGUARDING PRIVATELY OWNED CRITICAL INFRASTRUCTURE

Critical infrastructures consist of assets in the physical and cyber domains. Many of the important infrastructures for subsistence, sustenance and security of the population are privately owned and operated. It is the responsibility of system operators to ensure operations of critical infrastructure without disruption and corruption. Formulation of a deterrence posture in the wake of this puts the spotlight on the attackers rather than the system owners who have an obligation to protect these. System owners may take the recourse of absolving themselves of any wrongdoing by arguing that cyber attacks are acts of war and may invoke the *force majeure* clause.

ESCALATION AVOIDANCE

The ensuing crisis following a cyber attack may force the aggrieved opponent to respond with kinetic weapons, thereby escalating the level of conflict. As a part of deterrence policy or strategy, in response to a cyber attack, if a retaliatory action is initiated in cyber space, there is no

assurance of restrained behaviour from the other side. Article 5, which is a fundamental principle of the North Atlantic Treaty Organisation (NATO), stipulates that if a NATO ally is the victim of an armed attack, each and every other member of the alliance would consider this act of violence as an armed attack against all members and would take the actions it deems necessary to assist the ally attacked. In a policy endorsement, the principle that a cyber attack can constitute an armed attack was approved by the NATO defence ministers in September 2013. Similarly, Russia, without mincing words, has made it clear that, it may respond with strategic means at its disposal if a cyber attack directed against it crosses the strategic threshold. While retaliating as part of deterrence policy in cyber space could logically be constructed as a natural progression of events, the possibility of crossing a threshold and exacerbating the escalation potential of violence is real.

SANCTIONS AS PART OF OVERALL DETERRENT POSTURE

Sanctions – predominately economic and peripherally political and military—constitute an important element of deterrent policy. Sanctions, against a state or an entity, are employed as coercive instruments to elicit a behavioural change or to diminish belligerent posturing. In the post-Cold War era, the waning reliance on armed conflicts and wars, within and among states, for resolution of belligerent, contentious and complex problems has resulted in widespread use of economic sanctions. Sanctions have been used in support of foreign policy goals: to discourage armed aggression, cap the aspirations of potential nuclear states, rein in drug trafficking, expedite political change, discourage proliferation of weapons of mass destructions and dissuade support for terrorism.

Some political observers and decision-makers think of sanctions as a measured and proportionate response to a challenge considered below the threshold of perceived national interests at stake. In addition, sanctions can be considered as a form of expression or message-sending to communicate disapprobation of a particular action or behaviour. It was appropriately observed by America’s Catholic bishops: “Sanctions can offer a non-military

alternative to the terrible options of war or indifference when confronted with aggression or injustice.”¹¹

In order to gauge the efficacy of economic sanctions and ascertain the underlying rationale, the analysis of sanctions against Iran provides some perspectives. In the case of Iran, in order to cap its supposedly illicit nuclear activities, the US, the member states of the European Union and others put in place a strong, inter-locking matrix of sanction measures relating to Iran’s nuclear, missile, energy, shipping, transportation, and financial sectors.¹² The European Union (EU) embargo and the US sanctions played havoc with the Iranian national economy. Iran’s oil exports fell drastically and in January 2013, Iran’s oil minister acknowledged that the fall in oil exports was costing the country between US \$ 4 billion and 8 billion each month. Iran is believed to have suffered a loss of about US \$ 26 billion in oil revenue in 2012 from a total of US \$ 95 billion in 2011. In April 2013, the International Monetary Fund (IMF) forecast that Iran’s Gross Domestic Product (GDP) would shrink by 1.3 percent in 2013 after contracting by 1.9 percent the previous year.

In exchange for Iran’s commitment to limit its nuclear capabilities and its pledge to limit its nuclear energy activities for purely peaceful purposes, the United Nations Security Council, on July 20, 2015, unanimously approved a resolution that created the basis for international economic sanctions against Iran to be lifted.¹³

Buoyed by the degree of success, albeit still speculative, as a result of the sanction measures against Iran, the US tried to buttress similar tenets in an entirely different domain. The US, wary of cyber-economic espionage initiated by Chinese hackers—perhaps with the tacit approval and support of the Chinese government—has suffered enormous monetary losses as well as

11. National Conference of Catholic Bishops, “The Harvest of Justice Is Sown in Peace: A Reflection of the National Conference of Bishops on the Tenth Anniversary of the Challenge to Peace” (Washington, DC: United States Catholic Conference, 1994).
12. US Department of State, “Diplomacy in Action : Iran Sanctions”, <http://www.state.gov/e/eb/tfs/spi/iran/index.htm>. Accessed on September 10, 2015.
13. Somini Sengupta, “UN Moves to Lift Iran Sanctions After Nuclear Deal, Setting Up a Clash in Congress”, *New York Times*, July 20, 2015, http://www.nytimes.com/2015/07/21/world/middleeast/security-council-following-iran-nuclear-pact-votes-to-lift-sanctions.html?_r=0. Accessed on January 10, 2016.

loss of intellectual property and prestige. For the US, securing the cyber space represents the Holy Grail of “National Security.” In response to the rising wave of cyber attacks exponentially growing in numbers and the potential severity of subsequent consequences, the US tried to put in place a framework intended to subject the Chinese companies and individuals, who have been direct or incidental beneficiaries of U.S. trade secrets through cyber theft by the Chinese government, to unprecedented economic sanctions.¹⁴

The provision of sanctions against the Chinese companies and individuals, once enacted and established as an expedient, would mark the far-reaching use of the Executive Order (EO) signed by President Barack Obama in April 2015. The EO, “Blocking the Property of Certain Persons Engaging in Significant Malicious Cyber-Enabled Activities”, identifies increasing prevalence and severity of malicious cyber-enabled activities originating from, or directed by, persons located, in whole or in substantial part, outside the United States as an unusual and extraordinary threat to the national security, foreign policy, and economy of the United States.¹⁵ The EO explicitly specifies blockage of all property and interests in property in the US of persons responsible for, or engaged in, either directly or indirectly, cyber-enabled activities.

This US move is being described as the second serious and important shot at deterring China on the issue of cyber espionage. In May 2014, in a first-of-its-kind case, the US Justice Department indicted five Chinese military officers on charges of stealing data from six US companies. The US formally accused the Chinese officers and sought their extradition to face charges under US laws for infiltrating the computer networks of six US companies and for stealing data, which could be leveraged for benefit by their trade competitors. The Federal Bureau of Investigation (FBI) had

14. David Nakamura, “US Developing Sanctions Against China Over Cyberthefts”, *The Washington Post*, August 30, 2015, https://www.washingtonpost.com/world/national-security/administration-developing-sanctions-against-china-over-cyberespionage/2015/08/30/9b2910aa-480b-11e5-8ab4-c73967a143d3_story.html. Accessed on January 10, 2016.

15. The White House : Office of the Press Secretary, Executive Order: “Blocking the Property of Certain Persons Engaging in Significant Malicious Cyber-Enabled Activities”, April 1, 2015, <https://www.whitehouse.gov/the-press-office/2015/04/01/executive-order-blocking-property-certain-persons-engaging-significant-m>. Accessed on January 10, 2016.

A nation's resolve to deter cyber attacks needs to be part of its overarching defence strategy, encompassing all instruments of national power: diplomatic, economic, informational and military.

gone to the extent of putting the faces of the five officials on 'Wanted' posters.¹⁶

However, some US officials within the government cautioned against such moves and questioned their overall efficacy in the long run, arguing that sanctions might not act as a deterrent and would exacerbate tensions in the already tumultuous diplomatic relations between the United States and China. Besides, the US taking the moral high ground appeared to be dichotomous, when the US itself is accused of perpetrating cyber espionage, mass surveillance and other forms of information gathering directed at its allies and adversaries. The whole exercise orchestrated by the US appeared to be an attempt to "send a strong message" to Beijing, probably as an attempt to bolster its cyber deterrent posture.

Sanctions alone cannot bring in a paradigm change in the sinister and belligerent cyber behaviour of a determined adversary. A nation's resolve to deter cyber attacks needs to be part of its overarching defence strategy, encompassing all instruments of national power: diplomatic, economic, informational and military. The shroud of anonymity behind which cyber criminals operate has made the process of establishing the identity of transgressors an arduous one. Attribution is the first step in assigning responsibilities and seeking appropriate recourse against transgressors. The economic linkages in this global era have become much more interdependent and entwined and economic prudence does not justify such mutually incriminatory measures. On the other hand, it may adversely impact the mutually beneficial economic ties between two countries as reprisals frequently lead to counter-reprisals and further escalation in already tense bilateral relations.

16. Eric Holder, "Chinese Military Officials Charged with Stealing US Data as Tensions Escalate", *The Guardian*, May 20, 2014, <http://www.theguardian.com/technology/2014/may/19/us-chinese-military-officials-cyber-espionage>, May 20, 2014. Accessed on January 10, 2016.

CONCLUSION

The fruition of a credible deterrence strategy built on traditional threat evaluation is in itself a complex process, and the complexities are further exacerbated when ambiguities associated with operations in cyber space are factored in. Historically, the measures of successful conduct of war manifest in territorial gains or attrition or annihilation of enemy forces. Deterrence, by contrast, is an exercise in shaping the mindset of adversaries and fanning the fear of retaliatory actions far exceeding the cost of potential misadventure. The process involves formulation of policy, proportionate capacity building, overt display of capabilities and convincing the adversary of one's intent. With nuclear deterrence, the deterrence posturing involves exploiting the primordial element of fear.

While gauging the impact of cyber weaponry and overall threat of cyber war looming large in the near future, it is worth the effort to try to ascertain its footprint on the global geo-political landscape.

While gauging the impact of cyber weaponry and overall threat of cyber war looming large in the near future, it is worth the effort to try to ascertain its footprint on the global geo-political landscape. Cyber weapons have yet to prove themselves as capable of altering the strategic military balance among states engaged in military conflict. Some critics point out that a cursory comparison between cyber and nuclear weapons is enough to prove the vanity and vexation of cyber weapons. In the context of nuclear weapons, James Chadwick discovered the neutron in 1932 for which he was awarded the Nobel Prize, and in 1945, the world witnessed the devastation and destruction by the first atomic bomb. Its use ended World War II, followed by shaping the strategic relations between the superpowers over the next five decades. The possession and the ability to launch nuclear weapons within the available temporal window are central to inter-state power relationships, as lucidly illustrated by the Iranian and North Korean examples. In comparison, close to 15 years have passed since the tenets of cyber warfare started intriguing the strategists and practitioners of warfare, and the world

has yet to witness a state forced into subliminal subjugation let alone overthrown, exclusively or even primarily by cyber attacks,

The argument does not in any way question the validity of deterrence in cyber space. Establishing deterrence in cyber space is not an easy task owing to the lack of a clear delineation of a cyber attack from technical glitches, cyber crimes or a blatant act of war. The detection, categorisation and initiation of response commensurate to the severity of attack will require technical scaffolding and a policy framework. The existential chasm between deterrence theory in cyber space and its practice is broad and needs to be bridged with clearly stated, and substantiated by, policy, procedures and guidelines.

CRITICALITY ANALYSIS AND PROTECTION OF NATIONAL CRITICAL INFORMATION INFRASTRUCTURES (NCIIs)

MK SHARMA

INTRODUCTION

Current understanding of the cyber world suggests an upward trend in offensive cyber activity posing a challenge to policy-makers to develop a strategy of graded response to the disruptive and, at times, destructive cyber attacks. With the increasing likelihood of cyber attacks becoming state sponsored rather than by non-state actors, the difficulty of the sovereign governments has only increased in terms of crafting a timely, proportionate and legally acceptable counter response that is not seen by its own people as ad-hoc. While executing a discriminatory response continues to be marred by plausible deniability enjoyed by the attackers and difficulty in assessing the actual damage to National Critical Information Infrastructures (NCIIs) by the governments, there is an inevitable requirement of taking a couple of initiatives as pre-event homework by the agencies concerned. Firstly, to be able to determine the impact of an incident on the operations of all NCIIs

Wing Commander **MK Sharma** is a serving officer of Aeronautical Engineer (Electronics Branch). Presently, he is holding a staff appointment as Command Guided Weapons Maintenance Officer (CGWMO) at Headquarters Eastern Air Command. He has been on a Research Fellowship at the Centre for Air Power Studies twice and has published a book titled *Cyber Warfare: The Power of the Unseen*.

NCIIs that are otherwise physically and geographically dispersed, get interconnected and integrated through networking and information exchange, thus, the dependency amongst systems rises non-linearly.

in both the public and private domains and, secondly, to be able to arrive at a pre conceived response matrix by the government agencies, having evaluated the impact of such response across the political, economic, military and information domains. Thus, the strategy of proportionate response would have to take into consideration factors such as the level of confidence in our own cyber agencies to correctly attribute the responsibility of attack, the pragmatic and objective assessment of the impact of such attack on NCII, and, of

course, the instruments of cyber power at the disposal of the government. As an essential first step, the task of protecting NCII would then have to be based on understanding the nature of NCII which are *prima facie* complex, interdependent, interconnected and highly distributed.

NCIIs that are otherwise physically and geographically dispersed, get interconnected and integrated through networking and information exchange, thus, the dependency amongst systems rises non-linearly. Information infrastructure is the term used to describe the totality of interconnected computers and networks, and the essential information flowing through them.¹ Two important factors that play a role in the interdependence of NCII are: the rising vulnerabilities in NCII that could be exploited more easily by non-technical hands, and their reliance on Information and Communication Technologies (ICTs) for data gathering, fusion, processing, and dissemination for day-to-day functioning. The relationship amongst various NCII today is characterised by a web of multiple connections such as feedback, feed forward paths, and intricate branching topologies. A minor disruption at any point could have a rippling effect across multiple critical

1. Peter Westrin, "Critical Information Infrastructure Protection", *Information and Security* (London: Tylor and Francis, 2001), vol 7, p. 69.

infrastructures if other functions are highly dependent on its output.² Thus, a renewed focus is necessitated on the vulnerabilities which are common to multiple infrastructures, leading to interdependencies.

The criticality of an information infrastructure could be looked at in many different ways. Information infrastructure is not only shared, and heterogeneous in nature depending upon the networking maturity level of the infrastructure but also evolving in terms of its role and utility interdependence among others. When we approach NCII's protection

from the point of national security strategy, we find that not all the elements of an NCII are equally critical, thus, the protection strategy would have to be differential in nature, based on identification of the elements that are most critical. Also, when we consider protection from the point of the vulnerabilities that cut across the listed information infrastructures, the interdependencies come to the fore. What would be the second order impact on other infrastructures when a particular interdependent infrastructure is under attack? The interdependencies could arise out of the logical networking profile, functional priorities or by geographic co-location of the assets. This brings to us a new challenge of defining parameters to measure interdependencies so as to arrive at the NCII's protection strategy based on identification of the most critical elements that are essential for the sovereignty of the nation, or disruption of which may pose danger to life and property.

The aim of this paper is to put forward a basic methodology to measure the interdependency of NCII's using criticality analysis of infrastructures, and to propose a strategy of proportionate response to protect the NCII's.

Information infrastructure is not only shared, and heterogeneous in nature depending upon the networking maturity level of the infrastructure but also evolving in terms of its role and utility interdependence among others.

2. Steven M. Rinaldi, James P. Peerenboom, and Terrence K. Kelly, "Identifying, Understanding and Analysing Critical Infrastructure Dependency", *IEEE Control Systems Magazine* (USA), vol 21, no.6, 2001, p, 14.

THEORETICAL BACKGROUND

NCIIs, Interdependence and Globalisation

The process of globalisation may be best understood with the works of Robert Keohane and Joseph Nye.³ The multifaceted process of globalisation has lifted barriers across the states and evolved a highly comprehensive system with free flow of trade, commerce, ideas and people. The enabler for integration of economic, cultural and social factors of globalisation is ICT. As various services carried over the internet such as electronic mail, instant messaging, Voice over Internet Protocol (VoIP), electronic commerce, etc. enhanced the effectiveness and reach of the impacts of globalisation, the requirement of swift communication and trans-border data flow gradually became critical to decision-making. The rise of neo-liberalism led to changes in the patterns of interactions in global economies and new sectors such as services/financial services emerged along with the exponential growth in production, marketing and flow of goods across the borders. Moore's Law⁴ predicts that bandwidth requirement would double every 18 months and the number of transistors that can be put on an integrated circuit would double every two years. This exponentially increasing demand for communication led to further research and development supported by huge investment in ICT across the globe.

The actual transmission costs have become negligible; hence, the amount of information that can be transmitted is effectively infinite. While contemporary issues of cyber attacks and piracy have brought a new set of problems, two factors, namely, the ever increasing complex interdependence of NCIIIs and the emergence of non-state actors has eroded the sovereign power of the state. The decision-making process is more independent of the state today, thus, posing a number of new challenges to the security and well-being of the globalised world. However, the concept of interdependence among sectors and societies is not a novel phenomenon. In this context,

3. Robert O. Keohane and Joseph S. Nye, Jr, "Globalization: What's New? What's Not? (And So What?)", *Washingtonpost.Newsweek Interactive, LLC*, *Foreign Policy*, no. 118, Spring, 2000, pp. 104-119. <http://www.jstor.org/stable/1149673>

4. Gordon E. Moore, <http://www.moorelaw.org/>. Accessed on January 15, 2016.

it may be pertinent to revisit the 1940s when globalisation of the world economy was deliberately fostered by US policy and international financial institutions for half a century post World War II. In the late 1940s, the United States sought to create an open international economy to forestall another depression and contain Communism.

NEO-REALISM AND THREATS TO NCII

The last two decades have witnessed an unprecedented dependence of individuals, organisations and nation-states on ICT and its derivative applications. It has become an integral part of planning and strategy for organisations involved in any kind of business for effective management. Nation-states have developed their infrastructures such as transportation, communication systems, banking services, e-governance, energy generation and distribution, etc. with high dependence on IT infrastructure owned by both the government and the private sector. These infrastructures have become the core of the very functioning of a modern nation-state and any disruption or destruction of these could have adverse effects on the national security. The critical infrastructure shares the IT infrastructure and employs ICTs for various management and operational processes. This dependence of a nation-state on NCII for its day-to-day functioning and operations has emerged as a vulnerability.

The neo-realist paradigm, which designates a state as the core of international politics and regards international politics as being driven by national interest, could explain the emerging threats to NCII, the incapacitation of which would undermine the national security. Neo-realism attempts to explain the nature of international relations by separating the state level, which Kenneth Waltz defines as composed of units, as opposed to the systems level, which is composed of structures.⁵ As per the theory, states are differentiated from one another not by function but primarily by the capability to change, adopt, hold power, enhance trade and adapt to changes. The degree of dependence on NCII varies for different nation-

5. Suganami, Hidemi, "Understanding Man, the State, and War," *International Relations*, vol. 23, no. 3, 2009, pp. 372-388.

states depending upon their capability and capacity. The higher the degree of exposure to ICT, the more significant is the threat emanating from non-state actors as well as state sponsored actors which are targeting to exploit the vulnerabilities.

International Cooperation and NCIIs' Protection Dilemma

The underlying assumption of neo-realism designates states as seeking security and the international order renders states on their own for their survival. The ultimate state interest is in security and not power. As nation-states have realised the threats emanating from state and non-state actors to their critical information infrastructures, various security mechanisms are being devised to secure the existing systems and networks utilising technological means and growing security ties with like-minded nation-states.

As Robert Jervis points out, as anarchy and the security dilemma make cooperation seemingly impossible, nation-states face issues pertaining to the security of their national critical information infrastructures.⁶ The data and configurations pertaining to critical information infrastructures is sensitive and nations refrain from sharing these details even with entrusted partners. Furthermore, nation-states are always careful of the capabilities of their adversaries in cyber space, which leads to clandestine capability development and operations. In international politics, one state's gain in security often inadvertently threatens others. The security mechanism developed by a nation may not be accurately estimated by the others and may trigger a race to gain offensive cyber capabilities which would enable a nation-state to bring down the critical information infrastructures of the adversary in the present-day network-centric environment. The nation-states having greater dependence on ICT for the functioning of their critical infrastructures are developing defensive tools to avoid any attack against their infrastructures and are considering the option to develop offensive tools to deter an adversary nation-state from targeting their vital information

6. Jervis, Robert. "A Usable Past for the Future," *Diplomatic History*, vol 16, no. 1, 1992, pp. 76-84. <http://dh.oxfordjournals.org/content/16/1/76.extract>

infrastructures. While most nations are developing legal frameworks to address cyber issues domestically, there is lack of international laws for cyber related issues.

NCIIs IN THE CONTEXT OF NATIONAL SECURITY

India, through the IT Act, has defined NCIIs as infrastructures critical to national security, economic security, environment, public health/ safety and continuity of governance. There is, however no universally accepted definition of national security and the strategic community remains inconclusive on the concept. Perhaps it is a dynamic concept and presently includes factors such as environment security, economic security, energy security, food security, political security, military security, etc. In other words, national security would constitute the nation-state's ability to prevent its adversaries from using force to harm its citizens, their national interest or confidence in the capability of the nation-state, maintenance of territorial and political integrity while preserving the fundamental rights of its citizens. Needless to say, information security has become an integral part of the national security construct in modern times.

Dependence of NCIIs on ICTs

Traditionally, most infrastructures vital to national security are segregated physically and geographically as National Critical Infrastructures (NCIs). However, the advent of IT and information infrastructure that has enabled greater automation in operations and control systems, and networking of assets due to computerisation, has resulted in growing convergence of the NCIs. Consequently, the information infrastructure has emerged as one of the most critical NCIs largely due to an overarching dependence of all other NCIs on it as well as for communication, information exchange and commerce.⁷ While the concept of a global information infrastructure is still being deliberated, the National Information Infrastructure (NII) as defined in the Australian Defence Doctrine Publication means:

7. Peter S. Anderson, "Critical Information Infrastructure in the Information Age", in Robin Mansell, Rohan Samarajiva and Amy Mahan, eds., *Networking Knowledge for Information Societies: Institutions & Intervention* (The Netherlands: Delft University Press, 2002), p. 188.

More and more industrial processes and government functions are relying on ICTs, resulting in higher dependence and higher cyber vulnerability that adds up to the criticality of any infrastructure.

Comprising the nation-wide telecommunications networks, computers, databases and electronic systems; it includes the internet, the public switched networks, public and private networks, cable and wireless, and satellite communications. The NII includes the information resident in the networks and systems, the applications software that allows users to manipulate, organise and digest the information; the value added services; network standards and protocols; encryption processes; and, importantly, the people who create information, develop applications and services, conduct facilities and train others to utilise its potential.⁸

In how many different ways could the dependence on ICT impact the criticality of infrastructures which are geographically dispersed but are seamlessly interconnected through continuous flow of information exchange? There could be three major elements of ICT assets embedded in a critical infrastructure: firstly, the control systems that manage, regulate and command the behaviour of the systems and processes of any infrastructure; secondly, the Supervisory Control and Data Acquisition (SCADA) that collects the real time data samples, compares with standard data and displays it at a central location for monitoring and further achieving; and, finally, the active networking element of global technology such as routers, switches, hubs, modems and firewalls that enables and controls the flow of data on the various media such as Optical Fibre Cable (OFC), coaxial cable, Wi-Fi, satellite link, etc.

More and more industrial processes and government functions are relying on ICTs, resulting in higher dependence and higher cyber vulnerability that adds up to the criticality of any infrastructure. The

8. Gary Waters, Desmond Ball and Ian Dudgeon, *Australia and Cyber-Warfare* (Canberra: ANU Press, 2008), p.61, <http://epress.anu.edu.au/wp-content/uploads/2011/08/ch0420.pdf>. Accessed on November 15, 2015.

natural question that, thus, arises is: does everything that uses ICT in an industry/ business become critical? Obviously, all ICT that does not contribute to core business functions does not become critical. The systems that perform real time transfer of information for decision-making, control critical processes, offline systems that are critical to operations, autonomous control systems, and the information links between important cyber assets, including Local Area Network (LAN), Wide Area Network (WAN), radio links, Virtual Private Network (VPN), satellite link are critical. All these factors are required to be weighed and calculated based on criteria of their utility.

A systemic study on defence IT and communication infrastructure would bring out a comparative criticality score that could then be normalised and averaged to get a criticality score for further comparison with other NCII's.

For instance, if the utility of a particular IT asset is limited, the internal functioning of the infrastructure should be given less weightage than the IT asset whose utility is in the external functioning of the infrastructure and its interaction with other infrastructures, as it would be more vulnerable, and it would be more difficult to measure the impact of its failure. Such systems in the case of the defence sector would include real time online systems of decision-making communication grids, Air Defence (AD) communication networks, offline IT assets for mission planning, critical nodes between Command and Control (C2) centres and field units, data servers, Network Operation Centres (NOC), to name a few. A systemic study on defence IT and communication infrastructure would bring out a comparative criticality score that could then be normalised and averaged to get a criticality score for further comparison with other NCII's.

The critical elements of NII are defined by most nations as NCII. Section 70 of the IT (Amended) Act 2008 (Ministry of Information Technology, Government of India) defines NCII as the computer resource, the incapacitation or destruction of which shall have a debilitating impact

on the national security, economy, public health or safety.⁹ In other words critical information infrastructure may be defined as a cyber-based system essential to the minimum operations of the economy and government, whose incapacitation or destruction would have a debilitating impact on the national security and the economic and social welfare of the state.¹⁰ For India NCII include defence, banking finance, e-governance, chemical nuclear industry, space, energy and electricity, transportation, telecommunications, critical manufacturing, emergency and rescue services, law enforcement agencies, water supply, public health, sensitive government organisations, etc.¹¹

Interdependence of NCII and Government's Dilemma

In the context of critical infrastructures, interdependency may be defined as a bilateral relationship between two infrastructures through which the state of each infrastructure influences, or is correlated to, the state of the other; more generally put, two infrastructures are interdependent when each is dependent on the other.¹² The interdependence of various infrastructures compounds the vulnerabilities and severity of impact in case of disruption of any element. The more complex the networks are, the more obscure it becomes to assess the risk of failure and its cascading impact on other infrastructures. In such a scenario, legitimate governments are tasked to carve out a defence and protection strategy without having credible and sufficient knowledge of the critical infrastructures and information infrastructures that are critical to healthy functioning of interdependencies. While much of the NCII are spread beyond pure government entities, the challenge to government agencies lies in being able to identify, understand and analyse these interdependencies that are, at times, trans-border in nature and are interlinked through complex topologies. As information

9. Ministry of Law and Justice, Government of India, "The Information Technology (Amendment) Act, 2008", http://deity.gov.in/sites/upload_files/dit/files/downloads/itact2000/it_amendment_act2008.pdf

10. Presidential Decision Directive on Critical Infrastructure Protection, United States, May 22, 1998, <http://www.fas.org/irp/offdocs/pdd/pdd-63.htm>. Accessed on November 15, 2015.

11. Rinaldi, n.2, p. 14.

12. Ibid., p. 14.

infrastructure is weaved seamlessly through critical and non-critical infrastructures, segregation of critical ones is a painstaking task that requires the involvement of the owners and operators of these infrastructures in the process.¹³

Levels of Interdependencies

Interdependencies among these infrastructures may be seen broadly at five levels, namely: the hardware, the software, the information itself, the skinware (i.e. people) and the power supply.¹⁴ While the interdependencies at the hardware level reside in computers, sensors, transmission media such as OFC, land line cables and wireless media, the transmission towers and satellites, at the software level these are evident right from the protocols, firewalls, processes and encryption level. The information level interdependencies mean the shared databases, the voice, text, imageries, and facsimile forms of information in transit. Without power supply, none of the technological benefits can be realised. Some consider the Uninterrupted Power Supply (UPS) as a part of hardware but without mains supply, the UPS has a limited life. The most important of all the interdependent components of NCII today is at the skinware level. These constitute the people who are global citizens working for the development and maintenance of all information systems in a highly complex, distributed and interconnected way across systems, nations, sectors and entities.

For instance, the ownership and maintenance of NCII is shared by both the public and private sectors, thus, is subject to global competition and market forces to a certain extent. The majority of telecommunication service providers and Internet Service Providers (ISPs) for a nation today may be foreign multinational corporations using the Commercially Off The Shelf (COTS) hardware systems and software sourced from foreign Original Equipment Manufacturers (OEMs). The developers and work force for such systems may belong to any nation's private sector. Symantec Corporation,

13. "International Approaches to Critical Information Infrastructure Protection", <http://www.owasp.in/talks/international-approaches-to-critical-information-infrastructure-protection/>. Accessed on November 15, 2015.

14. Rinaldi, et. al., n.2, p.63.

in its study on Critical Infrastructure Protection in 2010 depicted CII as “business and industries whose importance is such that if their cyber networks were successfully breached and disabled, it could result in a threat to national security”¹⁵. The private corporations own a significant part of a nation’s critical infrastructure.¹⁵ While globalisation provides us with the ability of getting the best of products, services and manpower, it denies governments the sole ownership or control over the functioning of NCII. This raises the possibilities of covertly implanting of malware, back doors, Trojan horses by the adversaries for exploitation in critical times in future. This full spectrum interdependence of critical infrastructure on NCII coupled with their cross-border interconnectedness with other infrastructures, has given rise to new forms of vulnerabilities and threats, requiring a systemic perspective of security and resilience.

Perspectives of Interdependencies

There are challenges of coordinating the public and private sectors for equal levels of preparedness and training to respond to attacks. Interdependencies may be seen in at least four contexts:

- **Geographical:** Geographical interdependency occurs due to the spatial proximity of various elements of different infrastructures, with the possibility of a negative impact or disturbance on one, due to disruption in the other. For instance, a fire at the Indian Oil Corporation (IOC) dump will have a severe negative impact on a Bharat Sanchar Nigam Limited (BSNL) communication hub that is located in the close vicinity.
- **Physical:** Physical interdependency is a result of the dependence of one infrastructure on the material output of the other infrastructure. So it is an interdependence caused by a break in the supply chain. For instance, if coal supply to thermal power plants is disrupted due to disruption in the railways’ communication and control infrastructure, the power generation would be severely impacted, or vice-versa, if the railways are denied power supply, they may not be able to deliver coal to the thermal

15. Symantec 2010 Critical Infrastructure Protection Study, <http://www.slideshare.net/symantec/symantec-2010-critical-infrastructure-protection-study>. Accessed on November 15, 2015.

plants. In other words, whenever a physical output of one infrastructure is used as the input of the other infrastructure for its operation, there exists a physical interdependence.

- **Cyber:** Cyber interdependencies are the most challenging ones. They occur due to information links between infrastructures. When the information passed from one infrastructure makes the other infrastructure dependent on that information, it falls under the category of cyber interdependence. Because of exponential growth in networking efforts in India, the assessment of risk due to cyber interdependency is the most challenging task facing the security agencies.
- **Logical:** Logical interdependency exists due to the logical consequence of something happening to one infrastructure on the other where there is no other type of interdependency like geographical, physical or cyber. This may be understood by the analogy of how the performance of a big blue-chip corporation impacts the stock market indices of a nation. For example, on September 15, 2008, when the Lehman brothers filed for chapter 11 bankruptcy protection with the US Bankruptcy Court in New York, it resulted in the largest drop by points in a single day since the days following 9/11 (the Dow Jones closed down just over 500 points), sending shiver waves of an ensuing recession throughout the world.¹⁶ Furthermore, the infrastructures could be directly or indirectly connected to each other, with intersections being linear or complex among them. Thus, the complexity gives rise to a relative degree of dependencies among infrastructures.

Interdependencies and Failure Types

In order to calculate interdependencies based on geographical location, physical characteristics, cyber or logical, these could be segregated in a two-pronged approach of dependency, based on the type of relationship, namely, linear or complex. When this is extrapolated on the failure types in ascending order of severity such as dampening, distributed, cascading

16. MK Sharma, *Cyber Warfare: The Power of the Unseen* (New Delhi: KW Publishers Ltd, 2012), ch 1, p.35..

or escalating, it would give the required interdependency and failure impact scale. As is understandable, the failure could range from just the dampening effect on an infrastructure to a distributed impact on other interconnected infrastructures to a further severe cascading impact on several infrastructures as the second order or third order impact, and the impact could also be escalating in the physical domain with multi-sector disruptions in more severe cases.

Table 1: Interdependencies and Failure Types Weightage Matrix

	Geographical		Physical		Cyber		Logical	
	Linear	Complex	Linear	Complex	Linear	Complex	Linear	Complex
Dampening	1	2	3	4	5	6	7	8
Distributed	2	3	4	5	6	7	8	9
Cascading	3	4	5	6	7	8	9	10
Escalating	4	5	6	7	8	9	10	11

The proposed metrics tool is based on the comparative degree of the complexity of the relationship and relative difficulty in assessing the impact. IT assets are geographically well dispersed so are given least weightage. The cyber relationship of dependence is considered more complex than physical dependence and weighed accordingly. And logical dependence is given the highest weightage due to the high difficulty levels of assessing the impact of logical relationships. By the same premise, dampening, distributed, cascading and escalating effects have been weighed in an ascending order.

Criticality Analysis of NCII

As some would ask, while the defence sector is one of the NCII, does mundane information like about a troop’s game in the evening fall into the critical information category, thereby to be provided topmost protection? How does one decide what element of the whole infrastructure is more critical than the others? How does one go about assessing the comparative criticality of multiple NCII? The rationale behind criticality analysis is based on the argument that if everything is equally critical, then everything will be recovered at the same time, but the recovery time could be lengthier. Similarly, a criticality analysis yielding different levels of criticality will

yield varying recovery times, with the most important information assets being recovered first and the least important potentially last. The approach to NCII protection is multifaceted and should be bottom up, with individual organisations of NCII at the bottom and nodal government agencies at the top. The criticality analysis of the NCII has to begin at the organisational level, followed by the sector, and then the national level.

While it is amply clear that the concept of criticality is a complex function of multiple parameters, one of the many ways to evaluate the relative criticality within NCII could be through collecting and synthesising on all the defined criteria like redundancy, threshold MTTR (Mean Time To Restore), impact severity, probability, impact type, interdependency and IT dependency in order to arrive at relative rankings of criteria through a mathematical series of iterations.

For instance, at the **moment of failure** at a given time, the criticality of a particular infrastructure could be far higher than its perceived value. These factors are difficult to be taken into consideration. **Redundancy** play an important part in evaluating criticality: if the system has built-in redundancy, its disruption will not impact the process. In other words, a system without an alternative is both critical and vulnerable. **Mean Time To Restore (MTTR)** is the time required by any hardware/software to get repaired or human element to get restored functionalities. Thus, the higher the MTTR, the higher is the criticality of the infrastructure. This brings the issue of maintainability and training to the fore.

Similarly, the **degree of impact or severity** of any asset or service in the NCII will have a proportionate contribution to criticality. The impact of the severity could be allocated on the basis of percentage of population or service that would be affected if a particular asset is disrupted or made unavailable. Also, along with high severity, a higher **probability** of disruption or unavailability would make that asset more critical. This is akin to risk assessment where the chances of failure are combined with an estimation of the negative impact, and it requires highly specialised people to calculate this. These complex interrelations, established due to a multitude of logical, physical and electronic inter-connections through

Considering the vast scope of NCII protection, and keeping in view the threats and vulnerabilities, its protection is a strategic challenge requiring joint efforts from the government, the private sector and the economy at large.

which a vast amount of intricate feedback, and feed forward information travels among various elements of the infrastructures, create interdependencies. While the infrastructures that are increasingly cyber dependent would have a high degree of **cyber interdependence** within that system, on the other hand, infrastructures with a high degree of geographical and physical interdependence would have a higher impact on the other dependent infrastructures, thus, should be considered more critical. Furthermore, the impact type could be defined based on the

factors a nation considers while defining NCII, which are generally concerned with the impact on the health, security, economic or social well being of people.

MAPPING THE THREAT LANDSCAPE TO NCIIs

Analysis of Threat to NCIIs

The NCIIs constitute a wide array of assets and service, from information systems, to data and associated assets that facilitate, equipment and personnel. Considering the vast scope of NCII protection, and keeping in view the threats and vulnerabilities, its protection is a strategic challenge requiring joint efforts from the government, the private sector and the economy at large. The organisations (governmental and private) across the globe face attacks of varied nature on their systems and infrastructure, primarily for the following purposes:

- **Exploitation Purposes:** The case of Ghost Net was the first of its kind where the virus was used for economic and political espionage purposes. The virus was capable of identity theft and designed to target government IT systems.

- **Disruption Purposes:** The Denial of Service (DoS) and Distributed Denial of Service (DDoS) attacks or spams generated using botnets are mainly used to disrupt the services or functions and the legitimate users are denied access to the service. The malware Stuxnet was found to be targeting the disruption of the Iranian nuclear programme.
- **Destruction Purposes:** This scenario has not yet materialised (except for the Stuxnet attack on the nuclear facility of Iran at Natanz that destroyed the centrifuges by overspeeding the convertors) but, given the increasing pervasiveness of ICT in all critical infrastructures of nations, it cannot be ruled out in future conflicts. The attacks on infrastructure vary in terms of nature, capability and targeted system. A variety of attacks that could be launched include targeted scanning, probing and exploration of networks and IT infrastructure, large scale defacement and semantic attacks on websites, malicious code attacks (i.e. virus, worm, Trojans, botnets), identity theft attacks, large scale spoofing, DoS and DDoS attacks, Domain Name Server (DNS) attacks, application level attacks and router level attacks.
- The possible targets for such attacks would obviously constitute cyber assets such as sensitive and critical information infrastructure, infrastructure of data centres and network operation infrastructure, routers, switches, database and Domain Name Servers (DNS), web portals, and satellite network communication systems. Furthermore, the SCADA systems, centralised and distributed control systems of the organisation, database administration, individual users, including senior executives and officials would also be prime targets for such attacks by adversaries.

Fig 1: Cyber Attack Convergence***Attack Convergence***

The real threat to a system arises when the vulnerability, accessibility of the system and capability of the adversary to mount an attack converge (Fig 1). Vulnerability could be an identified weakness, an attack on which could be decisive. It could arise out of an inadequate security procedure or a weakness due to failure to follow proper security processes designed to prevent unauthorised access. The physical parts also become vulnerable such as the fibre optic cable or radio/microwave transmission towers. It may be a product of interdependence and complexity or a product of the time required to repair the infrastructure or reinstate operational availability/business continuity. Therefore, undoubtedly, the critical components that significantly affect functionality and require extended time to repair or replace become the preferred targets for adversaries. Towards achieving the attack capability, the accessibility by the adversary is mainly through breach of information assurance. The target could be either the elements of information assurance, the component of hardware or software, the information, the people who operate and maintain it or the power supply, or it may be a combination of all these.

Furthermore, cyber threats can be unintentional or intentional. Unintentional threats can be caused by software upgrades or maintenance procedures that inadvertently disrupt systems. Intentional threats include both targeted and untargeted attacks from a variety of sources, including

criminal groups, hackers, disgruntled employees, foreign nations engaged in espionage and information warfare, and terrorists.¹⁷ Nations use cyber tools as part of their information gathering and espionage activities. In addition, several nations are aggressively working to develop information warfare doctrines, programmes, and capabilities. Such capabilities enable a single entity to have a significant and serious impact by disrupting the supply, communications, and economic infrastructures that support military power—impacts that could affect the daily lives of citizens across the country. Terrorists seek to destroy, incapacitate, or exploit critical infrastructure in order to threaten national security, cause mass casualties, weaken the economy, and damage public morale and confidence.¹⁸

APPROACHES TO NCIIs PROTECTION

Defence-in-Depth Approach

The attack surface includes three primary constituents; network, software and skinware (human beings). The security architecture encompassing the in-depth architecture needs to address these interrelated considerations. While on the **networks attack surface**, the attack will often be delivered via a network (tunnels or network attacks), a **software attack surface**, with a primary focus on web applications, focusses on the union of the code, interfaces, services, protocols, and practices available to all users, with a strong focus on what is accessible to unauthenticated users. The **human attack surface** considers social engineering, errors, trusted insider, death and disease (human factor). Being able to clearly identify an organisation's attack surface is critically important to developing a threat vector-based defence-in-depth architecture. The techniques or best practices developed and adopted by an organisation to reduce the attack surface are: reduce the amount of running code, reduce access to entry points by untrusted

17. Gregory C. Wilshusen, "Cyber Security Challenges in Securing the Electricity Grid", United States Government Accountability Office (Testimony Before the Committee on Energy and Natural Resources, U.S. Senate), July 17, 2012, n. GAO-12-926T, p. 7, see <http://www.gao.gov/assets/600/592508.pdf>. Accessed on January 24, 2013.

18. *Ibid.*, p. 8.

users, reduce privilege to limit damage potential, anonymous code paths, reduce attack surface early; and measuring the attack surface. There are five primary architectural approaches to achieving defence-in-depth: uniform protection, protected enclaves, threat vector analysis, information-centric protection, and role-based access control.¹⁹

The process of infrastructure defence should first identify the assets to be protected, assign a priority to the identified assets so that the most critical assets from a business continuity perspective could be worked upon first. Later, the strategy employs brainstorming sessions to find out the possible and probable ways the threat could get access to the critical assets. The last exercise would be to figure out how to place controls on the vectors to prevent the threat from crossing the vulnerability. The adversary exploits the vulnerabilities and possesses a definitive motive which varies according to the actors such as national governments, terrorists, hactivists, industrial espionage, or organised crime. The medium adopted by the adversary is the threat vector which could vary from a mobile to a cloud or a portable memory drive or a human.

Multi-Layered Criticality Assessment Approach

The approach to protection of critical information infrastructures could be divided into three layers²⁰:

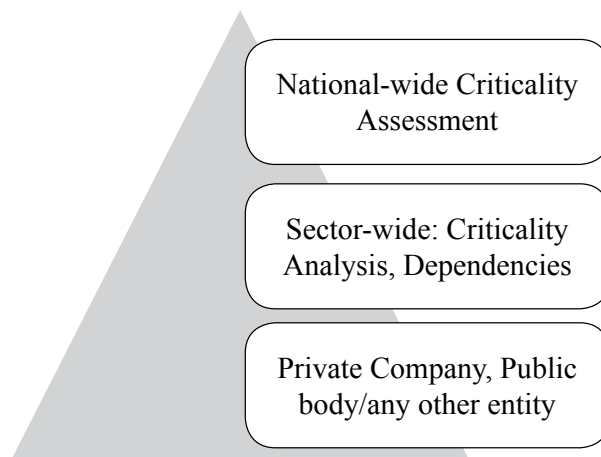
- **Layer 1:** The basic concern of any organisation (private company, public body or any other entity) is to protect its own business operations, ICT assets and systems, from security threats. This layer forms the base of the pyramid and the exercise is carried out in a comprehensive manner by all the organisations which are part of the critical infrastructure of a nation state.

19. Stephen Northcutt, "The Uniform Method of Protection to Achieve Defence-in-Depth", *SANS Technology Institute Security Laboratory*, February 26, 2007, see, <http://www.sans.edu/research/security-laboratory/article/367>. Accessed on July 23, 2012.

20. Marianthi Theoharidou, Panayiotis Kotzanikolaou and Dimitris Gritzalis, "A Multi-layer Criticality Assessment Methodology Based on Interdependencies", *Computers & Security (USA)*, 2010, pp. 12-14, see http://oplab.im.ntu.edu.tw/download/98/0615/20100615_A%20multi-layer%20Criticality%20Assessment%20methodology%20based%20on%20interdependencies.pdf. Accessed on July 25, 2012.

- **Layer 2:** The scope of a sector-wide criticality analysis involves all the organisations that are members of the sector. An identified individual sector is analysed in detail during a sector-wide criticality analysis and dependencies with other sectors are also examined. The data collected from Layer 1 is utilised to draw inferences for the Layer 2 sectors.
- **Layer 3:** This execution is carried out by a national body (e.g. a government) which is interested in protecting the entire critical infrastructure. A nationwide criticality assessment needs to analyse security threats that are outside the scope of a single sector, but which pose an impact for the whole society. The summation of criticality analysis at the national level is conducted at this layer.

Fig 2: Three-Tier Approach for Criticality Assessment



The bottom up approach begins with an individual organisation, and the data generated by the bottom layer is used as an input for the upper layer. The scope of different layers lies with different actors, with the government and policy institutions at the top. The policy measures flow from top to bottom. The adopted CII protection strategy and practices identified by the top layer percolate to the subordinate layers and the implementation takes place at the individual constituents level of the critical infrastructure protection architecture.

Identification of Critical Asset Elements

Assets are the key enabler in the functioning of an organisation. Some of the assets are critical to the key business functions and processes. While building a defence against failures and attacks, it is imperative to identify the critical assets. Given below are the critical asset elements and their description, which helps identify the critical assets²¹:

Table 2: Critical Asset Elements and Description

Critical Asset Elements	Description
Personnel	Staff, management, and executives necessary to plan, organise, acquire, deliver, support, and monitor mission-related services, information systems, and facilities. This may include groups and individuals external to the organisation who are involved in the fulfilment of the organisation’s mission. Security management personnel are also included.
Automated Information and Control Systems	All electronic and telecommunications equipment, hardware, and software (operating systems, communications, and application packages), counter-measures, and/or safeguards that are part of, or support, critical assets.
Non-Automated Information and Control Systems	All other systems, internal and external, that are part of or support critical assets (for example, paper archives, personnel and accounting procedures, publications).
Data	All data (in electronic and printed form) and other information that are part of, or support critical assets. These include numbers, characters, images, or other means of storing information in forms that can be: (1) assessed by a human; or (2) input into a computer, stored and processed there, or transmitted digitally.
Facilities and Equipment	All facilities and equipment that form part of, or support, critical assets, especially those that house and support Information Technology (IT) assets.

Best Practices as a Protection Strategy

If IT network management follows good practices, 85 percent of cyber

21. Critical Infrastructure Assurance Office of the US Department of Commerce, “Practices for Securing Critical Information Assets”, p. 19, see http://www.infragard.net/library/pdfs/securing_critical_assets.pdf. Accessed on July 25, 2012.

attacks may be prevented.²² Good practices have emerged as a prominent strategy to thwart attacks against IT networks and reduce the attack surface. The best practices could be moulded into six wide categories and further described as the following:

Table 3: Description of Best Practices as NCII Protection Strategy

Protection Strategies - Best Practices	Description
Redundancy	Operation centre Communication systems, lines Access possibilities
Degradation Modes	Alternative processes Separation of control areas
Collaboration	With public authorities Within sector (e.g. mutual assistance, facilities)
Tightened Access Control	Detailed, restrictive user access management concepts Application of special technologies (e.g. IRIS-Scan)
Early Warning	CERT - sector specific, national, regional, international networks specific security messages (e.g. validation of principles, alerts, warnings)
Training, Exercises	Complexity (communication, coordination) Extension (local, department, company) Sector specific (national, international) Frequency (planned, started, regularly, weekly, yearly)

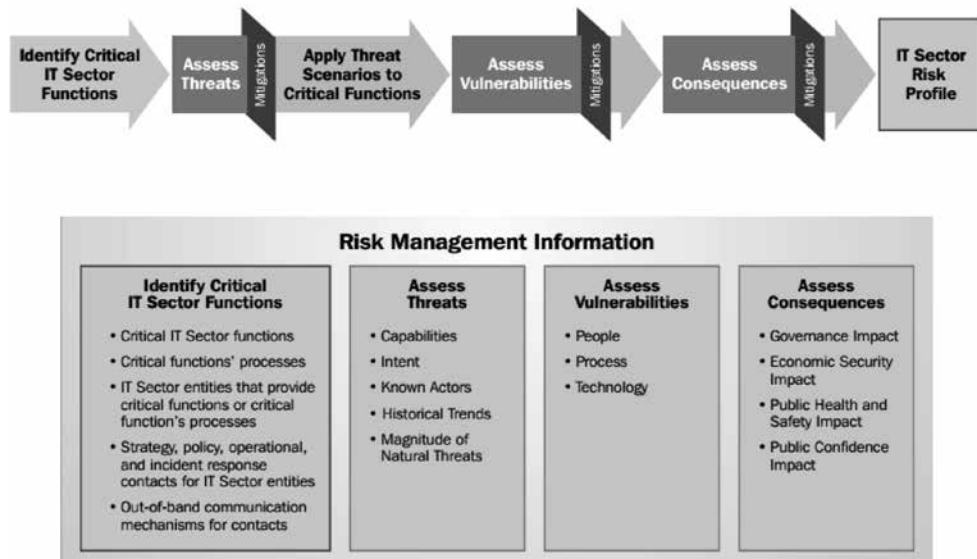
Crisis Management and Business Continuity Plan Approach

Risk is defined as the probability that a threat will cross vulnerability. Risk is hard to calculate, but a rough idea could be generated by considering the attack surface, the exposure, and the reachable and exploitable vulnerabilities. In other terms, risk is a functional analysis of the level of threat, the degree of vulnerability and the impact. Impact and threat are constant and beyond control, while vulnerability can be reduced. The means of risk reduction could be integrated in the network architecture such as firewall usage; network segregation; management controls, ranging from planning to risk assessment; operational controls,

22. "Senate Panel: 80 Percent of Cyber Attacks Preventable", see <http://www.wired.com/threatlevel/2009/11/cyber-attacks-preventable/>. Accessed on July 26, 2012.

for instance, personnel security, contingency planning, configuration management; technical controls, such as authentication, access control, systems and communication protection.

Fig 3: Risk Management and Assessment Process Flow and Information
(Source: U.S. Department of Homeland Security)



A crisis is defined as a significant threat to operations that can have negative consequences if not handled properly. In crisis management, the threat is the potential damage a crisis can inflict on an organisation, its stakeholders, and an industry. A crisis can create three related threats: public safety, financial loss, and reputation loss²³. A crisis management plan is designed to provide guidelines for a practical communications system that is adaptable for any crisis situation. It is part of an overall safety and emergency preparedness plan and a standard part of the overall strategic planning process.²⁴

23. "Crisis Management Plan", *e-Governance Bulletin from Gujarat Informatics Ltd.*, vol. 7, no. 7, 2010, pp. 1-5, see <http://www.gujaratinformatics.com/pdf/Crisis%20Management%20Plan.pdf>. Accessed on July 7, 2012.

24. "A Guide to Developing Crisis Management Plans", NTA's Market Development Council, March 2000, p. 1, see <http://www.ntaonline.com/includes/media/docs/crisis-mgm-plan-020703.pdf>. Accessed on July 26, 2012.

The business continuity planning is a proactive action plan to prevent or manage the consequences of a disruption, and mitigate the impacts on the core business functions. It could include all possible threats and catastrophic events of natural disasters such as floods / earthquakes as well as man-made acts of terrorism and sabotage. The effect of being closed for business, however temporarily, will cost the organisation monetary loss. The expense isn't limited to the immediate problem of restoring services or production – there's the lost time, ruined stock, ongoing costs of rebuilding confidence in the customer base and potentially amongst shareholders, plus the knock-on effects such as an increase in insurance premiums. A comprehensive business continuity plan covers the safety of data and information in the case of outages due to hardware or network failures. As the businesses are becoming heavily dependent on IT infrastructures, there is constant risk to continued availability, reliability, and recoverability of resources. The dependency on information processing and telecommunications for automated information systems can seriously impact the performance during disruptions, ranging from mild (e.g., short-term power outage, disk drive failure) to severe (e.g., equipment destruction, fire) from a variety of sources such as natural disasters to terrorists actions, and even cyber crime.

The crisis management plan for countering cyber attacks and cyber terrorism outlines a framework for dealing with cyber related incidents. The plan needs a coordinated, multi-disciplinary and broad approach for rapid identification, information exchange, swift response and remedial actions to mitigate and recover from malicious cyber related incidents impacting critical processes and assets.

A cyber related incident of national significance may take any form: an organised cyber attack, an uncontrolled activity such as a computer virus or worms or any malicious software code, a national disaster with significant cyber consequences, or other related incidents capable of causing extensive damage to critical infrastructure or key assets. Large scale cyber incidents may overwhelm corporate resources and services by disrupting the functioning of critical information systems and can have a cascading effect on other business institutions and the government. The strategy for

The organisations operating critical information infrastructure have been advised to implement information security management practices based on the International Standard ISO 27001.

crisis management at organisational level is divided into four stages:

Pre and Post-Incident Preparation

This phase involves establishing and training an incident response team and acquiring the necessary tools and resources for incident analysis and response.

- **Detection and Analysis:** Detection is necessary to alert the organisation whenever incidents occur. Identification of the attack type, scope and vectors and then implementation

of the appropriate controls to contain the attack and quarantine any compromised host is done during this phase.

- **Containment and Mitigation:** Strategies and procedures for containing the incident have to be predetermined to limit continued impact.
- **Post Incident Activity:** This phase would involve a follow-up for each incident, for technology upgrade, future use and to document lessons learnt. Also to create a formal chronology of events and create the monetary estimate of the amount of damage caused in terms of any loss of software and files, hardware damage, and staffing cost.

India’s Cyber Security Institutions: A Review: The Government of India has formulated a crisis management plan for countering cyber attacks and cyber terrorism for implementation by all ministries / departments of central government, state governments and their organisations and critical sectors. The organisations operating critical information infrastructure have been advised to implement information security management practices based on the International Standard ISO 27001.²⁵ Such practices are being adopted by information security agencies and governments across the globe, while being integrated with policy for CII protection.

25. Press Information Bureau, Government of India, “Crisis Management Plan for Cyber Attacks”, May 6, 2010, see <http://pib.nic.in/newsite/erelease.aspx?relid=61597>. Accessed on July 26, 2012.

India has elevated its response to protect the CII in the recent years. The legal framework to address the threats emanating from cyber space, especially cyber terrorism to the CII was developed in the amendment made in 2008 to the Information Technology (IT) Act, 2000. The response includes addressing the need to develop defence against, as well as to create an emergency response for, cyber attacks. Section 66F of the IT Act (Amendment), 2008, identifies cyber terrorism to be a threat to CII as it could be used to threaten the unity, integrity, security or sovereignty of India or to strike terror in the people or any section of the people. The computer resources might be used to conduct actions leading to the death of, or injuries to, persons, or damage to, or destruction of, property or damage or disruption of supplies or services essential to the life of the community or adversely affect the CII.²⁶ Section 70A of the Act designates an organisation of the government as the national nodal agency responsible for all measures including Research and Development (R&D) relating to protection of CII. This responsibility was given to the National Critical Information Infrastructure Protection Centre (NCIIPC), established under the aegis of the National Technical Research Organisation (NTRO) in December 2012.²⁷

In this role, the NCIIPC will have the responsibility of identifying threats in advance and monitoring the cyber space of the critical assets on a real-time basis. There is a division of responsibility between the NCIIPC and Indian Computer Emergency Response Team (CERT-IN). The NCIIPC will only look after absolutely critical sectors²⁸ that have a high threat perception

26. n.9.

27. Ibid., pp. 28-29.

28. These sectors have been identified as energy (power, coal, oil and natural gas), transportation (railways and civil aviation), banking and finance, telecom, defence, space, law enforcement and security.

coupled with greater dependence on ICT, while the other sectors will be with CERT-IN.²⁹ The mandatory requirement for critical sector organisations and ministries is to appoint a Chief Information Security Officer (CISO) as the point of contact for all interactions with the NCIIPC. The CII protection strategy of India is moving towards a collaborative model where the private sector is part of the initiatives taken by the government. In such a move, a joint working group with representatives of industry associations to bring out guidelines for the protection of critical information infrastructure in India is being set up by the NCIIPC.

TOWARDS DEVELOPING A STRATEGY OF PROPORTIONATE RESPONSE

Attribution: A Priori to Execute Proportionate Response

One of the most crucial elements towards development of proportionate response is the attribution capability of the nation. The severity of the response would depend on the degree of accuracy and surety that could be attributed to a cyber attack. For instance, even for a severe cyber attack, if the level of attribution is low, the authorities may choose a restricted response, though the capability for a full-fledged counter may exist. Alternately, in a similar scenario of low level of attribution, the authorities may choose a low value target for counter-attack to avoid escalation and international criticism whereas the incident may have been demanding a full scale counter-attack against a high value target. Furthermore, in some situations where there is no verifiable evidence for the source of the attack, the policy-makers might be forced to take no action. Such is the importance of the attribution capability in delivering a proportionate response. The next most important aspect for implementation of this strategy is analysis of the impact of a cyber attack on any NCII which has been dealt with in some detail earlier in the article. Also, one doesn't need to overemphasise the fact that the range of responses available to the government to exercise against a cyber attack are not limited to action in cyber space alone; they

29. Ibid., pp. 28-29.

could include anything from diplomatic arm-twisting, economic strangulation to a military strike, with their own associated risks, of course.

Primacy of Covert Operations

In most instances, the cyber response would be delivered by covert means but the more important question that remains is whether we have the payload developed and designed specifically for the designated target. Developing such custom cyber payloads entails prior understanding of the target and a lot of espionage to pinpoint

the security gaps in the target surface. It took years to develop the Stuxnet, based on a particular model number of the convertors manufactured by Siemens and then to develop the ability to write a code within the code in the programme of the SCADA system. The primacy of covertness also emanates from the fact that cyber weapons are not reusable, thus, an overt response may deny reuse of the weapon on other target surfaces, besides exposing nation-states to international condemnation. Also any kind of outsourcing of such cyber attacks through patriotic hackers or non-state actors comes at the cost of losing out on the command and control function in such responses, in case a state wants to exercise a strategic pause to allow a diplomatic solution to take place during the conflict. Therefore, decision-makers would like to retain C2 on all levers of power, including covert operations in the cyber domain. Towards this, we need to develop a response framework proportionate to the impact factor of a cyber attack on any NCII beforehand. While in the event of an actual attack, the response would be specific to the incident, the framework so developed would act as a basic guiding vector for the policy-makers to consider the response options of applying various levers of state power for various levels of cyber incident escalations at a glance.

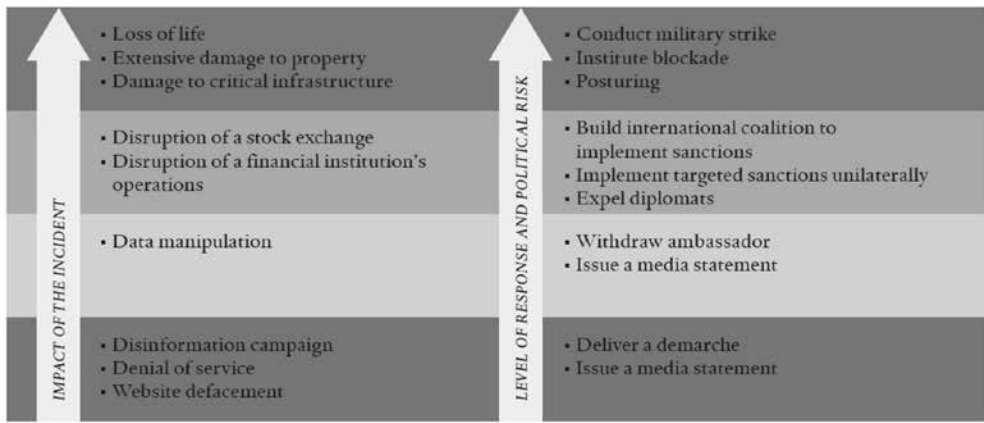
It is important to clarify that the proposed response matrix is more appropriate for tackling the state sponsored cyber attacks, and for the cyber disruptions or destruction perpetrated by individuals or cyber criminal groups not supported by the states, the law enforcement actions would be more appropriate.

Proportionate Response Framework

One such framework depicting different possible cyber incident impact and policy options based on the principle of proportionality, as proposed by Tobias Feakin,³⁰ is shown below in Fig 4. The range of cyber incidents in the ascending order of severity are plotted from simple website defacement at the bottom to loss of life at the top and against each of them are the possible levels of proportionate responses ranging from issuing a media statement at the bottom to a kinetic military response on the top of the spectrum. As is evident, there are inherent political and legal risks associated with each decision taken by the policy-makers as we go up the level of response options. At this juncture, it is important to clarify that the proposed response matrix is more appropriate for tackling the state sponsored cyber attacks, and for the cyber disruptions or destruction perpetrated by individuals or cyber criminal groups not supported by the states, the law enforcement actions would be more appropriate. This only reiterates the cruciality of developing a more matured attribution mechanism within our country.

30. Tobias Feakin, "Developing a Proportionate Response to a Cyber Incident", Australian Strategic Policy Institute, Council on Foreign Relations Press, Australia, August 2015, http://www.cfr.org/cybersecurity/developing-proportionate-response-cyber-incident/p36927?cid=nlc-publications-publications_quarterly-fall_2015-link32-20151109&sp_mid=50037808&sp_rid=Z29uZGVlemFAZ21haWwuY29tS0.

Fig 4: Proportionate Response Matrix to Escalating State-Sponsored Cyber Incidents



In Defence of Proportionate Response

Whenever a serious cyber attack is reported, there is always public pressure on the government to take a disproportionate retaliatory response to deter any future recurrence but good international relations wisdom suggests that the country take only a proportionate measure necessary to defeat / nullify any ensuing cyber attack or disruption. Such approach inherently arrests the escalation from the victim country's side, in terms of scale, scope, duration and intensity. In fact, proportionality of response is good old statecraft practised as a tool of maintaining international relations in all domains, be it expulsion of diplomats for skirmishes on the borders or imposing economic sanctions for more serious incidents. A proportionate response also gives a country the upper hand to garner international support to punish or isolate the attacking nation.

As depicted in Fig 6, while a simple web defacement may warrant only a public denouncement, for loss of data of an NCII through exfiltration by state sponsored cyber means, the proportionate response might even be up to expulsion of diplomats, if the disruption impacts the economy of the country. When the impact of a cyber incident is such that it affects the economy adversely, there is a range of proportionate response options,

When the impact of a cyber incident is such that it affects the economy adversely, there is a range of proportionate response options, including diplomatic pressure, freezing of financial transactions of the individual in the source country, and imposing international sanctions.

including diplomatic pressure, freezing of financial transactions of the individual in the source country, and imposing international sanctions. Military posturing or military action is envisaged as a proportionate response only when the cyber attack causes physical damage to the people and property of the nation.

The Limitations of the Proposed Framework

For such a framework to become more pragmatic, the criticality analysis of NCII would have to be more rigorous and objective. It demands involvement of the public and private stakeholders in NCII, from the operator level to the top decision-making level in the process of developing a more comprehensive response framework. On the one hand, the policy-makers would need inputs from the analysis of criticality in determining the adverse impact of a cyber incident on the functioning of a particular NCII and cascading impact on other NCII, and, on the other hand, they would have to weigh the impact of choosing a response option on international relations, on our standing, and on military operations in a highly dynamic and complex decision-making environment. It would demand continuous evaluation damage to our NCII by the cyber attack and also continuous evaluation of the risk associated with different response options. The proposed response matrix is but rudimentary at its best for deciding the course of action, however, it could certainly act as a initial point for broad reference in order to arrive at the best course of action as assessed in the light of many other factors presenting themselves during a crisis.

CONCLUSION

NCII are characterised by interdependence, interconnectedness, distributedness and complexity. Any kind of cyber disruption or attack

could lead to a cascading impact on other sectors and loss of sensitive and strategic data, thereby, jeopardising national security. While India has taken some remarkable steps at the national level in recent years, protection of the NCII is an arduous endeavour that demands simultaneous efforts at the individual organisation, sector, national, regional and international levels.

Not all the communication/network of an identified NCII, is equally critical, thus, it requires an objective analysis of the relative criticality of various elements based on mathematical modelling of the severity of impact by different types of attacks. Such differentiation would allow policy-makers the options of a proportionate response in a given situation. However, when undertaking criticality analysis of NCII, there would be constraints in the form of technical, practical and financial feasibility for both public and private stakeholders due to its inherent criss-cross spread among individual organisations cutting across industry sectors and eventually converging at the national level.

The criticality analysis should begin by identifying the parameters of criticality based upon different industry sectors which are part of the NCII. While Redundancy, Threshold Mean Time To Restore (MTTR), impact severity/degree, probability, impact type, interdependency, and ICT dependency are major indicators for analysis of criticality, two parameters, namely, impact severity and impact are considered to have high significance while computing criticality of an asset.

A defence-in-depth methodology needs to understand and analyse the interconnected, interrelated and highly interdependent nature of the Critical Infrastructure (CI) and the information infrastructure. The protection strategy then would have to address the technological, policy and legal dimensions. The emerging challenge before nation-states is to develop a deep understanding of implications of the policy framework and technological implementation as well as to find the right balance between offensive and defensive capabilities.

The strategy should be divided into three layers with a bottom-up approach which begins with an individual organisation. The data generated by the bottom layer is used as an input for the upper layer. The sector-wide

and national level protection strategy should be built at the middle and top layers respectively. The policy implementation should be a top-down process where the adopted NCII protection strategy and practices identified by the top layer percolate to the subordinate layers and the implementation would take place at the individual constituents of the critical infrastructure protection architecture.

Best practices should be an integral part of the strategy, followed with stringent implementation and verification mechanisms. This would reduce the attack surface significantly. The assessment of NCII threats and vulnerabilities, identification of critical processes and assets, adoption of best practices, adherence to guidelines and real-time response to cyber attacks on any of the NCII sectors will help India develop safe, secure and resilient information infrastructure for critical sectors of the nation.

LEADERSHIP CHALLENGES IN HUMANITARIAN ASSISTANCE AND DISASTER RELIEF

RAJESH ISSER

IMPORTANCE OF HUMANITARIAN ASSISTANCE AND DISASTER RELIEF (HADR)

A disaster is a serious disruption of the functioning of a society, causing widespread human, material, economic and environmental losses which exceed the ability of the affected society to cope with, using its own resources. In the 1980s, natural disasters increased from 100 to 150 per year. By 2000, the average was 392¹. With rising urbanisation and the information explosion, citizens all over the world demand rapid action which, in turn, demands surge capacities and specialisation that are available with the military. Sluggish responses by governments can be politically fatal. While the Oslo Guidelines of 1994 recommend the use of the military as a last resort, in practice, it is increasingly being used as the first responder². Logically, as an instrument of power and resources, countries must train, and learn to use, their militaries for all kinds of contingencies.

Air Vice Marshal **Rajesh Isser** AVSM VM, is Senior Officer-in-Charge Administration, HQ Central Air Command (CAC), India.

1. "The Human Cost of Natural Disasters-2015: A Global Perspective", Report of the Centre for Research on the Epidemiology of Disasters (CRED). Published by UNISDR- isdr@un.org.
2. "The Effectiveness of Foreign Military Assets in Natural Disaster Response", 2008 Report by the Stockholm International Peace Research Institute (SIPRI). www.sipri.org.

Leadership is prominent in all phases; however, it is a critical factor in the operational response phase. It is also in focus during this period, and open to critiques from all sides.

Humanitarian Assistance and Disaster Relief (HADR) is a wide domain encompassing not only saving lives, but also saving livelihoods, protection of civilians, risk-reduction, mitigation and post-recovery actions such as rehabilitation. Leadership is prominent in all phases; however, it is a critical factor in the operational response phase. It is also in focus during this period, and open to critiques from all sides. Good leadership is the ability to take a critical decisions for challenging missions in complex, fast-changing

and ill-defined environments. It includes complexity in relationships involving information exchange, influence and inspiring real people. And, therefore, it is not only structurally and scientifically based on logic, but is more of an art, based on some innate and some learned or experienced behaviours.

A disaster implies significant loss of life, suddenness of the event and widespread impact over society and geography. There is a large diversity of challenges awaiting the first responders. HADR is an umbrella under which the total effort from pre to post disaster is mounted. Their unique attributes such as mobility, quick response and standard design fits all possible conflict management, make the armed forces eminently suitable for disaster management. However, to address the core issue of timeliness, units need to be self-sustained, possess speed of deployment and flexibility of employment, and autonomy. In India, at least, time and again, the armed forces have been the primary and first responders in both major and minor disasters³. However, quite often, due to quick rotation of personnel and unit moves, transfer of knowledge and experience does not happen. The wheel is repeatedly rediscovered in most new disasters.

3³ Col OS Dagur, "Armed Forces in Disaster Management: A Perspective on Functional Aspects of Role, Training and Equipment", *Manekshaw Paper* No. 4, 2008 (New Delhi: KW Publishers Pvt Ltd, Centre for Land Warfare Studies).

COSTS AND OPPORTUNITIES

International concerns on humanitarian crises, natural or man-made, dominate the spectrum of small scale contingencies that occupy many of the armed forces of the world. In the developing world, natural and man-made disasters have taken centre-stage, not only due to the communication revolution which has raised awareness levels, but also because of the obvious impact of such contingencies on the economic and social development of countries. Therein is the importance of this issue as a diplomatic and engagement tool for nations that have the ability to

project power. The Indian armed forces have been regularly involved in disaster relief and response across the length and breadth of the country. The reasons are many: unmatched capability for airlift, logistics, planning large scale missions, Command, Control, Communications and intelligence (C3I) assets and organisation. There is an inherent strength to not only protect and support civilian activities but also enhance the humanitarian capacities of civilians in terms of timeliness. When the national and international civilian response is inadequate to meet the demands, military assistance becomes critical. This is especially true in the case of the underdeveloped countries. India too has had its share of military assets deployed for large-scale humanitarian missions abroad; some notable examples being Bangladesh in 1988 and 1991 when Indian Air Force (IAF) helicopters were deployed for cyclone and flood relief, and the Armenian earthquake where IAF IL-76s ferried in relief supplies, helicopters in Sri Lanka during the tsunami relief in 2005, and recently, a multitude of aircraft for the Nepal earthquake.

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Asia is one of the world's most disaster prone regions, and has 88 percent of the total people affected by natural disasters. The most flood prone countries of Asia form the rim around the Bay of Bengal, and the countries of West and Central Asia. Comparative assessments of the damage done by certain major disasters to the total Gross Domestic Product (GDP) of nations clearly brings out the magnitude of the social and economic implications. Countries around India suffer the most mainly due to heavy population pressure; poor social and economic status; lax laws and enforcement policy towards building norms, etc; climatic changes due to environmental damage; and mass urbanisation (unplanned).⁴ The point that comes across is that the region around India is most prone to natural disasters and susceptible to damage to its people and environment. This makes multinational HADR a powerful tool to mitigate the consequences of these disasters. Another interesting fact is that not only is the number of annual disasters going up but the region's share of complex emergencies is more than two-thirds. Small scale contingencies, including humanitarian assistance and disaster relief and peace-keeping ventures around the world are potentially very powerful influencing and diplomatic tools. India, emerging from the status of a regional power to a world player, needs to take note. Economic necessities would drive us to influence such contingencies across the world.

DISASTER MANAGEMENT: INDIA

With the enactment of the Disaster Management (DM) Act 2005, a paradigm change of focus took place in the way disasters are handled by the Indian state. Yet, the level of preparedness varies across the country. While the National Disaster Management Authority (NDMA) lays down national policies, plans and guidelines, the responsibility for administration and execution is with the state governments. The Centre aims to only augment or fill gaps in capacities through various means such as the National Disaster Response Force (NDRF), Central Armed Police Force (CAPF), armed forces, etc. The principle to be followed for military deployment is "the last to enter and first to leave", however, in many cases in India, the converse has been

4. "Measuring the Human and Economic Impact of Disasters", Commissioned Review- *Foresight*, Govt Office for Science, United Kingdom, URN 12/1295, Crown copyright 2013.

true. The scale of intervention by the Centre is dictated by the gravity and scale of the event, and the gaps in the capacities urgently required.

The orientation to disaster management has transformed from response and relief-centric to a holistic approach involving multi-agencies, and a focus on disaster risk reduction. The evolution of the NDMA, NDRF and National Institute of Disaster Management (NIDM) and their constant improvement in core functions is a good sign. The NDMA policy of 2009 states that the armed forces are to be brought in only when the coping capacity of the civilian authority is exhausted. The surge capacities of the armed forces are always asked for and the response has been prompt for both within and abroad. Training for Nuclear, Biological, Chemical (NBC) contingencies, helicopter-based operations, high-altitude rescue, watermanship and training of paramedics is undertaken by the armed forces all across the country. Their role in NBC disasters is critical. However, it is accepted by all that over-reliance on the military blunts initiative and self-reliance in the civil authorities.

A LOOK AT THE PAST

Some lessons and observations of past disasters broadly bring out the following:

- **First Responders:** The time sensitiveness of the effort required does not allow much time for reflection, elaborate planning, detailed analysis based on verifiable information flow, and smooth coordination among different agencies. It only brings in long hours, difficulties and stresses of various types for the participants.
- **Central Information Collection and Analysis:** The extremes between no information at the onset of a disaster, resulting in lack of situational awareness, to the deluge of inputs later that can easily overwhelm are a common feature. A nodal centre having good credibility with all agencies should be the first step in the response. Data management and effective dissemination comprise the backbone of any HADR mission.
- **Organisational Structure:** With a variety of players ranging from the military, civil administration and private players, Non-Governmental Organisations (NGOs), etc, it is important to create an informal/ formal

structure to coordinate resources, abilities and competencies of all the players. A strict military type hierarchical system is difficult to follow in such circumstances. A form of collective leadership seems to work the best.

- **Barriers to Actions:** A plethora of rules and bureaucratic templates often hampers creative solutions. The military and administrative leadership needs to have the power and experience levels to waive off barriers to effective action.
- **Prioritisations and Job Distribution:** The key to saving maximum lives and bringing succour is correct prioritisation of the relief effort, capabilities, equipment and material. This is a situation wherein there are multiple competing demands, a cacophony of vested interests, political undertones, etc. Each agency brings its unique competencies that need to be well understood and grasped by the leaders in order to optimise task allocation. Additionally, priorities change rapidly in a dynamic situation such as a disaster.
- **Decision-Making and Coordination:** The leadership of the broad overall organisational structure and all the agencies face the task of taking decisions that will achieve success while working in chaotic, physically challenging and insecure environments. The challenges of managing information, logistics, politics and human stresses are greatly demanding and are not for the faint-hearted. Consensus-building among agencies is another challenge requiring skills of another order.

TRENDS: INTERNATIONAL ORGANISATIONS

The consensus among major HADR players in 2015 is that empowering local communities and national responsible players is the most effective way, as evident in the recent Nepal earthquake. The long list of gaps in effectiveness and capability within international agencies can be bridged only by raising local capacities and resilience. Investments in local capacity development are the way forward for mega players⁵. What constitutes 'local' is a big question—local government, NGOs, community-based organisations are

5. "World Disasters Report 2015: Focus on Local Actors, the Key to Humanitarian Effectiveness", The International Federation of Red Cross and Red Crescent Societies (IFRC). Printed by Imprimerie Chirat, Lyon, France, ISBN: 978-92-9139-226-1, www.ifrc.org

all part of the set-up. Standards and quality control, with high levels of accountability, are issues that trouble large international players. Also, important is changing roles, depending on the phase of the disaster. While immediate responders are inevitably local, an overwhelmed society may initially require proactive outside help to tide over.

The monopolies of Western donors and organisations are being increasingly questioned by national authorities. In conflict scenarios, there are issues of agendas, neutrality and impartiality, overt or covert. Increasing local resilience, with high accountability, seems to be the trend for the future. The next major investment would be in partnerships and tie-ups for creating and training this capacity-building effort. Models of remote management of local bodies by donors are being experimented with all over the world in HADR situations.

A key enabler in this and much more in making HADR action effective is technology. Key areas are mobiles and the internet which are growing exponentially in poor states where the effects of disasters are the worst. Local volunteer technical groups are on the rise, with contextual innovation taking place everywhere. The flip side is the adverse effects of social media and SMS when used in negative ways to shape perceptions. This is a battle that the authorities would have to monitor and address in real-time.

MILITARY AND NGOs IN HADR

Worldwide there is now a trend to bilaterally or multilaterally use military forces to provide direct aid. As of now, wherever humanitarians have not gone or to make good the aid gap, the military forces have been widely used, with national consent. Sometimes, they have even been used without consent. There is a trend for countries that are perceived neutral in a region to move into the humanitarian area to earn goodwill and long-term relationships with countries of the region. With the information age, it is possible to influence positively the public at large through benevolent and well-managed aid in times of difficulty. In turn, national governments get influenced for a favourable response in other areas or agendas. Militaries bring an array of capacities to the humanitarian table. Sophisticated

While NGOs are extremely dependent on the military in high-conflict areas, they bring local and national expertise, networking, rapid deployment capacities and enduring commitment to the military.

equipment for search and rescue, delivery of life-sustaining aid, medical support and repair of vital infrastructure are just some of the tasks they can easily adapt to.⁶ They are fit physically and mentally to take on all kinds of challenges, can sustain themselves for long durations under the most difficult conditions, and have assets such as airlift, helicopters, Unmanned Aerial Vehicle (UAVs), communication equipment, transports, etc. Yet, this is not a core task that the military should take on for a long duration.

The golden hours of the response phase is when militaries should come in with a clear aim to exit once civilian capacities catch up for other phases.

There are more than 36,000 NGOs including the Local (LNGOs) and those with International Cover (INGOs). The UN listed 20,000 INGOs in 2014. When operating in the same area, region (or space), they actively compete with each other for donor funds, influence and operating space. The common themes running through NGOs is independent, diverse, flexible, grassroots focus with work in mainly humanitarian issues such as human rights, conflict resolution, civil society, etc. While NGOs are extremely dependent on the military in high-conflict areas, they bring local and national expertise, networking, rapid deployment capacities and enduring commitment to the military. They are there for the long-term and have far greater flexibility in dealing with all actors, including illegal organisations. However, treating NGOs as collection agents has its own ramification and dangers.⁷ Due to dependency on donor funding, NGOs are necessarily driven by donors and countries in terms of priorities, strategies, funding cycles and preference. Militaries have to be involved in humanitarian activities because the way to stabilisation and a final

6. "Guidelines on the Use of Military and Civil Defence Assets to Support United Nations Humanitarian Activities in Complex Emergencies", United Nations, March 2003, pp. 1-21.

7. "Peacebuilding and Linkages with Humanitarian Action: Key Emerging Trends and Challenges", OCHA Occasional Policy Briefing Series, No. 7, August 2011, Policy Development and Studies Branch (PDSB).

military exit is dependent on issues such as population health and conditions. This is seen as infringing on pure humanitarian agendas. Unless well exposed and trained, many cannot do justice to humanitarian work. Also, militaries expend too much of capacity on self-protection and security, and are too rigid and bureaucratic in their functioning, which is the opposite of the humanitarian ethos. Militaries can provide unprecedented surge capacities in logistics, transportation facilities and delivery in otherwise unapproachable areas.

Militaries have to understand the nuances of NGO work. These organisations and their functioning are different and they are fiercely protective about their independence in their work and their image.

Militaries have to understand the nuances of NGO work.⁸ These organisations and their functioning are different and they are fiercely protective about their independence in their work and their image. Their access to humanitarian funds and supplies is better and their experience in this sector makes them better at assessing needs. Even medical care is better in the long run since they are proficient in utilising local capacities. Their tapping of local capacities effectively allows them to outsource most activities to the community. They manage camps and refugee centres far better than the military can. Many NGOs in core sectors such as camp management and sanitation are extremely well trained and experienced. While military intelligence is superior in terms of satellites, analysis, drones, etc, the grassroots understanding of communities and situational awareness of NGOs may be better because of their closer involvement.⁹

INFORMATION TECHNOLOGY

Complex Environments: There were more than 2,000 different agencies operating in Haiti post the January 2010 earthquake that killed or injured more than 500,000 people. The primary reason why the Humanitarian

8. "National Disaster Management Guidelines: Role of NGOs in Disaster Management", National Disaster Management Authority, Government of India, December 2013.

9. "Civil-Military Operations". Joint Publication 3-57, September 11, 2013. Publication for Chairman of the Joint Chiefs of Staff, USA.

Information Management Exchange (HIME) went wrong initially was due to the absence of qualified senior leadership. Most agencies initially had no data-bank or analysis while local governments, NGOs and civil society were marginalised from HIME flows.¹⁰ Even within clusters, the framework was restrictive, hierarchical and too bureaucratic. Each cluster ought to have dedicated cluster coordinators, information management focal points and technical support capacity, which was missing. HIME is a principal source of situational awareness, crisis decision-making and coordination, and better communication, data collection and information management will lead to quality risk assessments and focussed preparedness.

HADR settings are extremely fluid with an influx of actors and an unregulated landscape, and with an unpredictable impact of interactions between them. There is a tendency to rely on the initial framework that gets established in the immediate response phase. Decision-making gets affected by two central factors: ambiguity and equivocality. Inevitably, there is both shortage and overload of information, but it is the absence of comprehensive, accurate and timely information that affects accurate analysis. In such environments, where sense-making is difficult, data and information become critical to avoid multiple frames of references of situational awareness which can compete with each other to create confusion on 'what to do'. Coordination frameworks vary between hierarchical and service (autonomous NGOs) models. Both have their pros and cons in terms of adaptability, timeliness of decisions and effectiveness. High quality information, data and analysis at sub-unit levels will boost responsiveness and coordination, and reduce ambiguity and equivocality.

Challenges to HIME in HADR mainly emanate from the nature of the setting—a need for urgent response in conditions of uncertainty and extremely temporal or short operational life-cycles. HIME ranges from data collection (damage, vulnerabilities, needs and capacities), information processing (data banks and resource allocation) and information sharing

10. "Disaster Relief 2.0 the Future of Information Sharing in Humanitarian Emergencies", Harvard Humanitarian Initiative. Washington, D.C. and Berkshire, UK. Report by the Harvard Humanitarian Initiative, the United Nations Foundation, the UN Office for the Coordination of Humanitarian Affairs (OCHA), and the Vodafone Foundation. 2011.

(networks). Unlike commercial environments, it is the nature of the disaster that dictates the specific configuration of networks. Quite obviously, in such settings of temporary nature and short life-cycles, the networks need is critical and of a specialised nature.

Information Technology (IT) solutions are available and evolving at a rapid pace for improving and sharing of situational awareness and the incident management process in HADR.¹¹ Information and analyses flow from responders to decision-makers and vice versa are crucial to effectiveness. Currently, no one single system is available that can meet the requirements of encompassing all activities of HADR; handling all the different data formats used in information exchange; functionality reliability; verifiable accountability of input givers; and standardisation of semantics, visualisation, integration of all sources, including those deployed on the scene. Traditionally, the 3-C model, i.e. Chaos, to be put under Control, by a Command structure, has dominated HADR scenarios. But this military approach by government authorities tended to ignore the most vital component of community capacities and resilience. Research has shown that this control and centralisation is counter-productive to the response capability of various actors, agencies and authorities. Alternately, a C-3 model has been suggested that relies on effective networking of all actors with minimal bureaucratic control. It is based on: Continuation of societal and institutional structures after a disaster; requirement of Coordination of different stakeholders; and, Critical cooperation of citizens. Essentially, it means a bottom-up approach with a focus on local ownership and participation. While the 3-C model has a good hierarchical command and control structure that works well in a predictable environment, the flexibility and decentralisation to handle turbulence that is unpredictable is afforded by the C-3 model.

A Common Operating Picture (COP) is a mix of geographical representation, along with a checklist that describes the response operation in detail. Unlike drawing outputs from a warehouse, the COP facilitates a trading zone where exchanges take place which include information,

11. Maereg Tafere, "Knowledge Management in the Humanitarian Sector: Challenges in Improving Decision-Making", Blog on March 12, 2014 at www.phap.org, Professionals in Humanitarian Assistance and Protection.

analyses, negotiations, agreements on diverse issues and alternative ideas – all in order to make better sense that leads to better coordination. The common sense-making and understanding leads to referent boundaries and lines that allow reasonable cooperation without completely compromising diverse perspectives. Adequate synchronisation takes place through compromises based on good Situational Awareness (SA) and understanding.¹²

Aid agencies are using mobile-based apps to access and analyse market data for sourcing relief supplies.¹³ This also helps in determining the supply levels that direct cash voucher programmes or physical movement of supplies by agencies. Health related updates for AIDS, malaria and others diseases are being sent as SMS on mobiles by all large agencies. The Red Cross in Sierra Leone uses an SMS system called Trilogy Emergency Relief Application which can reach 36,000 phones in less than one hour. Many national and state governments have incorporated mobile technology as early warning systems for impending calamities. Many agencies have made use of mobile messaging for cutting down time in distributing relief supplies. Cash programmes via mobiles are already in vogue. Urbanisation and its attendant problems in HADR can make multiple use of modern communication technology. Face-to-face meetings are possible between the affected and the aid giver which brings in accountability and transparency. But care is to be taken that technology does not act as a barrier to real human connections or does not get dehumanised. Real-time monitoring and crisis mapping bring in unimaginable situational awareness, but this must lead to better effectiveness and efficiencies.

LEADERSHIP ISSUES

A survey of aid workers in 2010 pointed to leadership and coordination as the most critical issues for effective HADR. An ALNAP (Active Learning Network for Accountability and Performance) study defined operational

12. "Relationships Matter: Humanitarian Assistance and Disaster Relief in Haiti", *Military Review*, May-June 2010, pp. 2-12, US Army.

13. "A Vision for the Humanitarian Use of Emerging Technology for Emerging Needs: Strengthening Urban Resilience", 2015 Report commissioned by American Red Cross and IFRC. Tech4Resilience.blogspot.com

leadership as: providing a clear vision; building consensus on objectives; and finding ways to realise them under great challenges.¹⁴ Leadership relates to working together whereas pure coordination is working in parallel. How can we incentivise leadership that is dynamic and takes well-judged risks in an environment where information will never be complete or reliable? Has the mountain of Standard Operating Procedures (SOPs), guidelines and standards curbed initiative and innovation? While competence can be achieved with mediocre bureaucratic leaders, excellence and results beyond the ordinary demand a far greater leader in thought and action. It is not that all procedural aspects are a waste—they are very much essential to the framework. Dynamic leaders should be able to look beyond the simple framework, generate visions and ideas, and grab any opportunity to make the mission more effective. Review of SOPs, guidelines and compliance requirements is a good place to start improving. People should be trained formally and by example on the benefits of well-judged risk taking. What is valued most by an organisation has the most telling effect on the culture that pervades. Successful organisations that are not risk-averse can be looked into for better practices followed.

HADR missions are complex, involving variables such as: life and death situations; pressure to act rapidly with less or unreliable information; poor security in the field; intense internal and media scrutiny; dissonance between short-term and long-term objectives; paucity of resources; and a great requirement for adaptability to novel circumstances. In an international environment, political overtones and the need to balance competition and collaboration add to the complexity. While the UN-led Humanitarian Country Teams (HCT) and the Cluster System are the beginnings of collaborative or shared leadership, it is still a tough call for the HCT or cluster leader to lead those who are under no obligation to be led. Inter-agency rivalries and agendas mean decisions may not necessarily be optimal or even correct. While single-agency leadership is relatively easier, inter-agency leadership requires talent of a very high order.¹⁵

14. Paul Knox Clarke, "Who's in Charge Here?" A Literature Review on Approaches to Leadership in Humanitarian Operations, 2013, *ALNAP*, London.

15. "Coordination to Save Lives", OCHA Policy Study Series, 2012.

Organisational leaders derive power from the position, formal mandates and job description. However, the meta-leader has a far less formalised and scripted framework which relies on effective influence based on personal credibility, negotiating skills and bringing value to the table for everyone.

While organisational change is slow and evolutionary, leaders who are agile and adaptive can lead flexible, resilient and quick changes required to respond to an emergency. But this meta-leadership is different from the usual meaning and is about an overarching vision and action that connects the work, purposes and agendas of different organisations. It is about creating guidance, momentum and direction across organisations that allows shared thinking, action and purpose in extremely demanding situations. This requires a capacity for effective networking, a distinct and fast mindset, and finesse in negotiating and

collaborating group activity. By influence, leaders should be able to not only connect and integrate diverse agencies, but be able to motivate them to effectively synergise. The goal is a seamless web of organisations, information, resources and people that can best detect, and respond to, a calamitous terrorist event and help recover to normalcy in the shortest time.

Understanding the Meta-Leader: Organisational leaders derive power from the position, formal mandates and job description. However, the meta-leader has a far less formalised and scripted framework which relies on effective influence based on personal credibility, negotiating skills and bringing value to the table for everyone. This is a difficult job and proposition because there may be little or no direct compensation to sharing culture, and even sacrifices of resources involved; and, it is difficult to put traditionally competing agencies that have deeply embedded antagonism and contest for control together in a collaborative box. In a regular organisation, a leader is in a comfort zone of conventions, established practices and vocabulary. Careers and credibility grow along a well-trodden path. The meta-leader does not have this luxury and operates in the space of others and works to make bridges between insiders and outsiders of organisations. He rises above narrow parochial and provincial

interests to indulge in true innovation, adaptability and flexibility of ideas and action. The effort may go unrewarded because it is outside traditional career advancement. Also, public scrutiny in such intense situations has a high risk of failure.¹⁶

The meta-leader is able to visualise the potential of a sum of efforts that far exceeds individual contribution and, with a frame of reference that is mostly out-of-the-box, he finds means to inspire, network, communicate and persuade broad participation. Not only does he understand individual differences and nuances acutely, he is able to make these characteristics of each organisation complement each other. The buy-in of this larger picture by all is the main job of the meta-leader. This requires an approach of multi-dimensional problem solving. The key questions that he poses at the start are about key stakeholders, their own interests and perspectives, division of tasks and responsibilities, prioritisation of objectives, constraints and end-goals that also satisfy all. He has to have exceptional analytical skills and creativity to synthesise disparate information into a coherent and acceptable message that others can be inspired to believe in¹⁷.

Leadership for Collaborative Inter-Agency Work: Fusing of the domains of the military and non-military (humanitarians) has sparked off a lively debate among those in the space of international humanitarian law. The complexity of the HADR space encompassing diverse issues such as protection of civilians, security of humanitarians, volatility of politics and players, requires a large range of expertise and capacities for effectiveness.¹⁸

The meta-leader is able to visualise the potential of a sum of efforts that far exceeds individual contribution and, with a frame of reference that is mostly out-of-the-box, he finds means to inspire, network, communicate and persuade broad participation.

16. Marcus, Dorn and Henderson, "Meta leadership and National Emergency Preparedness", Working Paper Centre for Public Leadership, Harvard University 2005.

17. Kelly Discount, "Adaptive Leadership Styles in Emergency Management", Presentation at 57th Annual Conference of International Association of Emergency Managers, November 2009. Florida, US.

18. Johan M. Berlin and Eric D. Carlström, "Collaboration Exercises: What Do They Contribute? – A Study of Learning and Usefulness", *Journal of Contingencies and Crisis Management*, vol 23, no 1, March 2015.

Some of these challenges are too big to counter without a shared vision and collaboration.

So far, this space has been dominated by individual leaders requiring exceptional qualities and the focus of agencies has been to develop and invest in them. With growing demands and specialisation complexities, the load on individual leaders has grown exponentially, requiring a culture of collectivism, participation and collegiality, as also collective accountability. Knowledge management and organisational learning through collaborative effort among agencies would play an important role in the future. But, in practice, this is easier said than achieved. Lack of trust, competition for funds and attention of the media create a climate that impacts effective collaboration and learning through collective action. In the HADR space, the term collaboration would be defined as, and would encompass, the following:

- A cooperative relationship between organisations that is not based on market or hierarchical control forces.
- Primarily based on negotiations and effective communication that result in synergy and greater output than the sum produced individually.
- Leadership in such activity gets value addition from the differences in culture, experience or skills.

Leadership in HADR is highly contextual i.e. the situation on the ground e.g. conflict, post-conflict, genocide, failing state, etc. Therefore, leadership may be dictated by expertise, domain-knowledge and skills, experience, needs of the team and situation and capacity to influence peer organisations rather than conferred as positional authority. In other words, leadership may be fluid and dictated by priority tasks, and, therefore, an activity that can be distributed, shared or collaborated. This is in contrast to what individual leaders aspire to, which can lead to disenchantment after some setbacks. The UN's integrated mission concept is based more on the individual leader e.g. SRSG [Senior Representative of the Secretary General (of the UN)], Humanitarian Country Team (HCT) leader, etc. This is seen by detractors as subordinating humanitarian priorities to political and military

objectives that require compromises with various actors. More importantly, it puts humanitarians at great risk.

Adaptive Leadership: Heroic leadership as a concept is premised on: a leader having all the answers or solutions; followers doing what they are asked to do by him; and, work of an urgent and risky nature, requiring high control. What is forgotten is that knowledgeable and evolved followers might resent the elite and closeted nature of decision-making by the leader and his small band of experts. In certain chaotic and complex environments, control may be illusory and inviting different perspectives and inputs may lead to a better order. Trust in people and the belief that motivation, creativity, commitment and skills exist at all levels in an organisation, permits useful participation¹⁹.

Adaptive leaders have curiosity that allows them to explore uncharted human potential and capacities, and then bend rules or SOPs to accommodate them. People tend to be more loyal or committed to plans or ideas that they participated in evolving rather than something imparted or thrust on them by outsiders. Good leaders understand this yearning in people to contribute and find meaning in their lives as a strength that needs to be built up. To do this, a leader becomes the facilitator or host for people to get together and collaborate. He provides an environment with due processes, resources, support, confidence and his own passionate involvement. He monitors and evaluates progress and defends his team from interference, impediments and other restrictive agendas. People at the higher echelons of a hierarchy would look at this type of engagement as a threat to power and control, leading to chaos. Bureaucratic means allow them to choose control over effectiveness. This vicious cycle of mistrust and insecurity leads to apathy and a couldn't-care-less attitude in the entire organisation. A leader not only needs to prove to others his commitment to a shared environment but to continually work towards building faith and belief in others in such a system. It is not about team members liking each other – it is about creative and vibrant interaction of diversity to generate ideas.

19. Margie Smith with Kim Scriven, "Leadership in Action: Leading Effectively in Humanitarian Operations". *ALNAP Study*, June 2011. ISBN- 9781907288371, Overseas Development Institute, London.

AREAS OF CONCERN

The hypothesis is that a fundamental element that contributes greatly to efficacy in HADR is leadership at various levels. This starts from first-responders, i.e. the community, right up to national leadership at the NDMA and central government. The problem is that while in most cases leadership is well identified and even defined, not much goes into formal training and exposure to hone the skills in leading various facets of an HADR mission. A number of research areas and questions need addressing. First, what are the deficiencies at various levels of HADR leadership in India? Second, identification of grey areas in the structural mechanism of disaster management, especially where leadership plays an important part in terms of coordination among various agencies. The third issue is identifying the challenges to the military leadership in HADR. What changes are required in training and orientation for military units? Finally, what are the challenges to Indian leaders when leading HADR teams abroad? Is there a need to have a coherent and comprehensive policy as part of a national agenda?

INDO-RUSSIAN ECONOMIC COOPERATION: THE NEED FOR A NEW VISION

CHANDRA REKHA

In the current global economic set up, India has stepped into the new millennium with noteworthy economic progress. The country has fast emerged as a pivot of all important economic and political developments due to its huge market base and international role. Economic development will be one of the key factors in determining India's national priorities and its strategic vision of playing an influential role in international affairs. The contemporary developments in international relations, and the economic sanctions on, and isolation of, Russia by the West, have caused deep and long lasting damage to the Russian economy. Though it has introduced economic measures to counter the stringent policies initiated by the West, Russia, aware of its weak economic position, is now looking for prospective markets that will not only help in the revival of its economy but also provide long-term market security. While many of the components in India-Russia relations have projected a success story, the same cannot be said while defining the economic ties as these fail to correspond with the commercial potential offered by both countries, despite enjoying a long history of strong bilateral engagements. In this context, this paper will analyse various factors responsible for the weak economic ties and the failure to capitalise on the economic potentials

Ms **Chandra Rekha** is Associate Fellow at the Centre for Air Power Studies, New Delhi.

The disintegration of the Soviet Union had serious ramifications on the relations between India and Russia, the successor state of the Soviet Union, as it not only led to a transition in the foreign policy approach but also in their respective economic policies.

offered by both India and Russia. It will also investigate the scope and future prospects for establishing strong economic ties between India and Russia that can enhance the relations in this sphere manifold.

HISTORICAL BACKGROUND

It is a firmly held opinion that the economic commonalities between India and Russia date back to even before India's independence, as socialism became the social and economic norm of India during its freedom struggle and continued to be so until the Soviet disintegration. Efforts to emulate some aspects of the Soviet economic system after India's independence were made by leaders like Nehru who introduced the 'Five-Year Plan' in his economic policies, followed by Indira Gandhi, who introduced the 42nd Amendment that incorporated the words 'socialist and secular' in the Preamble of the Indian Constitution. Since 1953, a long-term trade agreement was put in place between India and the erstwhile Union of Soviet Socialist Republics (USSR) as several agreements had been signed and the bilateral trade was conducted through a specific system of trade and commercial transaction called the Rupee Trade System based on annual plans and, thus, the payments were made in non-convertible currency.¹

The disintegration of the Soviet Union had serious ramifications on the relations between India and Russia, the successor state of the Soviet Union, as it not only led to a transition in the foreign policy approach but also in their respective economic policies. Russia transformed from a state controlled command economy to a market economy. By the same token, India too adopted 'Liberalisation, Globalisation and Privatisation' (LPG) in 1991. Through this policy, India remodelled its economy from a centralised economic system to economic liberalisation. The causes for India's transition during this period were: (a) unmanageable balance of payment crisis; and

1. Gulshan Sachdeva, "Reviving Economic Interests", *Frontline*, vol. 17, issue 21, October 14-27, 2000.

(b) high rate of inflation that was building up in the 1980s and climaxed in 1990-91.²

The implementation of pro-market reforms has had far-reaching implications for India's industrial structure and strengthening of its economic status in the international system. Significant sectors of the economy opened up for private participation too. Thus, the economic reforms undertaken by India have led to the development of the economy in the industrial, agricultural and service sectors, with high growth rates. Following its rapid and exponential economic growth, the Indian

market has since then been courted by international businesses.³ However, as for defining India-Russia economic relations, a large part of the 1990s constituted a period of difficult adjustments for both Indian and Russian businesses despite having vigorous economic and trade relations in the past.

The implementation of pro-market reforms has had far-reaching implications for India's industrial structure and strengthening of its economic status in the international system. Significant sectors of the economy opened up for private participation too.

Table 1: India-Russia Trade from 1993-94 to 1999-2000 (in million dollars)

	Total Exports to Russia	% Share in Total Exports	Total Imports from Russia	% Share in Total Imports
1993-94	648.60	2.92	256.89	1.10
1994-95	807.38	3.07	504.54	1.76
1995-96	1,048.55	3.29	857.53	2.33
1996-97	811.84	2.42	628.96	1.61
1997-98	954.12	2.72	679.02	1.63
1998-99	709.26	2.14	545.42	1.29
1999-00	952.60	2.53	618.23	1.31

Source: CMIE : Centre for Monitoring Indian Economy Pvt. Ltd.

- Charan D. Wadhva, "India Trying to Liberalise: Economic Reforms Since 1991", in J. Rolfe, ed., *Asia Pacific: A Region in Transition* (Honolulu: Asia-Pacific Centre for Security Studies), 2004, pp. 260-261.
- Parbati Sen Vyas, "India's Economic Relations with World's Major Powers", Ministry of External Affairs, August 27, 2014, <http://www.mea.gov.in/distinguished-lectures-detail.htm?126>. Accessed on December 21, 2014.

These economic transformations changed the very attributes and characteristics of foreign economic relations between the two countries.⁴ The argument presented in this regard was that lack of stability in the very nature of Indo-Russian trade relations coupled with the elimination of state monopoly over foreign trade were the major causes for the decline in the bilateral relations between the two countries in the post-Cold War era.

ECONOMIC RELATIONS IN THE POST-COLD WAR ERA

In the years preceding the break-up of the Soviet Union, due to the economic crisis, trade relations between New Delhi and Moscow witnessed a huge setback as the trade turnover declined by more than \$2 billion to a negligible amount of \$ 3,487 million. It is a firmly held opinion regarding the dismal performance that both India and Russia renegotiated the entire trade regime based on an agreement signed in 1993. According to the terms of the agreement, the rupee-rouble trade arrangement was terminated and all bilateral trade transactions were mandated to be conducted on hard currency basis. Alongside the economic crisis, currency convertibility further exacerbated the method of payment on countries like India that had conducted barter trade with the erstwhile Soviet Union.⁵ However, the settlement of the debt repayment issue between the two countries in 1995 provided a boost to bilateral trade, which increased to \$1,914 million. In the subsequent years, Indo-Russian trade witnessed difficulties, despite the relations enjoying a high-level of political proximity.⁶ During the year 1999, bilateral trade was worth only about \$ 1.5 billion, which accounted for only 2.5 percent of India's exports and about 1.3 percent of imports.⁷

Many observers argue that the paradigm shift in the economic system of both India and Russia led to major repercussions on the relations between the two countries. For instance, the defence trade between the two

4. Sachdeva, n.1.

5. Anupam Srivastava, "Indo-Russia Military Technical Cooperation: Implications for Southern Asia", *World Affairs*, vol. 161, no. 4, Spring 1999.

6. Arun Mohanty, "Indo-Russian Trade and Economic Cooperation: The Way Ahead", in Phunchok Stobdan, ed., *India-Russia Strategic Partnership: Common Perspectives* (New Delhi: Institute for Defence and Studies and Analysis), 2010, pp. 165-167.

7. Srivastava, n. 5.

countries had almost collapsed over the rupee versus rouble debate. In fact, a significant feature of Indo-Russian trade during the decade 1993-2003 was that nearly 80 per cent of Indian exports were financed through the debt repayment channel. This mode of transaction for Indian supplies delivered a serious blow to Indian exports to Russia.⁸

The relationship between India and Russia gained momentum with Putin's visit in 2000 which held out an opportunity to create a special bilateral economic relationship with the signing of the "Strategic Partnership between India and Russia." Realising the potential areas of trade growth that included defence, energy, nuclear, diamonds, pharmacy and science and technology, the two countries established annual summit meetings which fostered extensive collaboration and dynamism for economic development. Since 2000 onwards, investment cooperation between the two countries has increased and various initiatives and policy measures have been undertaken from time to time in order to promote trade and economic cooperation, though trade and economic ties continue to be much below their potential. According to Russian sources, the balance of trade between the two countries was more than \$3.5 billion in the year 2008 in favour of Russia. If one includes defence purchases, then the balance of trade would further heavily tilt in favour of Russia.⁹

In 2009, both sides set a target of US \$20 billion bilateral trade by 2015. In 2012, India became the third largest economy in the world in terms of purchasing power parity and its economic performance. After decades of failing to realise its full economic potential, India is now one of the world's fastest-growing large economies which comprises activity ranging from information technology to subsistence agriculture.¹⁰ Ironically, the economic relations failed to make any impact as the India-Russia bilateral trade in 2013 stood at just \$10.01 billion, out of which India's exports to Russia stood at \$3.1 billion (an increase of 1.7 percent over 2012) and India's

8. Mohanty, n. 6, p. 166.

9. Ibid., pp.165-167.

10. Department of Foreign Affairs and Trade, Australian Government, "India Country Brief", <http://www.dfat.gov.au/geo/india/pages/india-country-brief.aspx>. Accessed on November 23, 2014.

imports amounted to just \$7 billion (showing a decrease of 14 percent over 2012). Indian investments in Russia are estimated to be \$7 billion, the bulk of which is in the energy sector, while Russian investments in India are estimated to be of the order of \$3 billion, primarily in the telecommunications sector. Priority areas for expanding bilateral economic cooperation are pharmaceuticals, Information Technology (IT), steel, diamonds, aviation, fertilisers, infrastructure, heavy engineering and food products.¹¹

The denouement of the 15th annual summit held in New Delhi (2014) reflected the synergy between the two time-tested strategic partners. The conclave laid out the signing of 20 agreements between the two countries covering various sectors such as defence, nuclear cooperation, energy, trade and industry, infrastructure and Research and Development (R&D). Economic interaction other than in the defence and energy sectors between the two traditional partners continues to be a weak link. There is some progress in this area as, for the first time, more agreements were signed to boost cooperation between the private sectors and state-run companies. For instance, India's Essar group reached an agreement to import one million tonnes of crude oil and petroleum products from Russia's major oil giant Rosneft for the next decade.¹² Other areas of economic cooperation were also explored such as supply of rough diamonds in the next three years by Russia to India; fertilisers and pharmaceuticals were also identified as promising areas for increased cooperation. Both sides have set a target of \$30 billion worth trade turnover and \$30 billion investment in each other's country by the year 2025.¹³

Taking into account the developments in international relations, especially with regard to Russia's growing economic concerns amidst the sanction politics and India's geo-economic interests, it is important to investigate the future prospects in the economic relations between the two countries. As prospective economic states with similar economic goals,

11. Prakash Nanda, "Why Russia Still Matters", *Indian Defence Review*, December 11, 2014, www.indiandefencereview.com/news/why-russia-still-matters. Accessed on January 16, 2014.

12. Arun Kumar Mohanty, "Putin's Visit and India- Russia Summit", *Mainstream Weekly*, vol 52, no.1, December 13, 2014, <http://www.mainstreamweekly.net/article5397.html>. Accessed on January 18, 2015.

13. *Ibid.*

aiming for integration into the world economy, the areas of potential cooperation between these two countries need to be explored as there is also growing global economic competitiveness.¹⁴

TRADE AND INVESTMENT

The relations between the two states achieved a qualitative new character in the post-Cold War era but the economic ties between the two countries continue to pose a major challenge in the relations as bilateral trade is inadequate despite the robust partnership between them. Hence, for strengthening the bilateral ties further, the political leadership of both countries has repeatedly initiated measures to bolster the trade and economic cooperation.

The India-Russia Inter-Governmental Commission on Trade, Economic, Scientific, Technological and Cultural Cooperation (IRIGC-TEC) is the main institutional mechanism to review economic cooperation. It integrates seven working groups on trade and economic cooperation, modernisation and industrial cooperation, energy, investment projects, tourism and culture, science and technology, and communications and IT. Mechanisms such as the India–Russia Business Council (partnership between FICCI of India and CCI of Russia), India-Russia Trade, Investment and Technology Promotion Council (partnership between CII of India and RUIE of Russia), India–Russia Business Dialogue (partnership between CII of India and Russia’s Business Council for Cooperation with India) and India-Russia Chamber of Commerce (with focus on Small and Medium Enterprises—SMEs) supplement the efforts to build direct Business-to-Business (B2B) ties. In May 2014, the 5th India-Russia Business Dialogue was held within the framework of the annual St. Petersburg International Economic Forum (SPIEF), which is a leading international economic and business forum held

14. Sergei Lunev, “Russia-India Relations: The Significance of Subjective Factors”, The London School of Economics and Political Science, August 7 2013. This post comprises excerpts from an article that first appeared in Russia and India, in the magazine of Russia’s Business Council for Cooperation with India, on the St. Petersburg International Economic Forum 2013, <http://blogs.lse.ac.uk/indiaatlse/2013/08/07/russia-india-relations-the-significance-of-subjective-factors/>. Accessed on October 20, 2014.

India's exports to Russia contracted from 6.46 percent in 2013-14 to \$2.15 billion, while its imports from the country shrank from 7.85 percent to \$3.9 billion during the same year.

annually in Russia.¹⁵

As for export-import relations, the main items of traditional export from India are tea, ready-made garments, drugs and pharmaceuticals, coffee, tobacco, rice and leather goods. Recently, some non-traditional items like electronic goods have also shown strong growth. But there has been some negative growth in export items from India such as tea and coffee. Russia has been a key destination for Indian tea for decades. The reason for the sharp decline in tea export, for

instance, is that countries like Sri Lanka are cutting into India's share of the Russian tea market.¹⁶

One of the reasons for the decline in India's tea export to Russia is that, after the collapse of the Soviet Union, Russia began to switch to cheaper teas derived from various sources like Sri Lanka, Kenya and Vietnam that had made inroads into the Russian markets, in particular, Sri Lanka with its aggressive marketing and promotional efforts. Hence, it became the number one exporter of tea.¹⁷ Along with the impact of the economic crisis, Russia turned from a quality-led to a price-led import market.¹⁸ Other problems identified were collapse of the barter system (rupee-rouble trade), strong growth in domestic consumption in India, dismantling of the central purchase system, deterioration of the quality of exported tea from India, demand for cheap Indian teas in the Russian market, payment problems and diversion of export business to the European and Middle East markets.¹⁹

15. Embassy of India, Moscow, "Bilateral Relations: India-Russia Relations", 2014, <http://indianembassy.ru/index.php/bilateral-relations/bilateral-relations-india-russia>. Accessed on January 2015.

16. Mohanty, n.6. pp. 167-171.

17. Dadan Upadhyay, "Indian Tea Regains Popularity in Russia", *Russia and India Report*, December 4, 2014, http://in.rbth.com/economics/2013/12/04/indian_tea_regains_popularity_in_russia_31357.html. Accessed on February 12, 2015.

18. "Hot or Cold: Coffee and Tea in Central and Eastern Europe", *Tea and Coffee Trade Online*, vol.174, no.6, June/July 2001. Accessed on November 13, 2014

19. Ibid.

Table 2: Top Ten Commodities of Export from India to Russia in 2012
(Amount in US \$ million)

S.No.	Product	2011	2012	% increase/ decrease
1.	Pharmaceutical products	722.229	775.90	(+) 7.4
2.	Electrical machinery and equipment, parts thereof, audio recording equipment, etc.	476.295	489.08	(+) 2.62
3.	Articles of apparel and clothing accessories,	192.97	183.54	(-) 4.8
4.	Iron and steel	91.727	163.81	(+) 78.5
5.	Coffee, tea and spices	143.352	142.81	(-) 0.38
6.	Boilers, machinery, and mechanical appliances	136.618	141.91	(+) 3.74
7.	Miscellaneous edible products	121.033	103.942	(-) 14.1
8.	Tobacco and its industrial substitutes	110.151	97.31	(-) 11.6
9.	Organic chemicals	61.816	81.29	(+) 31.5
10.	Plastics and articles thereof	52.243	59.40	(+) 13.7
	Grand Total	27,864,84	30,341,456	(+) 9.15

Source: State Customs Committee, <http://indianembassy.ru/index.php/en/economic-cooperation/statistics>

Traditional imports from Russia include fertilisers, iron and steel, non-ferrous metals, newsprint, synthetic rubber and chemicals. In 2014, India imported coal, coke and briquettes, worth \$40 million, from Russia. There has also been strong growth in raw cotton, electronic goods and printed books.

Table 3: Top Ten Commodities of Export from Russia to India in 2012
(Amount in US \$ million)

S. No.	Product	2011	2012	% increase/ decrease
1.	Ships, boats, and floating	55.793	1683	+2917
2.	Fertilisers	779.286	1083.53	(+) 39.04

3.	Nuclear reactors, boilers, machinery and mechanical appliances, parts thereof	577.269	543.50	(-) 6
4.	Electrical machinery and equipment, parts thereof; audio recording equipment	490.624	530.84	(+) 8.2
5.	Iron and steel	377.723	501.80	(+) 32
6.	Optical, photographic, measuring, checking instruments, parts and accessories thereof	203.173	314.46	(+) 54
7.	Mineral fuel, mineral oils and products of their distillations	283.415	175.59	(-) 38%
8.	Paper and paper board, articles of paper pulp, etc	157.527	145.48	(-) 7
9.	Salt, sulphur, plastering materials, lime and cement	65,668	117.59	(+) 79
10.	Edible vegetables, certain roots and tubers	31.573	120.07	(+) 260
	Grand Total	6,079.836	7,915,553	(+) 30.1

Source: States Customs Committee, <http://indianembassy.ru/index.php/en/economic-cooperation/statistics>

Analysing the trade trends between India and Russia, it can be noted that one of the weak characteristics of the trade relations has been the narrow base of the trade basket. The composition of the Indian exports to Russia shows that agricultural products such as tea, coffee, rice, tobacco, spices, pharmaceutical products and textiles and accessories constitute nearly 80 percent of the exports. Similarly, metals, newsprint, chemicals and fertilisers dominate the Russian export basket to India.²⁰

Post- Soviet break-up, India-Russia trade turnover had drastically gone down from Rs.7,800 crore in 1990-91 to Rs.6,337 crore in 2001-02, a fall of 18.76 percent.²¹ India's exports to Russia contracted from 6.46 percent in 2013-14 to \$2.15 billion, while its imports from the country shrank from

20. Ibid.

21. Sachdeva, n.1.

7.85 percent to \$3.9 billion during the same year.²² The bilateral trade during the period January–December 2014 amounted to \$9.51 billion, with Indian exports amounting to \$3.17 billion and imports from Russia amounting to \$6.34 billion.²³ The trend has been mentioned in detail in Table 4 below.

Table 4: Bilateral Trade Figures for Last Ten Years

Year	India's Import from Russia	India's Export to Russia (in US\$ Billion)	Total Trade (in US\$ Billion)	Percentage Increase YOY
2004	1.55	0.63	2.18	(-)34.17
2005	2.31	0.78	3.09	41.78
2006	2.98	0.96	3.95	27.66
2007	4.01	1.30	5.32	34.51
2008	5.23	1.71	6.94	30.56
2009	5.93	1.52	7.46	7.4
2010	6.39	2.14	8.53	14.4
2011	6.09	2.79	8.89	4.19
2012	7.91	3.04	10.95	23.8
2013	7.01	3.10	10.11	-7.34
2014	6.34	3.17	9.51	- 5.6

Source: Embassy of India in Moscow, February 2015

Investment cooperation, on the other hand, is much needed for increasing bilateral economic relations between India and Russia despite the former's efforts of initiating 49 percent Foreign Direct Investment (FDI). The cumulative Indian investments in Russia for the period 2000-14 are estimated to be about \$8 billion which include Imperial Energy Tomsk; Volzhsky Abrasive Works Volgograd; 20 percent in Sakhalin-I, and

22. Asit Ranjan Mishra, "India Looks to Boost Exports to Russia", *LiveMint*, August 6, 2014. <http://www.livemint.com/Politics/FlgXRq2sxEhfolQrXZtaiL/India-looks-to-boost-exports-to-Russia.html>. Accessed on October 20 2014.

23. Embassy of India in Moscow, "Overview of India-Russia Economic Cooperation", February 2015, http://indianembassy.ru/index.php?option=com_content&view=article&id=705&Itemid=705&lang=en. Accessed on January 15, 2015.

Indian companies are quite active in the Russian market. The wide-ranging investment projects in Russia include 20 percent stake in the Sakhalin-1 oil and gas project and purchase of Imperial Energy Corporation PLC producing oil in the Tomsk region of Russia by ONGC Videsh Ltd (OVL).

Commercial Indo Bank. Russian investments in India total about \$4 billion, including Kamaz Vectra in Hosur; Shyam Sistema Telecom Ltd, Sberbank and VTB. In order to promote strong bilateral trade, both governments have undertaken initiatives in this direction, primarily through facilitating high-level government B2B contacts apart from the on-going investment process in strategic sectors in both countries. Investment cooperation has been envisaged in a few priority sectors such as hydrocarbons, power, coal, nuclear power, fertilisers, IT, pharmaceuticals, mineral and metallurgy, amongst others.²⁴

Indian companies are quite active in the Russian market. The wide-ranging investment projects in Russia include 20 percent stake in the Sakhalin-1 oil and gas project and purchase of Imperial Energy Corporation PLC producing oil in the Tomsk region of Russia by ONGC Videsh Ltd (OVL). ICICI Bank (the Indian multinational banking and financial services) has opened its subsidiary in Russia – ICICI Bank Eurasia. Furthermore, Tata Motors has established the assembly of its light-duty trucks at the Ural Auto Motor Plant and of its buses at the Volzhanin and Samotlor plants. Tata Tea is also implementing projects in the Russian food industry; Dr. Reddy's Laboratories Ltd and Lupin Ltd have formed a joint venture in the pharmaceutical sector; Berger Paints in paints production, etc. Carborundum Universal Ltd. (Murugappa Group) has purchased 84 percent stake in the Volzhsky Abrasives Plant in the Volgograd region. Other Indian companies, including OVL, GAIL (India) Ltd, Indian Oil Ltd (oil and gas sector), Coal India (coal mining), Reliance Industries Ltd (petrochemicals production), Tata Consultancy Services and Infosys (information technologies) are looking into investment

24. Ibid.

possibilities in the Russian economy.²⁵

AGRO-INDUSTRIAL SECTOR

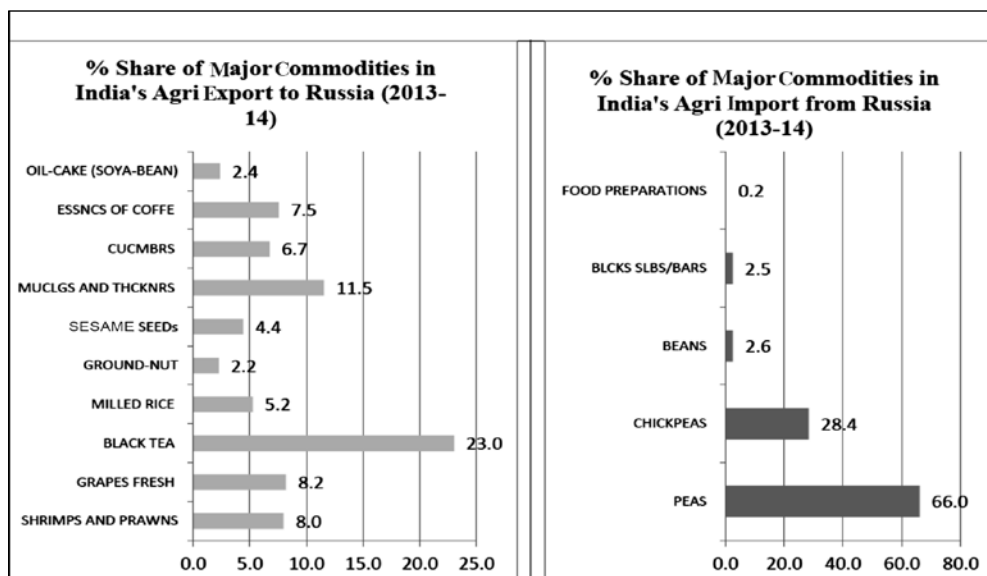
India has an established expertise in the agricultural sector which continues to be the predominant occupation of a majority of its population. Encouragingly, the aggregate agricultural production has increased exponentially in recent years. Therefore, bilateral cooperation in the agricultural sector might open up Russia's path to the widely acclaimed achievements of Indian agricultural science. In the year 2013-14, India's total export of agricultural commodities to Russia was US \$ 447.51 million. India's principal exports during this period include grapes, tea, rice, mucilage and thickeners, coffee concentrate, cucumber and preserved gherkins, etc. During the same period, India's agricultural imports from Russia were of the order of US \$ 93.17 million. India's principal imports were pulses and food preparations. Russia imports live plants, roses, and tomatoes, pepper of the genus capsicum, mangoes, pepper, coconut oil, sugar and cotton from other countries in the world. Russia can explore the possibility of sourcing these agricultural items from India. Sanitary Phytosanitary²⁶ (SPS) and other requirements in respect of these products can be sought from Russia.²⁷

25. Mikhail Rapota, "Trade and Investment Cooperation between Russia and India", *Russia and India Report*, August 10, 2010, http://in.rbth.com/articles/2010/08/10/trade_investment_cooperation_russia_india_04592.html. Accessed on January 15, 2015.

26. Sanitary and phytosanitary are measures to protect humans, animals, and plants from diseases, pests, or contaminants. The Agreement on the Application of Sanitary and Phytosanitary Measures (the SPS Agreement) entered into force with the establishment of the World Trade Organisation on January 1, 1995. "Sanitary and Phytosanitary Measures: An Introduction: Understanding the WTO Agreement on Sanitary and Phytosanitary Measures", World Trade Organisation, May 1998, https://www.wto.org/english/tratop_e/sps_e/spsund_e.htm. Accessed on February 16, 2015

27. "Brief on India's Agricultural Trade With Russia", <http://www.agricoop.nic.in/imagedefault/trade/Russia.pdf>. Accessed on February 20, 2015.

Fig 1: India and Russia % Share of Top Commodities in Agri Export and Import



Source: <http://www.agricoop.nic.in/>

Russia is keen on raising India's investment in its agro-industrial sector. India has to date retained high import duties for agricultural produce (the average duty on farm produce in the fiscal year 2010-11 stood at 33.2 percent, compared with import duties on other kinds of produce, which stood at 8.9 percent.²⁸

Meat Industry

The Indian meat industry production is estimated at 6.3 million tonnes and is ranked fifth in the world's meat production and accounts for nearly 3 percent of the total world meat production, with a total of 220 million tonnes. The contribution of cattle, sheep, goats, pork and poultry is 31 percent, 5 percent, 10 percent, 10 percent and 11 percent respectively. Unfortunately, this sector has failed to expand its export market to Russia as it has received inadequate

28. "Postulates on Russia- India Relations", Working Paper, Russia International Affairs Council, Moscow 2013. Accessed on February 20, 2015.

attention by entrepreneurs, policy-makers, scientists and the government at large. Another major cause of concern is the unhygienic meat produced for the domestic market and the complaint has often been that the industry has not yet been exposed to modern technologies for its domestic market.²⁹

Russia is a major importer of meat, importing about one quarter of all meat consumed in the country. The stimulation of the private sector, given ample incentives and privileges by both governments, is an essential part of revitalising the strategic relationship. While helping Russia overcome its resource-based economic disability by spurring on other sectors like trade and technology, India can solve its own problems, such as feeding its energy deficiency and advancing in science with the help of Russian technological knowhow.³⁰

Dairy Industry

The dairy industry of India is a fast growing sector and is popularly known as 'the Oyster'. Compared to the US' 63 cents and Japan's \$2.8 dollars, India currently has the lowest cost per litre of milk in the world that stands at 27 cents. The advantage of the lowest cost of milk production gives India an immense opportunity for profitable overseas ventures as multinational companies are planning to expand their activities in India. Additionally, some of these milk producers have already obtained quality standard certificates from the authorities. This will help them in marketing their products in foreign countries in processed form. While world milk production declined by 2 per cent in the last three years, according to the Food and Agriculture Organisation (FAO) estimates, Indian production, on the other hand, showed an increase of 4 per cent. The milk production in India accounts for more than 13 per cent of the total world output and 57 percent of Asia's total production. The top five milk producing nations in the world are India, the USA, Russia, Germany and France.³¹

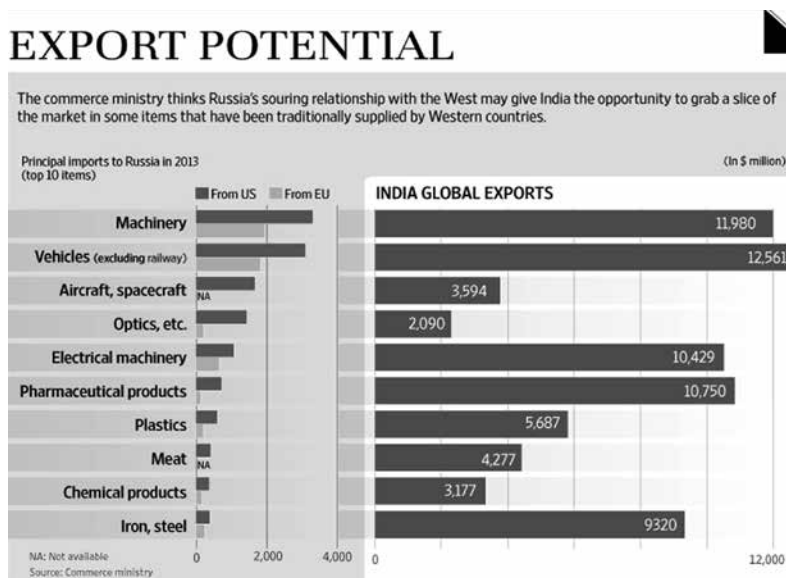
29. n.27.

30. Katherine Foshko Tsan, "Re-Energizing the Indian-Russian Relationship: Opportunities and Challenges for the 21st Century", *Jindal Journal of International Affairs*, vol 2, issue 1, August 2012, p. 1.

31. "Indian Dairy Industry- A Profile", <http://www.aavinmilk.com/dairyprofile.html>. Accessed on March 11, 2015.

Given the fact that India is the world’s largest producer of milk at the lowest cost, a top exporter of meat and seafood products, the export market to Russia continues to be dormant. The ban has provided a wider scope for the Indian agro- trade industry like the dairy sector; for instance, Amul, became the first Indian dairy company to enter the Russian market.³² As Russia is a milk deficit country, Galactica Group, which has about 3 percent share in the Russian dairy market and ranks among five largest dairy manufacturers in the country, is a part of FoodLine Holding, one of Russia’s largest distributors of milk products and components. FoodLine Holding is likely to become the distributor of Amul products, including Amul milk powder and some cheese items, in the Russian market. The powdered milk will be sold to the dairy products manufacturers across Russia.³³

Fig 2



Source: <http://www.livemint.com/r/LiveMint/Period1/2014/08/07/Photos/g-Russian-import-web.jpg>

32. "Russia to Increase Imports of Vegetables, Meat and Dairy Products from India Soon", *APEDA Agri- Exchange*, December 10, 2014, <http://agriexchange.apeda.gov.in/news/Newssearch.aspx?newsid=18649&Date=10Dec2014#>. Accessed on April 11, 2015.
33. Alexandra Katz, "Russia's Galactica Keen to Partner with Amul", *Russia and India Report*, September 12, 2014, http://in.rbth.com/economics/2014/09/12/russias_galactica_keen_to_partner_with_amul_38237.html. Accessed on May 23, 2015.

The Commerce Ministry of India has also chalked out a strategy to boost its exports of around 24 items to Russia. Items identified by the ministry include machinery, vehicles, aircraft and spacecraft, optics, electrical machinery, pharmaceuticals, plastics and meat.³⁴ Russia is expected to increase imports of fruits, vegetables, meat and dairy products from India starting December 2014 under an agreement reached between Russia's phytosanitary watchdog Rosselkhoznadzor and India's Agricultural and Processed Food Products Export Development Authority (APEDA).³⁵

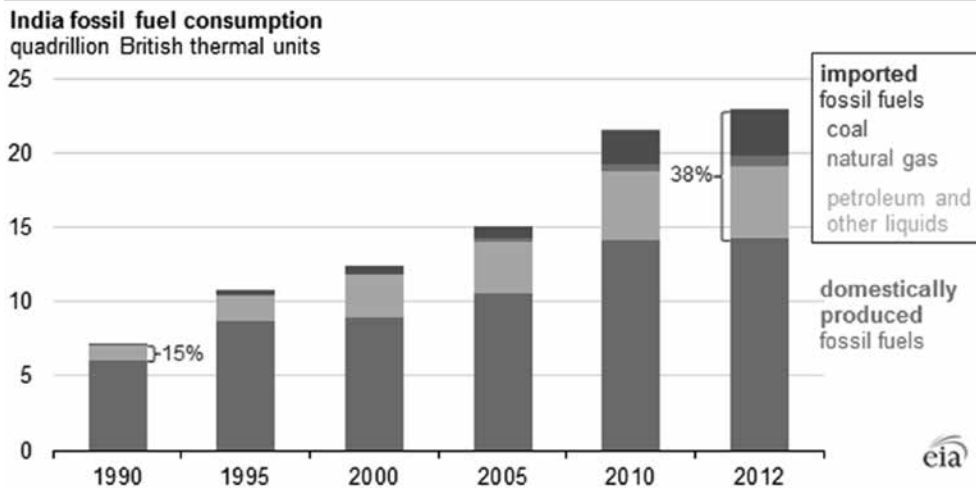
ENERGY

The energy sector remains the prime interest for emerging countries like India and China which are hugely dependent on this market. As energy ranks among the most important interests in attaining economic aspirations through financial security and infrastructural development, India falls in the category of energy dependent countries like China which is unable to fulfil its growing energy demands. In order for India to sustain its growth in the global economic system, it has to find viable options to quench its growing energy demands through a dependable energy supply market. While the Gulf is an important supplier region in this respect, Russia, a major energy market and net oil exporter, is keen on tapping into countries like India which have huge energy demands. More importantly, the Gulf region is a volatile territory that is frequently under siege by Islamist extremism. Hence, in order to achieve security of energy supply, India should diversify its energy supply markets and Russia being the most reliable partner of India, the two countries should develop closer cooperation in this sector.

34. "India Looks to Boost Exports to Russia", August 7, 2014, <http://www.eximbites.com/news/india-looks-to-boost-exports-to-russia>. Accessed on September 20, 2014.

35. "Russia to Increase Imports of Vegetables, Meat and Dairy Products from India Soon", *Indian Trade Portal*, 2014 <http://www.indiantradeportal.in/vs.jsp?lang=0&id=0,10,567>. Accessed on October 26, 2014.

Fig 3



Source: U.S. Energy Information Administration, International Energy Statistics

The enterprises built in cooperation with the Soviet Union contributed nearly 80 percent of India’s production of metallurgical equipment and hydraulic turbines for power stations, around 50 percent of its oil production, 30 percent of oil processing, 30 percent of the country’s steel output and a substantial part of its power generation. Russia can play a crucial role in mitigating India’s energy needs as India in the past has invested nearly \$1.7 billion in the Sakhalin energy project from where the first oil shipment reached the country.³⁶ In 2011, India had sought a stake of at least 20 percent in the Sakhalin-3 project of oil and gas fields as Petronet Liquefied Natural Gas (LNG), the nation’s largest LNG importer, was in talks with Russia’s Gazprom to jointly develop projects for production of LNG, and marketing and transportation of gas.³⁷

India is also seriously considering taking part in the development of the Kovytko gas field and has a keen interest in investing in the East Siberian oil and gas fields. The Russian gas giant Gazprom has entered into a strategic cooperation agreement with the Gas Authority of India Ltd (GAIL) and

36. Mohanty, n.6.

37. “India Seeks Stake at Sakhalin-3”, *The Hindu*, December 8, 2011, <http://www.thehindu.com/business/india-seeks-stake-in-sakhalin3/article2695712.ece>. Accessed on March 13, 2014.

has signed a Memorandum of Understanding (MoU) with Oil and Natural Gas Corporation (ONGC) Videsh Ltd (OVL) for projects to supply gas and hydrocarbons. Gazprom and Zarubezhneftgaz are working jointly with GAIL on exploration and drilling operations in the Bay of Bengal. Russia's Lukoil and Indian Oil Corporation (IOC) have signed an agreement for annual supplies of 15 million tonnes of oil and petroleum products to India. Lukoil and OVL are also engaged in talks for cooperation. Reliance has shown interest in investing in the Russian energy sector.³⁸

India, which is among the world's largest energy consumers, will be keen to have access to the Russian energy resource, thereby reducing its dependence on the highly volatile Middle East. Lack of direct road, rail and sea links is one of the biggest hurdles in India's economic interaction with Central Asia and beyond. Hence, the pursuit of energy sufficiency can be achieved only if both countries take rigorous measures to secure transport routes in these regions among India, the Central Asian Republics and Iran. The transport route suggested is the Mumbai-Chahbahar-Zaranj-Dilaram-Herat-Naibabad-Khairaton-Termez route as well as the Mumbai-Bander-Abbas-Mashhad- Turkmenabad-Bukhara route.³⁹

During the 2014 annual summit, both Russia and India agreed in principle for long-term crude oil exports from Russia to India. It was a booster dose for Russia by signing a raft of pacts worth \$ 10 billion that would allow India's Essar group to import one million tonnes of crude oil and petroleum products from Russia's major oil giant Rosneft for over a decade. In addition, India is a fast growing economy but faces a formidable challenge in meeting its energy needs. In order to sustain its economic growth at a rate of 8-10 percent over the next 25 years and meet its human and national development, it has to not only increase its primary energy supply but also establish long-term sources of energy supply markets.

As it is one of the vital strategic priorities, India has to take its bilateral relations with Russia to the next level alongside its complementary relations with the Central Asian Republics and Iran, which also possess

38 Mohanty, n.6.

39. Nanda, n.11.

As it is one of the vital strategic priorities, India has to take its bilateral relations with Russia to the next level alongside its complementary relations with the Central Asian Republics and Iran, which also possess rich hydrocarbon reserves.

rich hydrocarbon reserves. It is high time that India and Russia finalise the construction of what is called the daddy of all pipelines that will transport gas from Russia across the Himalayas via China to India. At a projected cost of \$30 billion, the pipeline, when constructed, will enable Russia to sell its energy to Asia by lessening its dependence on the Western markets.⁴⁰

NUCLEAR COOPERATION

The case of the India-Russia energy cooperation, including nuclear energy cooperation, is an elaborate saga. Russia is a significant contributor to India's energy mix, and the potential of cooperation is definitely huge. The negotiations for building nuclear reactors had started during the Soviet era in 1988. The Soviet collapse brought a pause to the negotiations due to external pressure, and the initial fragility in the post-Cold War relations contributed to the slow pace. The Nuclear Suppliers Group (NSG) pact in 1992 had complicated the scenario but the relations revived soon thereafter. The Russian Minister of Atomic Energy signed a deal in New Delhi in 1998 to build two nuclear reactors at Kudankulam.⁴¹

Russia is a steady partner in India's peaceful exploration of nuclear energy. In India's nuclear odyssey, it recognises Russia as a country with advanced nuclear technology and an impeccable non-proliferation record. Construction of the Kudankulam Nuclear Power Plant (KKNPP) Units 1 & 2 (VVER 1,000 MW units) is an example of fruitful cooperation between India and Russia. The KKNPP Unit 1 became operational in July 2013, and attained full generation capacity on June 7, 2014, while its Unit 2 is at an

40. Ibid.

41. Debidatta Aurobinda Mahapatra, "India-Russia Nuclear Ties on an Upswing", *Russia and India Report*, March 12, 2015, http://in.rbth.com/economics/2015/03/12/india-russia_nuclear_ties_on_an_upswing_41935.html. Accessed on February 27, 2015.

advanced stage of construction.⁴²In January 2014, the testing programme was successfully completed at a power setting of 50 percent.⁴³ During President Putin's visit to India for the 15th annual summit, he expressed satisfaction at the level of nuclear cooperation,⁴⁴ and to further expand cooperation in this sector, Russia has agreed to construct 12 more nuclear plants in India.⁴⁵

DIAMOND INDUSTRY

The gem and jewellery industry is a foreign exchange earner for the Indian economy, with gold jewellery and diamonds comprising a primary segment of the economy. It contributes to nearly 6-7 percent of India's GDP. Currently, India is the world's largest diamond processing (cutting and polishing) country with around 1 million processors treating over 57 percent of the world's rough diamonds by worth. As one of the fastest growing sectors, it is extremely export oriented and labour intensive. Exports from the industry amounted to US\$ 17.1 billion in 2006-07 against US\$ 16.64 billion in 2005-06, reflecting a growth of 26 percent and accounting for nearly 64 percent of the total exports. The export of the cut and polished diamond segment amounts to US\$ 10.90 billion, while the export of gold jewellery yielded US\$ 5.21 billion last year (2014).⁴⁶

The Government of India has declared the sector as a focus area for export promotion based on its potential for growth and value addition. The government has recently undertaken various measures to promote investments and to upgrade technology and skills to promote brand India in

Russia is a steady partner in India's peaceful exploration of nuclear energy. In India's nuclear odyssey, it recognises Russia as a country with advanced nuclear technology and an impeccable non-proliferation record.

42. Upadhyay, n.17.

43. Andrei Retinger, "Why Electricity from Russian Nuclear Power Plants is Cheaper?" Russia and India Report, February 27, 2015, http://in.rbth.com/economics/2015/02/27/why_electricity_from_russian_nuclear_power_plants_is_cheaper_41689.html. Accessed on November 4, 2014.

44. Mahapatra, n. 41.

45. Retinger, n.43.

46. India Exports and Business Trade Zone, "Indian Jewelry", <http://www.india-exports.com/jewellery.html>. Accessed on January 12, 2015

the international market. India exports 95 per cent of the world's diamonds, as per statistics from the Gems and Jewellery Export Promotion Council (GJEPC). India imported 163.11 million carats of rough diamonds worth US\$ 16.34 billion and exported 36.46 million carats of polished diamonds valued at US\$ 20.23 billion in 2013. The country exported gems and jewellery worth US\$ 36.04 billion in 2013.⁴⁷

Most of the diamonds meant for cutting reach India through trade hubs in Antwerp, Dubai, Tel Aviv, London, New York and Hong Kong. India is keen to receive Russian diamonds directly and is ready to set up joint companies for jewellery exports. Diamonds and precious stones contribute not more than 1.3 per cent of Russia's GDP and the gems and jewellery sector of India contributes 6 to 7 percent of the country's GDP. India, which owns the largest rough diamond cutting industry in the world and Russia which controls 25 per cent of world's diamond deposits, struck another deal worth \$2.1 billion which was signed in the December 2014 summit. Accordingly, nearly 12 Indian diamond companies can import diamonds directly from the Russian diamond-mining giant, Alrosa, which controls about 27 per cent of the global diamond trade.

So far, Alrosa has been selling most of its goods through the Antwerp and Dubai trade hubs. Alrosa's 2013 diamond sales totalled 38 million carats of diamonds. Its revenue in 2014 increased 12 percent to \$4.67 billion, according to Alrosa financial reports. GJEPC believes direct supplies of rough diamonds to India could easily reach the level of \$4-5 billion. In India, Alrosa currently has six sight-holders.⁴⁸ Alrosa and GJEPC signed a Memorandum of Understanding (MoU) aimed

47. India Brand Equity Foundation, an initiative of the Ministry of Commerce and Industry, Government of India, <http://www.ibef.org/industry/gems-jewellery-india.aspx>, updated February 2015. Accessed on April 1, 2015.

48. A sight-holder is a company on the Diamond Trading Company's (DTCs) list of authorised bulk purchasers of rough diamonds. DTC is controlled by the De Beers Group, the single largest producer and purveyor of rough diamonds in the world. DTC sight-holders are amongst the world's leading diamantaires and collectively handle approximately 75% of the world's diamonds. http://www.jckonline.com/article/291865-DTC_Sightholders.php. Accessed on April 13, 2015.

at improving cooperation between the Russian and Indian diamond communities in 2014.⁴⁹ The diamond diplomacy between India and Russia is a two-way affair benefitting both countries at large as there has not been direct diamond trading between them. Moreover, the diamond diplomacy will give a much needed lift to B2B ties and involve the private sector in a big way as there has been hardly any direct trade between the companies of the two countries.⁵⁰

PHARMACEUTICAL INDUSTRY

In the pharmaceutical industry, India has emerged as the most reliable supplier of quality generic drugs to Russia. This has paved the way for further cooperation between the two countries. Major export items in 2009 to Russia were pharmaceuticals (30 percent, US \$464 million), machinery and equipment, transport vehicles and instruments (18 percent, US \$268 million), agricultural produce and food (11 percent, US \$165 million) and textiles (10 percent, US \$156 million). Over the past five years, Indian exports of pharmaceuticals to Russia have more than doubled.⁵¹ Under the Pharma 2020 programme of the Russian government, which aims at developing the domestic production base, leading Indian pharma companies have started engaging with Russian partners to consider the possibilities of joint investments. Several B2B agreements were concluded during 2011 in this regard. During the Annual Summit 2011, an MoU between the Central

During the Annual Summit 2011, an MoU between the Central Drug Standard Control Organisation of India and the Federal Service on Surveillance in Healthcare and Social Development of the Russian Federation on assurance of quality, safety and efficacy of medicines was concluded for facilitating future cooperation in this sector.

49. Alexandra Katz, "Establishing Diamond Hub in Mumbai may Help Russia-India Trade", *Russia and India Report*, November 26, 2014. http://in.rbth.com/economics/2014/11/26/establishing_diamond_hub_in_mumbai_may_help_russia-india_trade_39943.html. Accessed on March 18, 2015.

50. Rajeev Sharma, "How Diamond Diplomacy Adds Sparkle to Indo-Russian Ties", *Russian Times*, December 16, 2014, <http://rt.com/op-edge/214771-diamond-industry-russia-india/>. Accessed on December 31, 2014.

51. Rapota, n. 25.

In view of the robust partnership between the two countries, there is tremendous potential for mutual cooperation. Russia is keen to use the Indian experience in this area for building IT parks in several of its leading cities.

Drug Standard Control Organisation of India and the Federal Service on Surveillance in Healthcare and Social Development of the Russian Federation on assurance of quality, safety and efficacy of medicines was concluded for facilitating future cooperation in this sector. In the pharmaceutical industry, the Russian consumer will reap the benefits of Russia-India cooperation, as high-quality Indian drugs are significantly cheaper compared to other imported equivalents.⁵²

INFORMATION TECHNOLOGY

As India is one of the world's leading nations in IT with a 40 per cent annual growth, it is said that the profits generated from Indian software exports are comparable to the revenues generated from Russian gas exports to Europe. In view of the robust partnership between the two countries, there is tremendous potential for mutual cooperation. Russia is keen to use the Indian experience in this area for building IT parks in several of its leading cities. President Putin's visit to Bangalore (known as the Silicon Valley of India) in 2004 clearly indicated Russian interest to use India's experience in the area.⁵³

Russia is also one of the fastest growing IT markets in the world and this has become a crucial strategic vector for the modernisation of Russia. Therefore, the new ambitious Skolkovo Innovation Centre (which is the flagship project undertaken by Moscow), aims to create an opportunity for high-level interaction of the government and business community of both Russia and India to further enhance the bilateral cooperation between the two in this sector. An inter-governmental MoU on Cooperation in Information Technology was also concluded at the Annual Summit in 2010. A renewed emphasis to enhance bilateral cooperation in this sector would be one of the priorities in the future.

52. Ibid.

53. Mohanty, n. 6, pp. 169-170.

**BROADER ECONOMIC ENGAGEMENT:
THE NEED FOR A NEW VISION**

Bilateral engagements between India and Russia have stood the test of time and, therefore, in order to strengthen the economic ties, the focus should be on exploration of long-term prospects and tapping into resources that will benefit the two countries. Several bottlenecks need to be identified in the economic transactions between the two countries.

One of the major impediments in the economic activities is the language barrier that exists between India and Russia, thus, hampering business interactions. This has led to alienation of the Indian Diaspora that comprises only around 40,000 in Russia.

Russia, due to its fragile economic status, is considered a risky and volatile market. This image of 'no go zone' discourages foreign business, including from India. Hence, Russia's economic policies should make efforts to 'revive' its economy and its image by introducing policies that will transform the management style and protect the interest of the investors. It can also provide market security in order to attract Indian entrepreneurs and investments.

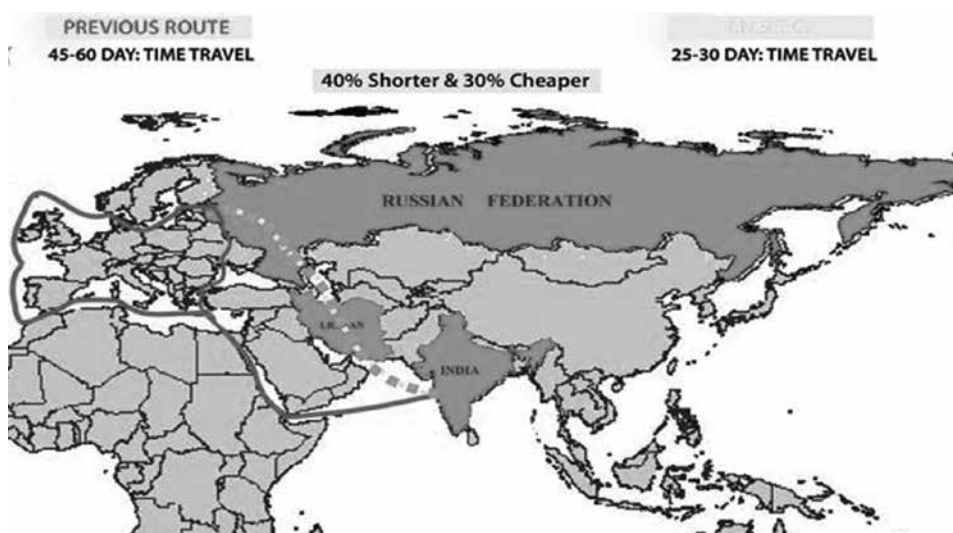
Educational exchange programmes at university level should also be encouraged through large scale funding in order to attract the fast growing younger cohort which can be later absorbed in the required fields of skilled labour.

Russia for long has struggled with a demographic decline and India, on the other hand, has a huge workforce. Russia can attract skilled labour from India by removing restrictions placed on the migration of skilled labour and provide infrastructure facilities to facilitate industrial growth. Another major problem identified for the weak economic transactions between the two countries is the geographical distance as it takes more than 50 days

An inter-governmental MoU on Cooperation in Information Technology was also concluded at the Annual Summit in 2010. A renewed emphasis to enhance bilateral cooperation in this sector would be one of the priorities in the future.

for Indian goods to reach Russia and vice versa. The functioning of the North-South transport corridor is a potential alternative route as the transit time and transport expenses will be reduced by almost 50 per cent.⁵⁴ In the 15th Annual Summit held in 2014, it was decided that the functioning of the North-South International Transport Corridor would be accelerated and also a Free Trade Area and Comprehensive Economic Cooperation Agreement with the Eurasian Economic Union for strengthening trade and economic cooperation was signed. The proposed route comprises sea and land links across India, Iran and Russia, and will shorten travel time by as much as 10 days. The new route will be Mumbai-Bandar Abbas (Iran) and Astrakhan (Russia).⁵⁵

Fig 4: North- South International Transport Corridor



Source: <http://www.politicsforum.org/forum/viewtopic.php?f=5&t=140599>

54. Ibid.

55. Sachdeva, n.1.

Another route that would be an alternative option for India to conduct trade is the much talked about 'New Silk Road'⁵⁶ which will help India gain more geographical access to transport its goods. The Eurasian Customs Union free trade zone initiative will also help in strengthening economic ties between India and Russia. India's permanent membership in the Shanghai Cooperation Organisation (SCO) will be an added advantage.

Fig 5: The New Silk Road



Source: <http://www.thewritingreader.com/>

Nevertheless, one has to bear in mind the fact that the transport corridor is still not functional and the relations between India and China continue to be dominated by mutual suspicion and hostility, and marred mainly by territorial disputes. Access to China's initiative will require establishing confidence and understanding between the two countries. However, China continues to object to India's inroads into the Central Asian region and its interest in permanent membership in the SCO. Hence, both India and

⁵⁶ The 'New Silk Road' will begin in Xi'an in central China before stretching west through Lanzhou (Gansu province), Urumqi (Xinjiang), and Korgas (Xinjiang), which is near the border with Kazakhstan. The Silk Road then runs southwest from Central Asia to northern Iran before swinging west through Iraq, Syria, and Turkey. From Istanbul, the Silk Road crosses the Bosphorus Strait and heads northwest through Europe, including Bulgaria, Romania, the Czech Republic, and Germany. Shannon Tiezze, "China's 'New Silk Road' Vision Revealed", *The Diplomat*, May 9, 2014. <http://thediplomat.com/2014/05/chinas-new-silk-road-vision-revealed/>. Accessed on June 31, 2014.

Russia should work more closely to find other viable options apart from the geographical trade route.

One option that India and Russia could consider is air connectivity. In 2005, India found a feasible solution to boost its economic ties with the US by signing the "Open Skies Agreement" according to which the two countries aimed to increase their air connectivity thereby improving commercial and trade relations. On similar lines, Russia and India can replicate such an agreement that will look into the economics of air cargo transport, and available airport infrastructure and liberalisation of air cargo markets and other such issues can be explored.

Agricultural exports to Russia from India, especially in sectors like the meat industry are neglected, partly due to strict quality standards and Russia's preference for agriculture products from Europe and neighbouring countries. Consequently, in order for India to expand its trade relations with Russia, India should introduce modern methods of packaging and transport, which are hygienic to meet the Russian standards and market demands. Significant opportunities in other areas should also be explored like undertaking joint infrastructure projects such as developing smart cities and engineering services.

In recent years, the Indian foreign policy interests have been mainly focussed on geo-economics and, therefore, Indian markets should launch new products/brands which satisfy the current Russian market demands and not just rely on traditional trade items. In order to encourage business enthusiasts, the governments of both countries should encourage innovative business ventures and large promotional campaigns, and be abreast with the changing preferences of the population and the markets on both sides. This task can be undertaken by business lobbies of both sides to identify such preferences and traditional markets that are showing a decline in performance. This can help in the restoration of the brand image through 'brand-building campaigns'.

Indian Multinational Corporations (MNCs) have ventured into foreign investments by acquiring companies and establishing operations in countries like the US. Hence, through inter-dependence of trade, Indian

MNCs should identify 'sick industries' in Russia and as a way of widening business interaction, can collaborate with these Russian companies. For instance, some Russian enterprises have proposed joint ventures with Western firms, but in many cases, the Russian partners lack funding for such ventures. For example, due to the imposition of sanctions, devaluation of the rouble and inflation, there has been a dramatic plunge in car sales against a backdrop of rising costs. Thus, the automotive industry is one such enterprise that can be explored by MNCs like Tata Motors of India that has already penetrated into Russia.

Lastly, initiatives such as de-dollarisation aim to devalue the US dollar's position, and both India and Russia should explore this measure to widen the scope for the use of their own currencies for trading and for other commercial transactions by a way of bilateral currency agreements. Additionally, in 2013, the Brazil, Russia, India, China and South Africa (BRICS) member nations envisaged their own credit rating agency and created a joint foreign exchange reserves pool. As a result, the initial reserves amount decided was \$100 billion. The establishment of the 'New Development Bank' is aimed at strengthening the financial security of the members of the global economic forum—BRICS. The \$100 billion BRICS New Development Bank should introduce measures of economic transactions through national currencies between the countries and ensure the economic security of all BRICS member states.⁵⁷

Addressing some of these issues may help boost the economic relations between the two traditional strategic partners for long-term prospects.

57. K.T Jaganattan, "Banking on BRICS", *The Hindu*, July 20, 2014, <http://www.thehindu.com/business/Economy/banking-on-brics/article6229155.ece>. Accessed on September 20, 2014.

PIVOTING THE PACIFIC: TWO-LEVEL GAMES AND US MILITARY PRESENCE IN JAPAN AND THE PHILIPPINES

NIDHI PRASAD

INTRODUCTION

The importance of the high seas as a means of commuting and transport was first advocated by American naval historian Captain Alfred Thayer Mahan. He asserted that the “rise and fall of empires” was a product of ensuring mastery over the seas which guaranteed victory during war-time and prosperity during peace-time. His *mantra* for building a naval fleet was first ensuring a productive market. “Production, shipping and colonies” were three basic things he emphasised on, also known as the “trinity”¹. In order to secure maritime trade and shipping routes, he suggested the setting up of colonies and military bases.

This emphasis on sea basing and power projection was what substantiated American military preponderance on the high seas from the 19th century onwards. However, the transformation of technology, economic conditions and security environment through the World Wars and Cold War impacted the global force posture of the United States. Initially, military bases were

Ms **Nidhi Prasad** is an MPhil candidate in the Centre for East Asian Studies, Jawaharlal Nehru University, New Delhi.

1. Alfred Thayer Mahan, *The Influence of Sea Power upon History, 1660–1783* (Cambridge University Press, 2010).

The United States remains a “treaty ally” of Japan wherein under Article V of the bilateral security treaty signed in 1960, the United States would come to the rescue of Japan if it came under attack.

set as part of the imperialist enterprise, and later, served as bulwarks against the Soviet threat during the Cold War. The United States, since the end of the Cold War, has had to tailor its force posture dramatically to the region-specific issues, threats and stakes involved, while being sensitive towards local concerns and demands.

In 2011, during his address to the Australian Parliament, US President Barack Obama announced the Rebalance to Asia or the “Pivot Policy”. One of the central tenets was the repositioning of 60 percent of US naval assets from the Middle East to the Asia-Pacific. It was ordered to predominantly contribute to the security of the Asia-Pacific, ensure freedom of navigation, and additionally, as a strategic response to China’s swift economic and military rise that was worrisome to its neighbours. The Chinese have disputed claims with the Southeast Asian nation-states over the South China Sea and with Japan in the East China Sea. The United States remains a “treaty ally” of Japan wherein under Article V of the bilateral security treaty signed in 1960, the United States would come to the rescue of Japan if it came under attack. The United States had a military base in the Philippines which was later discontinued. However, the Philippines allows rotation of American troops and is pondering over hosting the Americans again as security against a rising China. It is under these conditions that this paper would analyse the base negotiations with the Philippines and Japan.

This paper seeks to understand the host nation’s negotiation strategies in terms of accepting US foreign military presence, using Robert Putnam’s two-level game theory. A two-fold analysis is involved here: one, at the level of base negotiations, and the other, the implications of the outcome of the negotiations in the light of America’s pivot policy.

The structure of the paper is as follows: a theoretical foundation of the two-level games thesis by Putnam will be provided, followed by a brief exposition of the significance of a military base. The research would

then focus on base openings in Japan and the Philippines and ultimately apply the theory to base closure to compare the stark differences between the two states in terms of international negotiations and domestic ratifications, followed by a few conclusive remarks.

STRATEGIC SIGNIFICANCE OF MILITARY BASES

The Cold War was an era of a calculated play of strategic assets and military posturing along with a blackbox style of decision-making. The stationing of US missiles in Turkey and Soviet weapons in Cuba proved to be the bone of contention between the two superpowers that contextualised the Cuban Missile Crisis in 1962. The necessity of possessing a military base is vital to posture and signal to adversaries, to secure one's territory and national interests, to station troops, aircraft, ships, missiles to secure the host country, and to provide for other non-military activities like oil refuelling, conducting scientific research, etc.

Diplomacy is a process of strategic interaction in which actors simultaneously try to take account of, and, if possible, influence, the expected reactions of other actors, both at home and abroad.² The United States' base diplomacy with the East Asian states (Japan and the Philippines) was earlier a strategy of seize and conquer (the Philippines) and defeat and occupy (Japan). The outset of the Cold War brought forth intense debates in America about national interests and national security against a vicious Communist aggressor, the former Soviet Union. As the ideological fault lines divided nation-states, even setting up of military bases became a by-product of this bipolar alignment of the world. The world was divided into camps, as both superpowers formed a network of alliances and military bases to sustain their military, political, diplomatic and economic preponderance.

Diplomacy is a process of strategic interaction in which actors simultaneously try to take account of, and, if possible, influence, the expected reactions of other actors, both at home and abroad.

2. Robert Putnam, "Double-Edged Diplomacy: International Bargaining and Domestic Politics", in *Studies in International Political Economy* (Berkeley: University of California Press, 1993), p. 15.

The history of basing and 'basing diplomacy' has evolved through times of colonisation and through the periods of wars between nations. Basing networks in a relative sense was mostly a function of the scope of rival empires.

The history of basing and 'basing diplomacy' has evolved through times of colonisation and through the periods of wars between nations. Basing networks in a relative sense was mostly a function of the scope of rival empires.³ This quote highlights the dawn of *Pax Britannica*, the idea of the sun never setting on the British Empire and its bedazzled colonies as its crowned possessions. Africa, the Indian Ocean Region and other parts of the world were divided between rivalling empires to secure trade, commercial expansion, fulfil energy requirements during peace-time and war. The consequent unravelling of *Pax Americana* as a superpower can also be attributed to the advantage it possessed in terms of leasing basing networks from Britain.

The opening of military bases was justified by safeguarding of ideological fault lines (during the Cold War), pronouncing common commercial interests, providing security to host nations, and also creating dependency in terms of providing arms and money in exchange for setting up of basing facilities⁴. This led to the strengthening of allies and alliance networks.

Basing diplomacy refers to the diplomatic tools used to open and secure military bases, in this case in foreign territories. Takafumi Ohtomo theorises the process of establishing bases (of the United States) in a five-fold simple and systematic approach.⁵ Table 1 below signifies the various strategies adopted by the United States to formulate a basing network.

3. Robert E. Harkavy, *Bases Abroad: The Global Foreign Military Presence* (Oxford University Press: United States, 1989) p. 3.

4. *Ibid.*, p. 5.

5. Takafumi Ohtomo, "Understanding U.S. Overseas Military Presence after World War II", *Journal of International and Advanced Japanese Studies*, vol. 4, March 2012, pp. 17–29.

Table 1

Outright conquest	Defeat and occupy	Hand down	Forceful removal of original inhabitants	Payment (quid pro quo approach)
Post the Spanish-American War of 1898, sinking of a US ship, US attacked and set bases.	After a war is fought.	In 1940, the US and UK signed a “destroyers for bases” agreement. The UK’s bases were leased to the US for 99, years.	Coercive measures were used to remove inhabitants who were forced to relocate in neighbouring territories.	There is a monetary or military compensation to set up a base. Arms/ money in exchange of security.
Guam, Puerto Rico, Philippines.	Japan and Germany.	Bermuda, Bahamas, Antigua, Diego Garcia, etc.	Diego Garcia used to combat the Taliban post 9/11. The indigenous population moved to Mauritius and Seychelles (also South Korea and Japan).	Philippines and Spain. Russia’s base in Ukraine.

THEORETICAL FOUNDATION: TWO-LEVEL GAMES AND INTERNATIONAL NEGOTIATIONS

The foreign policy machinery of each state is tailored to secure its national interests, optimise it by manoeuvring through international negotiations and avail the best or most suited offers. Prior to globalisation, the debates and decisions taken at an international level did manifest at the domestic levels. Simultaneously, domestic pressures and constraints compel or condition nation-states to ‘act the way they do’ at an international level. There is

The foreign policy machinery of each state is tailored to secure its national interests, optimise it by manoeuvring through international negotiations and avail the best or most suited offers.

a mutual manifestation of the international in the domestic, and of the domestic at the international. Post globalisation, this interaction has strengthened, and has sometimes resulted in spillover effects.

Robert Putnam sought to explicate this interaction between the two levels (domestic and international) and, thus, analyse it as a mutual variable impacting negotiations and diplomacy. The theoretical novelty of this approach lay in its attempt to transcend solely realist or liberal explanations of states' foreign policy actions.⁶ He elucidates the "two-level game" metaphor, where actions on one level "reverberate" the actions on the other. One could visualise this as a two-level game of chess. Except that the number of actors involved can be more than simply two. The state in a two-level metaphor is functioning as a 'gate-keeper' between the international and domestic levels.⁷

The chief negotiator represents the "Janus-faced" executive that negotiates at both levels, Level I being the international level and Level II, the domestic.⁸ This theory is best used to understand and analyse international negotiations. The negotiated outcomes of an agreement refer to:

- Success and failure in terms of reaching an agreement which can be a "deliberately coordinated" policy on both levels that results in policy ratification, implementation, or continuation.
- Distribution of gains and losses: a cost-benefit analysis of gains at the international and domestic levels as well as depending on the policy preferences by the domestic constituents and statesmen.

6. Michal Trnák, "Two-Level Games and Base Politics: Understanding the Formulation of Czech and Polish Foreign Policy Responses to U.S. Military Base Deployment Proposal" (Washington DC: John Hopkins University, 2007-08), p. 4

7. Anouar Boukhars, "A Two-Level Game Analysis of the Complexities of Interstate Rivalry in the Maghreb," *Columbia International Affairs Online*, 2001, <http://www.ciaonet.org/access/boa02/>. Accessed on October 13, 2013].

8. Ibid.

The “win set” is defined as “the set of all possible Level I (international) agreements that would ‘win’—that is, gain the necessary majority among the constituents”⁹.

The success and failure of a negotiating and bargaining strategy depends on the outcomes. And Putnam distinguishes diverse strategies for negotiations at Level I and Level II. The strategies adopted at both levels are interdependent as the negotiator would have to influence, convince and persuade (1) opponents at Level I; (2) domestic constituents at Level II; as well as (3) implement his/her own preferences.

BASE OPENINGS, BASE CLOSURE AND TWO-LEVEL GAMES

In order to comprehend the complexities of the negotiations for base closure, one must briefly understand the context under which the bases were opened in the first place. The author seeks to briefly deliberate upon the negotiations by the Philippines and Japan with the United States using the two-level game metaphor. Japan and the Philippines are the two lynchpins of American base networks in Southeast Asia and Northeast Asia. The withdrawal of the US troops from the Philippines was seen under the light of the domestic pressure and legislative action taken. This is in contrast to Japan, where domestic pressure didn’t translate into policy outcomes of ousting the Americans. While their base negotiations are different, it is an interesting case to compare the two nations that may be shaping the strategic landscape of the Asia-Pacific, and may be pivoting America’s ‘pivot’ policy.

PHILIPPINES

Level I: International Actors, Incentives, and Bargaining Strategies

There are several declassified documents that reveal the “crony capitalism”¹⁰ and the perverse priorities of the Filipino elite during the bargaining with

9. Robert D. Putnam, “Diplomacy and Domestic Politics: The Logic of Two Level Games”, *International Organization*, vol. 42, no. 3 (Massachusetts: MIT Press, 1988), pp. 427-460.

10. The phrase is borrowed from the title of the book by David C. Kang, *Crony Capitalism: Corruption and Development in South Korea and the Philippines* (Cambridge: Cambridge University Press, 2003).

the United States. During the Depression-era in America, the officials passed the HHC Act (Hare-Hawes Cutting Act) in 1933 that allowed for Philippine's independence after a ten-year Commonwealth period. The Act was rejected by the Philippines Senate as it allowed American military presence within two years of independence. Freedom was only a fleeting possibility. The Level I negotiations kicked off with the then Senate President Manuel Quenoz who travelled to Washington for a renegotiable deal.

As Putnam's theory elucidates, the smaller the win set on Level II (here the failure to negotiate with Senate members, led to rejection of the Act) results in a likelihood of bargaining advantage with Level I members. Thus, the American side presented an alternate Bill titled the Tydings-McDuffie Act in 1934 (also known as the Philippine Independence Law). Also, the state executive acted autonomously without the consent of the people of the Philippines and was subsequently able to manipulate the clauses of the Act according to its prerogatives¹¹. This Act was not specific on US military presence in Manila, but did mention the retention of the naval facilities until further negotiations (within two years of independence) between the two nations. The Act was ratified by the domestic constituents.

But due to some unforeseeable events, (the Japanese invasion into the Philippines, control over Singapore) the United States had to occupy the military bases. Negotiations began in 1945 when a new Senate President, Sergio Osmeña, came to power. He pledged allegiance to the United States, and leveraged the base negotiations in exchange for monetary gains. Hence, the base was established not out of security for the Filipinos but for the American interests to counter Japanese imperialism and as a bulwark against expansion of the Soviets who themselves had set up a base Cam Ranh Bay, in Vietnam. On March 26, 1947, the Senate approved the Military Bases Agreement (MBA) by a vote of 18 in favour and none opposed. The United States could secure a trade Act with the host nation that protected

11. The Philippines base agreement provided for military aid and compensation to the host nation. They even signed a Trade Act, allowing for all the sugar crops, to be exported, by harming the rice fields. The farmers meanwhile availed only beggarly wages.

their investors, withheld the right to alter the Philippines currency as well as allowed for criminal jurisdiction in the Philippines.¹²

As stated earlier, the bases in the Philippines were of little advantage to the host nation's security; instead, they served the interests of the Americans. The question of base closure arose when the MBA (amended in 1979 that reduced the occupation period from 99 years to 45) was nearing its expiry date in September 1991. The Philippines Senate had to vote for or against US military presence.

During these developments, Philippines President Marcos was sent into exile in 1984 for practising corrupt policies. The people's power revolution came about in 1985, wherein the civil society demanded a democratically elected leader and, thus, the US backed Corazon Aquino came into power in 1986. Added to the tensions was the volcanic eruption of Mount Pinatubo that compelled the authorities to close the base for a while. Hence, the setting up of democracy, the paradoxical increase in leftist opposition, and the then lukewarm Cold War comprised the context under which the base negotiations took off.

In 1988, the MBA renegotiations led by Philippines Foreign Secretary Manglapus had the United States pay a larger sum as aid to the population¹³. This fuelled the aggression of the angry population who felt their president had "sold them out"

Negotiations at Level I (international) appeared to be a deal, between a pro-US president and the steadfast Filipino counterpart that were driven by economic incentives, security umbrella, etc. The Americans were aware of the domestic brewing in the Philippines, and knew that the negotiations could swing both ways. And, hence, American Defence Secretary Dick Cheney in 1989 declared, "We won't have any other choice...we won't stay where we're not wanted, and if they want us out, we're--we're gone."¹⁴ The

12. A number of amendments were made to the Military Bases Agreement, in 1979, 1983, 1988, etc.

13. Conrad B. Davis, "Subic Bay Naval Complex-Are There any Alternatives", Study Project, United States Army War College (Pennsylvania: USAWC, March 1992), p.9.

14. Jim Mann, Melissa Haley, "Philippines Vote Perils U.S. Bases: Far East: Preliminary Action by Senate in Manila Would Close Strategic Subic Bay Naval Base. The U.S. says it Won't Offer More Money and is Ready to Leave", *Los Angeles Times*, September 10, 1991.

recalcitrance displayed by the Americans signifies their unwillingness to go the extra mile. While the Philippines was mired in heated domestic debates, its president had assured the Americans that the deal would pull through.

Level II: Domestic Pressures, Coalitions and Institutions

The Partido Nacionalista (Nationalist Party) that was set up in 1907, consisted of revolutionaries and intellectuals from the Philippine-US War.¹⁵ The most notable nationalists were Claro Recto, Jose Laurel and Lorenzo Tanada. Recto called for independence and then Marcos purged them from politics. Philippine Left groups evolved to become the strongest opposition to Marcos.¹⁶ The onset of democratic governance in the Philippines turned the tables for the protests.

The strength of the Communist insurgents had increased dramatically in the last six years of the Marcos regime. In 1980, the American Defence Department estimates placed the New People's Army (NPA), the military arm of the Communist Party, at 24,430 full-time fighters supported by a mass political base of around 1,740,000 insurgents.¹⁷ Another coalition called the Nuclear Free Philippines Coalition (NFPC) was formed in the light of the US forces stationing nuclear material on the military bases. In February 1983, the Anti-Base Coalition was formed. The network of these groups was countered by Corazon Aquino's coalition which consisted of members of the Roman Catholic Church as well as the residents of central Luzon Island who are economically dependent on the bases and, hence, want the Americans to stay¹⁸.

Domestic strategies employed by the anti-base coalition groups, as noted by Andrew Yeo, were very well deliberated upon. They penetrated the Senate, the powerful elite, and managed to strengthen allegiances. Hence, they were more concerned with establishing a strong and credible

15. Andrew Yeo, *Activists, Alliances and Anti-U.S Base Protests* (New York: Cambridge University Press, 2011) p. 41.

16. The details on the domestic protests and uprisings are availed from Ibid.

17. Leszek Buszynski, "The Philippines, Asean and the Future of the American Bases", *The World Today*, vol. 44, no.5 (London: May 1988, Royal Institute of International Affairs), p. 82.

18. "Senate of the Philippines", Government of Philippines, URL: <https://www.senate.gov.ph/about/history.asp>. Accessed on November 20, 2015.

network with the Senate members who would participate in the voting than in influencing the masses. Yeo described the “weak security consensus” of the Level I negotiators as directly dependent on the crafted planning of these pressure groups.

JAPAN

Level I: International Actors, Incentives, and Bargaining Strategies

The US military base in Japan is situated in the Okinawa prefecture in the Ryuku Islands. The political controversy surrounding the base is complicated by the history of these islands that have been peripheral to the mainland Japanese affairs.

Imperial Japan had actually annexed the Ryuku Islands in the 19th century and later provided for cultural assimilation. The significance of the islands grew during the Pacific War since the arrival of the American forces. Hence, Okinawa had been under foreign occupation by the Imperial Japanese and Americans until 1945.

In 1960, after the Security Treaty was signed between Japan and America, economic assistance as well as a security umbrella was provided by the Americans to the Japanese. The rapid egression of the Japanese markets led the Americans to request in 1976-78 that Japan pay for the maintenance of the facilities. The Americans chose a flexible interpretation of the Status of Forces Agreement (SOFA), Article 24, by which they could carry the burden of costs under certain conditions¹⁹. This economic assistance paid by the host nation (as part of sharing the burden) was called Host Nation Support (HNS) or *Omoiyari Yosan* by the Japanese²⁰. Similar to the case of the Philippines, the Americans were known to have altered the currency in Okinawa (as different from mainland Japan) and, hence, swerved the economy to their benefit, damaging the locals’ entrepreneurial capabilities.²¹

19. Yeo, n.15, P. 270

20. In Japanese, it is referred to *Omoiyari Yosan* (Sympathy Budget) as suggested by Minister of Defence Agency, Shin Kanemaru.

21. Kozue Akibayashi and Suzuyo Takazato, “Okinawa: Women’s Struggle for Demilitarization”, in Catherine Lutz, ed., *The Bases of Empire: the Global Struggle against US Military Posts* (London: Pluto Press, 2009), pp. 243-270.

Okinawa has been entitled as the “lynchpin” of the American military base network or as Douglas McArthur called it, the “Keystone of the Pacific”. The strategic importance of Okinawa can be attributed to its proximity to China, South Korea North Korea and Taiwan, that, according to many scholars, keeps the security dynamics stable in East Asia. The bilateral hub and spoke alliance system in Japan is operational through the deployment of troops here. The base is the gateway into the Pacific and, hence, is of significant value to the Americans.

The host nation (Japan) pays for the installation and maintenance of the base and also wages of the Japanese people employed by the base. This is an added burden shared by the Japanese in lieu of renouncing the “sovereign right to use force” as per their constitutional limitations. Japan is sheltered under the United States’ security umbrella that serves the purpose of national defence for the country. Okinawa’s history, torn between foreign invasions, occupations, strife and revolts, is fuelled by the foreign military presence. There are waves of protests in the prefecture that seldom reverberate in the corridors of the Diet. This paper will focus on the 1996-97 base negotiations between America and Japan as well as the 2004 referendum that left the window of opportunity open for the local Okinawans.

The 1996 base negotiations were triggered because of the rape of a school girl in Okinawa in 1995 by three American Servicemen. This issue spiralled into a huge uproar in the prefecture. As mentioned above, when applying the two-level game theory to the military base agreement with Japan, one must be aware of the multiple levels involved. As Andrew Yeo points out, there are three levels: Tokyo-Washington negotiations; within Tokyo, there are negotiations; in addition to which there are negotiations between Okinawa and Tokyo. Hence, in this case, the Governor of Okinawa, Ota Masahide, led the mass movement against the US bases in Japan and refused to sign the lease papers to renew the agreement regarding allotting of land to set up military facilities. Masahide was elected in November 1990 on a platform of opposition to the Japan-US Security Treaty and a commitment to secure the return of lands currently occupied by the US bases to their rightful

owners.²² The protests demanded that both governments negotiate on the military base burden that Japan shared. A referendum was announced, and the US and Japan agreed to set up a Special Action Committee on Okinawa (SACO).

The SACO promised to reduce the burden in the Futenma Air station, planned to return several other facilities, sought to amend the Status of Forces Agreement, and initiate noise reduction levels²³. The plans were a sham as both governments neither sought to implement these changes nor eliminate the bases. It was a policy of appeasement, just to contain the domestic protests.

External factors like the drafting of the “East Asia Strategy Report” in 1995 contributed to fuelling the flames of the protests as these reports sought to affirm the US-Japan security alliance post Cold War, including the maintenance of the military bases.²⁴ The Group of Twenty (G-20) Summit was held at Naha city and the Asia-Pacific Economic Cooperation (APEC) Summit was held in Osaka that year. US President Clinton failed to show up at Osaka due to some domestic budget cuts.

In December 1996, the final report by SACO was released: it sought to establish a heliport centre at Nago city and also allowed for relocation of US troops within Okinawa. Another domestic referendum was held in 1997 in the northeastern city of Nago, where anti-US base protests had resurfaced. Eighty percent of those eligible voted in the non-binding Nago referendum, 54 percent of them opposing, and it is said that because of the persuasion of the Japanese government, Tetsuya Higa, then the mayor of Nago, announced the acceptance of the plan and, subsequently, resigned.²⁵

Level II: Domestic Pressures, Coalitions and Institutions

Civil society is strong in Japan with a plethora of trade unions, coalitions and other groups. The issue of stationing foreign military bases in the

22. Ibid., p. 4

23. “The Japan-U.S Special Action Committee Interim Report”, April 15, 1996, Ministry of Foreign Affairs, Japan. <http://www.mofa.go.jp/region/n-america/us/security/seco.html>

24. See: <http://www.defense.gov/releases/release.aspx?releaseid=380>

25. Akibayashi and Takazato, n. 21, pp.243-270.

country which might appear to be the concern of the entire country is actually restricted only to the prefecture of the military base in Okinawa. Hence, there is a diffused level of civic awakening and a dim possibility of availing a large win set in this case.²⁶

Evaluating the Japanese case in terms of segregating two independent mutually exclusive levels is impossible. Here, in the domestic level, the author would like to emphasise on why the multiple referendum conducted in Okinawa is of political significance. In the case of Okinawa, “the nonbinding prefectural referendum was a direct challenge to the central government’s authority in a policy area that is politically and constitutionally recognized as being within its administrative jurisdiction, namely, national defense and bilateral treaty obligations”.²⁷

Two events, the rape incident and leasing of private lands to set up the military bases, sparked off a series of protests in the prefecture. Several people rose to form a movement, called the Okinawa Women Act Against Military Violence (OWAAMV) that argued for human rights and demilitarisation of the region. They conducted non-violent protests in Naha, collected signatures and even visited the Foreign Ministry, demanding base closure. This particular movement was successful in establishing international linkages, as Kozue Akibayashi and Suzuyo Takazato note, in the Buklod Centre of the Philippines and Du Rae Bang of Korea, that have supported the victims and survivors of military violence. The East Asia–US–Puerto Rico Women’s Network Against Militarism, which comprises women from Okinawa, mainland Japan, Korea, the Philippines, the United States, Puerto Rico, and Hawaii, held its first international meeting in Naha, Okinawa, in 1997.²⁸ There were other associations in Okinawa that dealt with the issues of land leasing to the US. Ridge notes the presence of the Okinawa Prefectural People’s Rally (*Okinawa Kenmin Sokekai Taikai*), sponsored by 18 key Okinawan labour and citizens organisations and attended by many

26. The analysis of the domestic constituents in Japan is based on the researcher’s reading of Lutz, n.21.

27. Robert D. Eldridge, “The 1996 Okinawa Referendum on U.S. Base Reductions: One Question, Several Answers”, *Asian Survey*, vol. 37, no. 10 (Berkeley: University of California Press, Oct. 1997), p. 881.

28. Akibayashi and Takazato, n.21.

people. He also mentions the *Okinawa Ken Gunyo Tochito Jinushikai Rengokai* (Okinawa Federation of Landowners of Land Used for Military Purposes) that was against the United States.

Table 2

Dimensions	Japan	Philippines
Military Base Agreement (signature)	These military bases were legitimated by the Treaty of Mutual Cooperation and Security between Japan and the United States of America, signed and put into effect in 1960.	Mutual Defence Treaty signed between the US and Philippines in 1951. The Military Bases Agreement signed in 1947.
Ratification and lease dates	1960 onwards.	1988 Amendment to Military Bases Agreement, renewal expired in 1991.
Base Locations	Kadena Air Base of the US Air Force, Futenma Air Station of the US Marine Corps (in Ginowan City),	Clarke Base, Subic Bay, Mactin Air Base/ Benito Euben Air Base.
Significance during Cold War	Communist threats from China and (presently nuclear) North Korea.	To fight the Japanese, Indian Ocean trade, secure Southeast Asian countries.
Economic, technological incentives	Japan pays the Host Nation Support (<i>Omouiri Yosan</i>)	Philippines received compensation from the Americans (amount varies)

NEGOTIATIONS AND OUTCOMES

Japan

Win Set Size: The Japanese side possessed a small win set, and the US-Japanese (Level I) proposals/ policy alternatives did not gain a majority amongst the Level II domestic constituents. The Japanese negotiators on

It was more expensive to ratify, as the prospects of stationing the US troops in Okinawa was perceived to be crucial. The economic incentives, compensations and security umbrella provided to the Japanese were non-tradable items for bringing about peace in Okinawa.

Level I wanted to maintain status quo in order to secure their interests in contrast to the widespread civil unrest in Okinawa prefecture. Hence, the two-level game states that the lower the costs of a non-agreement (maintaining status quo), the smaller are the win sets. It was more expensive to ratify, as the prospects of stationing the US troops in Okinawa was perceived to be crucial. The economic incentives, compensations and security umbrella provided to the Japanese were non-tradable items for bringing about peace in Okinawa.

Ratification and Negotiations: The ratification in this case was not necessarily constitutional, as Putnam has declared, as it was not a parliamentary one. Despite the protests against the base construction prior to, and after which, the two referenda were taken, the results of the referenda were never taken into account. The ratification process was a basic 'endorsement' of sorts. In this case, the steps taken at Level I to modify the SOFA through SACO were pushed forth without first consulting the options on Level II. Negotiations and bargaining at the international and domestic levels sometimes comprise a simultaneous process and sometimes are first initiated domestically to gather the public opinion and are, thus, modified to maximise the gains at Level I. Here, after the first report of SACO was drafted and circulated, on September 8, 1996, the referendum was held and 53 percent of the 910,000 registered voters favoured the base reduction and revision of SOFA.²⁹ Hence, the initial proposal of removal of bases was forgotten, as people now negotiated for 'reduction' of force and not 'elimination'. This is alternatively known as synergetic linkages, where "policy options offered at Level I, change preferences of any domestic constituents".

29. Ibid.

The multi-level process of negotiations is complex because of the heterogeneous nature of the domestic constituents. In Japan, there are myriad anti-base coalitions, and protests led by women and environmentalists, with even the political class propagating different propositions in terms of either base reductions, base eliminations, de-securitising Asia, etc. Hence the distribution of the gains availed at Level I to the Level II constituents affects the size of the win sets. As Robert Putnam observes, the Level I agreement bears unevenly on them. One is aware of the “transnational alignments”, of the domestic protest group, OWAAMA, that went to Washington and addressed the issue of military presence in Japan and its impact on women. Many other anti-US base groups went to the Philippines and established networks, arguing for de-securitising of the region as a whole, because base realignments, along with the losses, are disseminated from one place to another. The Japanese propensity for seeking the broadest possible domestic consensus before acting constricts the Japanese win sets, as contrasted with majoritarian political cultures³⁰.

Negotiator: Thomas Schelling once noted, “The power of a negotiator often rests on a manifest inability to make concessions and meet demands...This strategy results in establishing an immovable position that goes beyond the ability of the other to concede and, thereby provoking the likelihood of stalemate...³¹” This is applicable to the Japanese politicians who negotiated with the United States. The Japanese politician Ishihara Nobuteru (the former secretary-general of the Japanese Liberal Democratic Party), stated that the question of the Henoko base transfer is of little importance to the larger vision that is the United States-Japan security agreement and that the base construction

30. Putnam, n.2, p. 449.

31. Thomas C. Schelling, *The Strategy of Conflict* (Cambridge Massachusetts: Harvard University Press, 1960), pp. 19-28.

should continue regardless of any protest by the Okinawans.³²

Philippines

Win set: In the case of the Philippines, successful ratification resulted in a larger win set for Level II. The negotiations didn't break down between the two parties because of the size of the win sets, as the policy preferences were open at both Level I and Level II and the negotiator, despite being averse to the outcome of the ratification, still managed to uphold the credibility of the negotiations, unlike in the Japanese case.

Negotiations: The negotiations between the US and the Philippines are very much in contrast to the USA-Japan negotiations. For one, the Americans weren't as concerned with the costs/benefits of Subic Bay as they were of Okinawa. Hence, the distribution of gains was much higher in the Philippines case at Level II. The domestic constituents were much less divided, hence, homogenous in the case of the Philippines. Here, there were more or less two camps, one for, one against, the American bases. The debate on a 'no agreement' (meaning policy continuation) was the one significant disagreement among Level II constituents. To explicate this more lucidly, the people of the Philippines were only concerned that the present policy would continue, and, hence, that remained the agenda behind the protests. In the case of Japan, the outburst of multiple concessions and multiple demands was manipulated well by the political leadership that could manipulate the win set.

Also, in the Philippines the ratification process was thoroughly constitutional. The base agreement renewal was put to vote and out of 23 votes, 12 were against and 11 were for. Hence, they secured a win set. An important point of deduction is that international pressures here could not translate into swinging of opinions in the Philippines Senate. The pressure groups entrenched the political class and, hence, were able to secure a majority by one vote, that had a massive ripple effect on the country's security policies, economy, etc. The costs and

32. Kevin M. Evringham, "The United States Military Realignment on Okinawa", *Master Thesis*, Paper 275, (Connecticut, 2012), see: http://digitalcommons.uconn.edu/gs_theses/275, p. 36.

benefits of the proposed agreement were more concentrated in this case (because of a homogenous constituency) and, hence, they could divert their interests in a streamlined fashion. In Okinawa and Naha, the protests were concentrated in one prefecture in Japan, within which only a few groups that were severely affected, protested. And there was a difference of opinion amongst those groups as well. Hence, while a majority voted in a referendum conducted in the city, the nationwide beliefs were different.

ANALYSIS

The layered process of negotiations in the Philippines and Japan witnessed a difference in policy outcomes that impacted their national security (host nations) and affected the broader US military strategy. The two cases are significantly different in two aspects: (1) The US-Philippines base negotiations were initiated at Level I (top-to-bottom approach), where the leader then had to lay out policy preferences to the domestic constituents. In the case of Japan, it was the exact opposite, where protests for base closure were voiced from Level II, from where the local audience, the governor, had to pass on the concerns to the leader who would then notify Level I actors. Hence, as the information passed from bottom-to-top, the policy preferences got altered and subdued.

(2) The monetary benefits were *directly* reaped by the Philippines. The United States as per the agreement was required to pay in cash to the government, along with providing security to the state. Again, the Japanese case was in contrast to this, as Japan bore the burden of the US presence in exchange for the extended deterrent and security umbrella. However, the government avails the monetary benefits of the US military presence *indirectly*, because of employment provided to many Okinawans.

CHALLENGES TO PIVOTING THE PACIFIC

The United States appears to be militarily and economically anchored in the Asia-Pacific. There have been remarks stating that "it is the goal of the US military to be able to run the planet from Guam and Diego Garcia by

2015, even if the entire Eastern Hemisphere has evicted US forces from other bases there.”³³

Thus, history has proved the importance of military bases which in today’s context are as vital as maintaining strong economic ties. For the US Administration to sustain its power in the world and in the Asia-Pacific, it needs the support of its allies. America’s allies need a confirmation too in times of crises. Japan’s concerns over the North Korean ballistic missiles capabilities and China’s rapid technological advancements, provided the impetus to the Japanese leaders to involve the United States in the region. National security interest in this case has been prioritised over domestic concerns. This is primarily because Japan’s security policy is structured within the institution of the US-Japan security alliance. The military base or forward posture is a strong pillar of the alliance and of Japan’s security policy. Thus, the military base in Japan serves domestic as well as regional interests.

In 2014, the Philippines signed the Enhanced Defence Cooperation Agreement (EDCA) with the United States, affirming the Mutual Defence Treaty signed in 1951.³⁴ The EDCA allowed for rotation of American military troops, in addition to American access to designated areas and facilities in the Philippines. It was after China seized Scarborough Shoal located in the Exclusive Economic Zone (EEZ) in the South China Sea (or West Philippines Sea) that the Philippines emphasised on security. In 2015, it reopened the former American military base at Subic Bay to set up facilities and installations.

In another twist of events, the satellite imagery of the Centre for Strategic and International Studies (CSIS) revealed China’s military prowess in its creation of artificial islands over existing low-rock formations in the South China Sea; China’s claiming them as its own territories and extending

33. Andrew S. Erickson, Walter C. Ladwig III and Justin D. Mikolay, “Diego Garcia and the United States’ Emerging Indian Ocean Strategy”, *Asian Security*, vol. 6, no. 3 (Taylor & Francis: Washington, 2010), p. 227.

34. “Enhanced Defense Cooperation Agreement Between the Philippines and the United States”, Government of Philippines, URL: <http://www.gov.ph/2014/04/29/document-enhanced-defense-cooperation-agreement/>. Accessed on November 20, 2015.

its maritime claims, is attributed to be a flawed legal argument based on coercion. The United States, in its Department of Defence Asia-Pacific Maritime Security Strategy 2015, brandishes these installations as Military Maritime Law Enforcement (MLE) modernisation, essentially because they are used as measures to strengthen legal claims and simultaneously further strategic interests. It has sparked international fears over militarisation of these islands by the deployment air force and naval capabilities.

Vietnam (Spratly Islands), Malaysia (Swallow Reef), Taiwan (Itu Aba) and Philippines (Tithu Reef) have constructed airstrips on the respective islands in the past. But the scale, speed and severity with which the Chinese are modernising, is worrisome for all the small countries in the region. China has the largest airstrip of all the claimants in the Fiery Cross Reef, of about 3,000 m, along with the potential to deploy fighter squadrons.

The Republic of the Philippines, meanwhile, has submitted its territorial and maritime claims to the Permanent Court of Arbitration, while China chose not to participate or follow suit. In this potential security flashpoint the United States appears to be in a Catch-22 situation as it wants to be present in the region to reassure its allies and appear as a credible power, but it is also wary of provoking the Chinese too much by escalating tensions or getting entangled in any conflict in this region.

Thus, it is only when the host nations agree to situating foreign presence during peace-time can diplomacy, power projection and security policies be implemented. Hence, Robert Putnam's two-level game theory is valid in establishing linkages between international crises and domestic happenings.