



AIR POWER

Journal of Air Power and Space Studies

Vol. 6 No. 3, Monsoon 2011 (July-September)



AIR POWER

CENTRE FOR AIR POWER STUDIES

New Delhi

AIR POWER is published quarterly by the Centre for Air Power Studies, New Delhi, established under an independent trust titled Forum for National Security Studies registered in 2002 in New Delhi.

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ISBN: 81-87966-30-0

AIR POWER Journal is published four times a year and is distributed by

KW Publishers Pvt. Ltd.

4676/21, First Floor, Ansari Road, Daryaganj, New Delhi 110 002

Telefax: 23263498 e-mail: knowledgeworld@vsnl.net

Printed and Published by Air Cmde Jasjit Singh (Retd) on behalf of the Forum for National Security Studies (the Trust running the Centre for Air Power Studies, New Delhi) and Printed by Rajkamal Electric Press, Plot No. 2, Phase IV, HSIIDC, Kundli 131028, Sonapat, Haryana and Published at P-284, Arjan Path, Subroto Park, New Delhi 110 010. Editor: Air Commodore Jasjit Singh (Retd).

RNI REGN No. DELENG/2006/18450

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for the armed forces across the world, thus, bringing the issue of national security into the debate. Ms. **Dhanasree Jayaram**, a young scholar at the Centre, lays out the changes that are taking place in these areas that need wider and deeper discussions and understanding by all segments of Indian society.

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EDITOR'S NOTE

AIR POWER journal completes seven years of publication with this issue. And by the time this issue gets to you, the Centre for Air Power Studies (CAPS) would have completed ten years since it was established as an independent think-tank and later brought under a registered Trust. We have come a long way from the early modest and humble beginnings; but we are even more conscious that there is a longer distance to cover and greater heights to climb in the self-assigned task of undertaking professional military education in the future. Our work in the past and our expectations for the future would not have been possible but for the seminal support we have received, and hope to receive in the future, from the Ministry of Defence, the armed forces in general and the Indian Air Force in particular.

A decade has also gone by with the war in Afghanistan showing little sign of coming to an end. It is true that Osama bin Laden was located by US Special Forces and killed by the SEALs in the middle of Pakistan's cantonment of Abbotabad, a stone's throw away from the Pakistan Army Academy, where he was living in peace, directing radical *jihad* across the world; but the shooting down of a US helicopter carrying members of the SEAL operation of May 2, 2011, that shot and killed Osama, symbolises the complexities and the nature of the radical *jihadi* violence that afflicts AF-PAK. Afghanistan continues to be a troubled country, with perpetual violence, for the past nearly two generations. The wars, like the one in Iraq, also displayed the enormous capabilities of modern air power and

proved to be the instrument of choice in what has come to be known as 4th Generation Warfare.

But we need to be careful in drawing the correct lessons. The US and its allies don't have to bother about an adversary that comes anywhere near their military and aerospace capabilities. Their lessons, therefore, even for future wars, are being drawn by their experiences of the past three decades, from the 1991 Gulf War for the liberation of Kuwait, to Kosovo, Iraq and Afghanistan, etc. But, in our security environment, where a two-front military modernisation is furiously under way and the strategic nexus between the two is deepening in spite of the People's Republic of China (PRC) facing *jihadi* ethno-centric violence in Xinjiang, exported from its all-weather friend Pakistan, we need to be careful and objective in drawing our lessons and isolating those we should not accept based on their implications for our security and strategic environment.

SOME ASPECTS OF OUR WARS IN FUTURE

JASJIT SINGH

When we seek to discuss the nature and types of wars and the battlefield milieu of the future, it becomes necessary first to define war itself. This requires some fundamental factors to be kept in mind. Wars look different from different perspectives. For example, a purely army-centric view of war, or, for that matter, an air force/navy-centric view may well ignore the broader, especially political-military, implications of war that would depend upon the use of all three components of the military power of the nation. At the same time, we would make a fundamental mistake if we do not include a single Service-centric point of view in shaping the national joint defence/military strategy and the specific doctrine and tactics of the three components of the armed forces. After all, each of the three components of military power operates as a specialised force in its own medium, though for a synergised joint effect, coordinated operational planning and delegated execution of the plans would be necessary, and organisations and institutions should be systemised carefully to strengthen the joint role and not create disjunctions. At the minimum, we need to look at war from a military perspective, though that would also be insufficient since it could ignore the role of political and techno-economic factors in shaping the nature of war and the battlefield

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milieu. Hence, the appropriate approach should be to look at wars from a national perspective and as a national enterprise where even the media would play an important role.

Secondly, there is a tendency, especially in the developing countries, to ignore the factor that there is an adversary/enemy that is integral to warfare. That enemy would evolve its own political goals and military objectives, organisation, doctrine and strategy, besides weapons and tactics based on the level and nature of technological capability available to it, indigenously and/or acquired from external sources; and, above all, by the assumptions it makes.¹ The last part could change rather rapidly for obvious reasons and necessitates adequate intelligence assessment and flexibility in our own approach to warfare. Here we must note a perennial truth: **victory/success in war is not achieved by defeating/destroying the enemy's military forces, but by defeating its strategy.**

Thirdly, we need to keep in mind that while logic should be the driving force in warfare since even the survival of the state may be involved (as would inevitably happen in the case of nuclear weapons use), in reality, logic is the first casualty in warfare though it does not necessarily become redundant. Its rationale and application undergo change and that is why the old adage that 'no plan survives the first shots in war'. Hence, while there is need for doctrines, they must remain as a set of principles and concepts rather than become unalterable guidelines for action in war. Flexibility of the mind is essential to cope with the uncertainties and ambiguities that characterise war. This is why the search for "actionable intelligence" would appear infructuous, since it can rarely be obtained and ambiguity of information or its interpretation would remain the dominant factor in most situations. Hence, intelligence *assessments* are more critical than mere information since it is the assessments (with all their infirmities) that make intelligence actionable.

1. For example, an authoritative source in Pakistan had written soon after the Kargil War that his country had launched four wars based on the same assumptions which led to its defeat every time. See former Information Secretary to President M. Ayub Khan, Altaf Gauhar, "Four Wars and One Assumption," *The Nation*, September 5, 1999.

NATURE AND TYPES OF OUR FUTURE WARS

In this examination of future wars, it is assumed that nuclear war-fighting would not be a rational option for us and avoidance of nuclear use by the enemy would have to rest on credible nuclear deterrence. But the adversary may want to entice us into war by provocation with dramatic terrorism (like the December 13, 2001 and/or 26/11 Mumbai attacks). In principle, we must resist such moves for what they are and, hence, maintaining dialogue and restraint serves to nullify any provocation to war. Therefore, wars would have to be confined to a level of conflict below that of a nuclear exchange. We may identify them as follows:

- **Conventional Wars:** Such wars between two broadly similar military powers would have to be **localised, limited border wars** if risk of escalation to nuclear levels is to be avoided. Such limitation in a ground war is not likely to result in a decisive military victory without risking a nuclear response. Some important factors deserve attention:
 - The central issue that deserves serious attention is the paradox of employment of land forces in a nuclearised environment: a decisive victory increases the risk of escalation to nuclear levels, and without a decisive military victory, a military stalemate is almost inevitable. The problem is that in case of a stalemate, a smaller country is likely to be perceived to have won against a larger and more powerful one, especially if it manages to handle the media toward that end, as happened after the 1965 War in Pakistan's favour (or in the Sino-Vietnam War in 1979).
 - However, it needs to be noted that even shallow penetration and occupation of limited enemy territory without a decisive military victory would have a profound political impact since this would

The paradox of employment of land forces in a nuclearised environment: a decisive victory increases the risk of escalation to nuclear levels, and without a decisive military victory, a military stalemate is almost inevitable.

Regardless of the type of war we get engaged in, political constraints would be an inevitable and important factor in the employment of military forces.

challenge the sovereignty of the adversary state.²

○ In spite of the above factor, a largely stalemated war would leave us with the problem of how to impose our will on the enemy. Hence, the **need to apply punitive force for political-military effects but with significantly reduced risk of escalation to nuclear levels** would remain. This can be achieved by calibrated use of air power and naval forces.

- **Sub-Conventional Wars:** Proxy wars at the sub-conventional levels, especially through religious extremist/*jihadi* terrorism, present another type of milieu, especially where such a war is being waged from a sanctuary state possessing nuclear weapons and a competent conventional military power. This is the type of war that the superpowers with eyeball-to-eyeball military confrontation and a stockpile of over 66,000 nuclear weapons resorted to in third countries during the Cold War, making sure that a direct military confrontation was avoided.
- **Political Constraints:** It needs to be recognised that regardless of the type of war we get engaged in, political constraints would be an inevitable and important factor in the employment of military forces. It would be difficult to forecast such constraints in advance since the leadership in a parliamentary democracy is subject to many pressures and changes. Political constraints of different types and extent were a regular factor in every war India had to fight in the past. Some of them appear to have been conditioned by debatable reasons. For example, the restriction on the Indian Air Force (IAF) from taking offensive action against the solitary fighter squadron in East Pakistan appears to have had no rational reason though it was justified later that such an attack would alienate the population [even when the Chief of the Air Staff (CAS) had clearly affirmed to the Prime Minister (PM) and

2. We may here note the major political impact in Pakistan leading to the military coup after the defeat of its forces on our side of the Line of Control in the Kargil sector when the Indian military had not even crossed the Line.

Defence Minister that civilian targets would not be attacked by the IAF]. This forced the IAF to remain on the defensive which in the absence of adequate radar cover became inadequate and we lost a large number of aircraft and some lives on the ground. The presence of nuclear weapons with both our major adversaries is likely to increase rather than decrease political constraints, and is more difficult to predict.

It is important that a balance of military necessity and political compulsions and aims is achieved through regular dialogue between the political and military leadership on a continuing basis.

- In view of the foregoing, it is important that a balance of military necessity and political compulsions and aims is achieved through regular dialogue between the political and military leadership on a continuing basis.³ In a way, the establishment of the Defence Committee of the Cabinet (DCC) and the location of the Chiefs of Staff Committee (COSC) in the Cabinet Secretariat (with a Military Wing to provide secretarial support) was the logical institutional arrangement which has not been available since the mid-1950s. It is ironic that the Cabinet has an Accommodation Committee but not a Defence Committee! The Cabinet Committee on Security (CCS) is useful, but given the range and priorities of security challenges, it can hardly provide the institutional dialogue necessary between the political and military leadership for the complex nature of future wars and development of our military capabilities toward the desired goals.
- **Reaction of Dominant Powers:** Received unquestioned wisdom states that the international community, especially the dominant powers,

3. In 1965, this was achieved through informal but direct dialogue during the months Pakistan was pushing toward its war for Kashmir. Similarly, frequent dialogue among the three Chiefs and the Prime Minister and her colleagues during the eight months in 1971 served a vital purpose in achieving greater synergy among political and military aims and actions.

would inevitably intervene in any war we get involved in.⁴ But the reality is that this may not necessarily happen except when they perceive the likelihood of the situation moving toward a nuclear exchange. Hence, much will depend upon the circumstances of the war, the way we fight that war, and our diplomatic efforts and posture on a continuing basis before, during and after the war. Here we face another disjunction in terms of the gap between the military leadership and our diplomats, essentially because the Ministry of Defence has, over time, become an unnecessary buffer between the military and Ministry of External Affairs for this purpose. Unfortunately, we see the gap between the soldiers and diplomats even in most of our embassies.

- **Legitimacy for Application of Military Power:** One of the most important factors that now affect the use of military power in wars is **the purpose for which it is applied and whether this is seen as legitimate or not.** This is not merely the issue of a just war; rather, it implies that the legitimacy would depend upon how domestic opinion sees the war. This legitimacy is easier to achieve when reacting to an aggression (nuclear or conventional military attack), as we have seen in the past. But if India wants to initiate a punitive war (even in retaliation to a major terrorist attack), it would have to pay serious attention to the issue of legitimacy and the extent of this may well also influence the reactions of at least a part of the international community. Here the media and elites dealing with public information play a critical role in generating the legitimacy of a particular political-military vector or undermining it.

TECHNOLOGICAL ADVANCEMENT AND ITS IMPLICATIONS

Military technology has been advancing almost dramatically in recent decades. Superior technology, from the days when the stirrup and

4. In fact, the Army's Cold Start doctrine has been interpreted to imply that it must defeat the enemy within 4-5 days before the international community can intervene. If this is indeed the strategy, then the rapid goal of defeating the enemy is more likely to destabilise the enemy's perceptions and its propensity to reach for nuclear weapons would increase significantly. Hence, the international community, if it wants to stop a potential escalation to nuclear levels, is more likely to intervene *before or as soon* as the offensive is launched, thus, nullifying the very purpose for which the new doctrine was evolved.

gunpowder were invented as the then Revolution in Military Affairs (RMA) has historically been a major factor in warfare. But mere possession of superior technology weapons and equipment does not necessarily provide success in wars. Some issues that need consideration are:

- Empirical evidence in history clearly proves that superior technology by itself does not lead to victory; rather, it is force employment that tilts the balance between victory and defeat. Force employment obviously also implies how technology is synergised with strategy and tactics in relation to those of the enemy. Here the scope for a false sense of superiority/inferiority by either side, going by what technology promises (rather than how it is employed), can have a significant impact on the outcome. During the 1965 War, the Indian Army and Air Force were highly sensitive to the higher technology weapons and equipment acquired from the United States and absorbed by the Pakistan military. But during the war, after the initial setbacks, the Indian Army and Air Force succeeded in achieving an unambiguous victory over the higher technology armed Pakistan military forces although they fought well.
- **Higher/ new technology normally takes far more time to mature than what the promise of technology tends to portray;** and even more time and effort after that to be fully absorbed in the military forces to become operationally effective. No military becomes “high-tech” across its full spectrum. Operational maturity of technological advances is critical to its optimum force employment. Doctrine and strategy, therefore, need to take into consideration the maturity factor and the time horizon needed to absorb it sufficiently to become operationally advantageous. This is a simple truth, but one that is often ignored by military forces worldwide. There is a corollary to this: there is a tendency to believe that because force multipliers would enable the same systems to produce much greater effect, the force size itself can be reduced. But force multipliers

Empirical evidence in history clearly proves that superior technology by itself does not lead to victory; rather, it is force employment that tilts the balance between victory and defeat.

are no substitute for force. Napoleon's dictum that God is on the side of the bigger battalions may not be true any more; but it also is not completely obsolete, especially when the adversary has similar or more force multipliers, as we already see in our defence environment.

- **Operational impact of technological advancement** requires rigorous and objective assessment. The trends in technology and warfare are inexorably moving toward non-contact warfare. Their effects are most obvious in the technology intensive components of military power. Hence, air dominance, both in the air-to-air as well as the air-to-surface dimensions provides the capability for air forces to play a crucial role in warfare. Precision strike (which rests crucially on accurate and timely air intelligence) at increasingly longer ranges provides capabilities that were not possible earlier. Similarly, naval power is becoming an important factor in warfare because of the expansion of its operational effectiveness due to modern technology. This is not to suggest that naval forces would replace the land forces in their primary role with "boots on the ground." Here we need to be very careful in drawing the right lessons from wars in the past two decades which have been fought with the heavy advantage of technology, air power and naval capabilities on one side only, providing dramatic advantages and freedom of action with air and naval dominance. However, in our case, air dominance would have to be contested.

The brief examination above leads to the following conclusions:

- Unanticipated political constraints would impact military strategy and objectives in future wars in all likelihood much more than ever in the past. Hence, regular dialogue between the political and military leaders is critical.
- Military-to-military conventional wars among countries with similar capabilities (even if asymmetrical), especially under the shadow of nuclear weapons, if they take place, are likely to be localised, limited border wars with significant political restraints.
- Land warfare under these circumstances would more likely lead to a

stalemated situation in spite of occupation of territory to even shallow depths. Smaller countries are likely to gain an advantage in perceptions of having been the winner against a larger and more powerful country, particularly depending upon the role of the media.

- Legitimacy for war would play a major role in the operational strategy and plans for war. Frequent dialogue between the political and military leadership on the nature of war and the limits and capabilities involved from the military perspectives is essential.
- Superior technology is important for winning wars. But it is force employment that would tilt the balance, especially since it would synergise technology with the operational environment.
- Air dominance should be a key objective in our armed forces joint doctrine and the Indian Air Force's central doctrine and strategy to win the wars imposed on the country.

Air dominance should be a key objective in our armed forces joint doctrine and the Indian Air Force's central doctrine and strategy to win the wars imposed on the country.

THE LOCAL BORDER WAR?

At the outset, we must emphasise that it is in India's unambiguous and central interest to build and strengthen friendly cooperative relations with China. But given the substantive territorial (not mere border) disputes between the two countries, going back at least to the time of Indian independence, the potential for a clash of arms, however theoretical, will continue between the two giant neighbours since their civilisational values, national and strategic interests diverge significantly and even compete in many ways. This, in turn, could manifest in the shape of armed conflict and a conventional war on the high Himalayas. All the three leading sovereign powers of the world — the USA, China and India (in that order) — are cooperating and competing at the same time in pursuit of their national and strategic interests. Hence, it is important to study the potential way China could possibly conduct a war in the future for whatever reasons,

even though the chances of such an eventuality between the two rising powers, “strategic partners” and nuclear weapon states are remote and their interests, at least for the foreseeable future, lie in devoting all their energies to human development.

China has been furiously modernising its military for more than two decades and has been increasing its military spending at an average of over 13 percent every year *in real terms* during this period. It has already shed its legacy systems and the inherited institutions and organisations of the past. In the process, its military has moved dramatically toward becoming a modern high-technology force which, though lagging behind the US military, is at par with the best of its neighbours, and would soon outpace them in many crucial ways.⁵ It is in this context that we need to carefully study how China might conduct its next war.

Briefly, as it started its four modernisations after the Sino-Vietnam War which demonstrated serious deficiencies in its war-fighting capabilities, China modified its traditional doctrine of “people’s war” initially to “people’s war under modern conditions.” By the mid 1980s, serious thinking went on about its war doctrine, along with reforms in the military and military-technological areas. Finally, the Central Military Commission (CMC) approved a new doctrine of “local border war” in 1985.⁶ While this has undergone a number of changes (like high-technology modern war) since then, largely as a consequence of the employment of military power in armed conflicts and wars by the United States and other Western countries (in particular Israel’s 1982 War, the US air strikes on Libya in 1986, 1991 Gulf War, 1999 War in Kosovo, 2001 War in Afghanistan, 2003 War in Iraq, and so on), the centrality of “local border” has persisted. This evolution of China’s war-fighting doctrine took into account the existence of nuclear weapons, the limited advantage (especially against a nuclear weapon armed state) of

5. For example, its strategic forces are already equipped with very large numbers of IRBMs with MaRV which could be armed with nuclear or conventional warheads, making it the third country to possess such capability that is expected to neutralise almost all types of BMD systems. This would increase the ambiguities for the defender.

6. Ka Po Ng, *Interpreting China’s Military Power: Doctrine Makes Readiness* (London: Frank Cass, 2005), p. 82.

any deep thrust by land forces,⁷ and maximum reliance on a fundamentally altered doctrine for the employment of aerospace and missile power.

The doctrinal changes provide the key to understand the development and modernisation of the Chinese military forces and how China plans to fight the next war. The heightened emphasis on aerospace power (with a shift from territorial defence to long-range precision strike, while catering for territorial air defence) began after the 1991 Gulf War where the US decimated Saddam's surface forces in a 42-day persistent air campaign with nearly 117,000 sorties flown which was followed by the barest exchange between the two ground forces after the US had announced the intention to cease fire four days ahead of the contact war, which itself followed a wide detour to bypass Kuwait to directly engage the deployed Iraqi armour before the ceasefire came into being. In a way, the US-coalition fought a local border war on land; and in 1999, Kosovo did not even use ground forces. China, particularly after 1989, and the consequent sanctions/arms embargos by the Western countries) would have faced major handicaps in implementing a strategy based on the new doctrine. But by sheer historical coincidence, the collapse of the Soviet Union provided a unique opportunity to rapidly upgrade China's military technology to restructure its armed forces and move forward in operationalising the new doctrine and even refine it further.

China had started the series of reforms in its military since the early 1980s ranging from education, military industry, organisation, manpower policies (where the effects of the Cultural Revolution were sought to be eliminated and numbers were reduced dramatically) and weapon systems and technology. The officer corps and introduction of the Non-Commissioned Officer (NCO) system has been the bedrock of manpower reforms which even laid down the upper age of commanders at different levels, in the process reducing the average age of top military commanders from 76 years in 1986 to nearly 56 years now. China's force reduction (in the army) was critical to the reforms and building modern technology armed forces heavily biased toward air

7. One must look back and wonder whether the Chinese would have actually advanced to Bomdila (or even Sela Pass) in 1962 if India had possessed nuclear capabilities at that time?

While the stated doctrine changed a number of times based on the experiences of wars waged by the US, the 1985 formulation of “local border” has remained the bedrock of China’s military doctrine, strategy and reforms.

and naval power, besides some fundamental changes in the nuclear missile arena [where much larger numbers of Manoeuvrable Reentry Vehicles (MaRV), missiles with conventional warheads and supersonic cruise missiles are being introduced]. While the stated doctrine changed a number of times based on the experiences of wars waged by the US, the 1985 formulation of “local border” has remained the bedrock of China’s military doctrine, strategy and reforms.

Although some people argue that China’s nuclear doctrine has undergone some changes over the decades, there is little evidence to support that in substantive forms. The Chinese government has often stated that it maintains a policy of unconditional “no first use.” By using the term strategic counter-strike in the military strategy, as reflected in its 2004 White Paper on National Defence, it has again reaffirmed by implication the no first use doctrine. In fact, it would be difficult to objectively identify a politico-military scenario where China — or, for that matter, India — would actually need to use nuclear weapons first. The only conceivable scenario that might lead to the Chinese use of nuclear weapons would be if the Indian Army advances to occupy the Aksai Chin plateau in accordance with the unanimous resolution of the Parliament after the Sino-Indian War of 1962 to regain all Indian territories. But a lot of water has flowed down the Brahmaputra since then. Both countries possess credible nuclear weapons capabilities, and both need an extended period of peace for human development. No doubt, this was a major factor in China’s adoption of the military doctrine and strategy of local border wars.

ROLE OF AIR POWER

There is a basic military logic that in a limited and/or local border war, land forces would normally be restricted to areas close to the border and

not attempt a deep strike and penetration if the other country possesses nuclear weapons since escalation to nuclear levels would then be almost inevitable. While air power could play a major role in supporting the advance of military forces into hostile territory, in a local border war, air power becomes an inescapable necessity for the simple reason that it is the only instrument of military power that can engage and destroy military (and civil) targets deep inside hostile territory without having to engage or defeat the enemy's land forces first. Hence, modern air power integrated with space capabilities becomes crucial for both sides in a local border war and the main instrument of choice for victory and coercive impact. It may be recalled that when some sort of strategic stability had been reached during the Cold War by end 1980, the US and North Atlantic Treaty Organisation (NATO) had adopted the doctrine of Follow-on-Forces Attack (FOFA) by air interdiction to ensure that the land war remains localised without reinforcement by any reserves moving forward.

Modern air power integrated with space capabilities becomes crucial for both sides in a local border war and the main instrument of choice for victory and coercive impact.

China has been placing great emphasis on the role of air power in such wars based on the experiences of wars since the end of the Cold War. As it is, the history of wars leads to the unambiguous conclusion that air power played a dominant role in achieving victory.⁸ Once China adopted the doctrine of local border war, its dependence on air power naturally increased. However, it still did not possess technology for modern air power systems. But the collapse of the Soviet Union opened up new unprecedented opportunities for acquisition of selected high-technology weapon systems for China's military modernisation. As a consequence of new capabilities coming in, the air force leadership sought a larger budget (which was provided by slashing the strength of the land forces) and clearly started to expound their plans in public.⁹

8. John Andreas Olson, ed., *A History of Air Warfare* (Washington DC: Potomac Books Inc., 2010) besides many others.

9. "PLA Officer Complains About Budget," *FBIS-CHI-1999-0309*, March 09, 1999.

Germany's leading think-tank has concluded that the "Chinese Air Force is the only branch for which the 2008 Defence White Paper identifies offensive capability."

By the end of the 1990s, the Chinese Air Force commander was publicly expounding the new strategy for the air force. He publicly sought a greater role for the People's Liberation Army Air Force (PLAAF), declaring that the Chinese Air Force will strive for a transformation from the air defence type to an offensive and defensive type as soon as possible. He announced, "At the turn of the century and in the early part of the new century, the Air Force will have a batch of new-types of early warning aircraft, electronic-equipped fighter planes, and ground-to-air missiles" and that the air force "*must give more prominence to the air offensive, gradually integrate offensive and defensive, and build up a crack, first-rate air strike force*"¹⁰ (emphasis added). His forecast goal can be seen to have generally materialised by now. It is not surprising, therefore, that a study by Germany's leading think-tank has concluded that the "Chinese Air Force is the only branch for which the 2008 Defence White Paper identifies offensive capability."¹¹ However, the centre of gravity of the Chinese military will remain the army because of its predominant role of underpinning the supremacy of the Chinese Communist Party, thus, making it primarily domestically oriented. Projection of military power outside the state, however, would rest with the air force, navy and strategic forces.

The result could be clearly seen a decade later in China's bold and unambiguous announcement of military strategy in its 2004 White Paper on National Defence. The crucial section candidly stated is reproduced below:¹²

While continuing to attach importance to the building of the Army, the PLA gives priority to the building of the Navy, Air Force and Second Artillery Force *to seek balanced development of the combat structure, in order to strengthen*

10. "Air Force Commander Liu Shun Yao on Air Force Transformation" *FBIS-CHI-1999-1107*, dated November 07, 1999.

11. Sophie-Charlotte Brune, Sascha Lange and Janka Oertel, *Military Trends in China: Modernising and Internationalising the People's Army* (Berlin: Stiftung Wissenschaft und Politik, February 2010), translated by Meredith Dale, pp. 13-14.

12. "Revolution in Military Affairs with Chinese Characteristics" in *White Paper on China's National Defence in 2004*, Chapter III, p.1, published to illustrate China's national defence policies and the progress made in the previous two years, *China Daily*, December 28, 2004.

the capabilities for winning both command of the sea and command of the air, and conducting strategic counter-strike (emphasis added).

Notice the term “command of the air” which has not been used by any country since the early 1920s; and the inclusion of strategic strikes in a local border war! The reason for the former is that the Chinese Air Force by that time possessed a large number of 4th Generation aircraft like the Su-27 (and had begun its copy, the J-11/ J-11B) and Su-30MKK, had upgraded its J-10/J-10B, JF-17, claimed to have the design of the stealth fighter, and acquired the initial batch of Airborne Warning and

Control System (AWACS) — the ZDK-03 — and aerial refuelling, besides a vast range of supersonic cruise missiles, air-to-air Beyond Visual Range (BVR) missiles and an array of Precision-Guided Munitions (PGMs) capable of strikes from longer ranges. Rapid progress in space capabilities added to the air force capabilities to undertake a significant portion of the stated strategy though it remains aspirational but moving toward the ultimate goal. Further down, plans to build 500-1,000 Jian-10 fighters (developed with Israeli assistance and believed to incorporate Lavi technologies) may fructify.¹³ At the same time, it mastered the technology for MaRV launched on ballistic missiles (of which over 1,300 intermediate range missiles are reportedly deployed along the coast opposite Taiwan and other places). At present, no other country has larger combat aircraft manufacturing projects in the advanced stage than China.

At the same time, China has focussed heavily on (ballistic and cruise) missiles and modernised them. It has developed the MaRV in addition to the earlier Manoeuvrable Independent Reentry Vehicle (MIRV) capabilities for the warheads for its ballistic missiles. It has been developing and testing its own Ballistic Missile Defence (BMD) system based on the Russian

... to seek balanced development of the combat structure, in order to strengthen the capabilities for winning both command of the sea and command of the air, and conducting strategic counter-strike.

13. *Summary of World Broadcasts (SWB)*, dated August 28, 1999, p. 19.

... aims to caution China's neighbours that while the ground war may remain local, aerospace power would be the real sword arm of the People's Republic of China.

supplied S-300 and S-400 air defence and anti-missile systems. In January 2007, China destroyed its own obsolete satellite at around 700-km altitude by a ground-based missile, mainly to showcase its Anti-Satellite (ASAT) capabilities.

The MaRV capability so far was possessed only by the United States and Russia and it holds the promise of defeating BMD systems. China's MaRV capability is seen as anti-access for the US Navy, as ballistic missiles to defeat the Aegis class destroyers and also as Anti-Ship Ballistic Missiles (ASBM) to target US carrier task forces. Its possession and the candid statement of strategic counter-strikes in the White Paper cited above (with non-nuclear ballistic missiles, cruise missiles and combat aircraft) aims to caution China's neighbours that while the ground war may remain local, aerospace power would be the real sword arm of the People's Republic of China (PRC).

In the context of the brief overview of China's military power and strategy outlined above, if an armed conflict and use of military force does break out between China and India, what is the most likely scenario that we are likely to face? Here it may be useful to remember that China has historically used its military power when certain of victory, used force for rapid effect, and very often with politico-military goals that may have little to do with the country that it was using force against. In other words, "China could use force for reasons that have little to do with its territorial disputes."¹⁴ For example, Chou En Lai, within a few weeks after withdrawing from Indian territory that China had captured in Arunachal Pradesh, is on record stating that territory was not the main cause for its launching the 1962 War; but it had become important to "teach lessons" to India and Nehru who were shifting too close to the United States. At the same time, there is enough evidence that China launched the war to complicate Soviet foreign policy

14. Michael D. Swaine and Ashley Tellis, *Interpreting China's Grand Strategy: Past, Present, and Future* (Santa Monica: RAND, 2000), p. 133.

on the eve of the Cuban missile crisis, while, at the same time, challenging the Soviet leadership of the socialist camp, and to try and paint Moscow as an unreliable friend.

China has had double-digit economic growth for the best part of three decades. Yet it has a long way to go to ensure a better quality of life for its people, assimilate its western provinces which constitute 40 percent of its territory and build military power anywhere close to that of the United States. Hence, the repeated emphasis in most of its White Papers on National Defence, issued every alternate year since 1996, on its priority for a peaceful environment and developing cooperative relations with other countries. It has adopted the precept of “strategic partnership” with India. Trade between the two countries has risen from a couple of hundred million dollars in 1999 to nearly \$60 billion in 2010. On the other hand, it has adopted a posture of increasing assertiveness against India since the early years of this century, becoming more marked after 2005, when it became clear that India was growing in power, even if lagging behind China. Lately, it has adopted a posture of treating Jammu and Kashmir (J&K) as disputed territory but only on the Indian side of the Line of Control (LoC). It appears almost totally unwilling to establish peace and tranquillity on the borders as agreed upon in the bilateral agreements of 1993 and 1996.

Broadly speaking, it can be generally concluded that China (i) would not risk a military conflict unless the stakes are very high like serious turmoil in Tibet¹⁵ or Xinjiang; (ii) it is seen by Beijing as necessary to take that risk to sustain its great power image; (iii) to create serious complications for US foreign policy and through that, undermine its influence in Asia and the world while, at the same time, delivering a serious blow to India and, hence, adversely affecting its rise to greater power to rival it; or (iv) a conflict that evolves through escalation and miscalculation possibly from a dispute/ clashes on the Sino-Indian frontier [where China refuses to enter into serious measures to demarcate the Line of Actual Control (LAC) stipulated in the

15. It is often ignored that the real Sino-Indian conflict started in 1959 after the Tibetan revolt and led up to 1962. There have been serious disturbances in Tibet on the 50th anniversary of that revolt. For a perceptive analyses, see Prem Shankar Jha, “India’s Tibet Problem” , *AIR POWER* Journal, vol. 4, no. 2, Summer 2009, pp. 9-22.

The PLA land forces would aim to fight a local border war along the approximate frontier, strategically remaining on a defensive posture and tactically adopting an offensive strategy.

1993 and 1996 bilateral agreements when China had not recovered from its vulnerabilities after 1989, and the impact of the collapse of the Soviet Union, and its “peaceful rise” needed India].

Considering what by now is a vast amount of literature on China’s military power, one can hypothesise how China might fight a local border war with India if it decides to do so. Broadly, and without going into details, one can assume high probability for the following integrated joint campaigns:

- **The PLA land forces would aim to fight a local border war along the approximate frontier**, strategically remaining in a defensive posture and tactically adopting an offensive strategy. China is holding the territory it wanted in the first place in Aksai Chin since it alters the frontier from the Karakoram Range to the Kunlun Range. This has been the main reason for China to deny any obligation to the McMahon Line which really was meant to demarcate the boundary between Inner and Outer Tibet and included the Tibet-India boundary only incidentally. However, we cannot assume that China may not try to occupy Tawang (in Arunachal Pradesh) although it had gone way beyond it in 1962 but had unilaterally vacated it and returned to the generally accepted border along the McMahon Line. PLA land forces may be expected to employ heavy firepower in the mountains, especially against the Indian Army’s artillery.
- **The PLAAF would undertake long-range precision strikes into India** aiming to dominate Indian Air Force and Army formations. Toward this end, it can be expected to attempt to (i) neutralise IAF bases; (ii) engage the IAF in air warfare; (iii) neutralise the Indian Army’s artillery units in the mountains where siting locations will be limited; and (iv) interdict logistic lines of communications. The PLAAF would also provide territorial defence against IAF strikes and aim to protect its vulnerable lines of communication (like the Golmud-Lhasa railway line, etc).

- **The PLA Navy would play a minimal role in the Indian Ocean, at least for the coming decade, primarily due to limitations of naval assets to operate so far away** even though ports like Gwadar, etc. may be available. Little politico-military advantage is likely to accrue to China by attempting naval warfare in India's backyard.
- **Strategic strikes by the Chinese Strategic Forces with Intermediate Range Ballistic Missiles (IRBMs) armed with conventional warheads and MaRV** which would pose a serious challenge to BMD when it becomes operational) with a range of around 1,500 km against fixed targets (especially air bases), essentially for interdiction of road/railway lines and junctions to restrict the movement of logistics and reinforcements. China is already reported to have deployed some 1,300 such missiles on the east coast against Taiwan/USA to deny access to the US naval armada. These are mobile missiles and there is no reason to believe that a large number cannot be deployed on the Indian frontier.

PAKISTAN'S FIFTH WAR AGAINST INDIA?

Pakistan has reached a tipping point into serious instability which its army may find difficult to control in spite of robust military and economic aid from the US and other Western countries on one side and China on the other. The internal struggle for power and ideology amongst multiple groups seeking a dominant role in the future may be expected to exacerbate during the coming three years when the US starts to wind down its commitments to the war against terrorism in the AFPAK theatre. Once it realised that its proxy war through terrorism in J&K had started to be counter-productive after 2001, Pakistan and its semi-state and non-state actors began to organise and support groups within India to engage in terrorism.

Pakistan's economy has been stagnant at a little over 2 percent for quite some time in spite of robust external assistance. With a population growth of about 3.1 percent, Pakistan is incessantly adding to its poverty loaded population. *Jihad* has finally started to impact its core heartland of Punjab, including its capital, Lahore, which carries an immense psychological value to the country. On the other hand, it has been rearming furiously

after its defeat in Kargil in the summer of 1999, with a focus essentially on air power, both in the Pakistan Air Force (PAF) and in the naval/maritime domain.¹⁶

The Muslim League and, therefore, Pakistan adopted an ideology which denies equality of human beings. Hence, the need for partition; and since then, Pakistan has moved along the hardening and radicalisation of its ideological foundations through the Bhutto-Zia Islamisation, legitimisation of terror in the name of religion,¹⁷ inclusion of the term “*jihad*” in the army’s motto in 1976, blatant use of religion in pursuit of Cold War geo-politics by the US (the most powerful democracy), with Pakistan as its frontline state to fight the war in Afghanistan during the 1980s by creating eight groups of guerrilla fighters called “Mujahideen” (those who carry out *jihad*). And when the Mujahideen finally acquired power to rule over Afghanistan, their policies were not seen in Islamabad as very docile and friendly, hence, the raising of an even more radical entity called the Taliban which ruled from Kabul after defeating and dislodging the Mujahideen with Pakistan’s help in 1996 till they were dethroned by the US’ war against terrorism and Al Qaeda. The space and theme of this article does not allow a more detailed analysis. Suffice it to state that the ideological radicalisation of Pakistan, and its population split into various groups of *jihadis*, many of them like the Tehrik-e-Taliban Pakistan, waging a terrorist war against Pakistan itself have grown immensely. Some of them have tasted actual power both in ruling Afghanistan and in the North-West Frontier Province (NWFP) of Pakistan. International and national security is consequently affected seriously, because “...the combination of religion and politics is potentially explosive. The combination of religion and nationalism is stronger, but a blend of the three has an extremely destructive potential.”¹⁸

16. For details, see Shalini Chawla, *Pakistan Army and Its Strategy* (New Delhi: KW Publishers, 2009), especially Ch. 7 and 8, pp. 207-254.

17. See Brig S. K. Malik, *The Quranic Concept of War* (Lahore: Wajidalis, 1979) and Gen Zia-ul Haq’s endorsement of the misguided concept in his Introduction recommending the book to all Pakistanis and the army.

18. Faliq Abd al Jabbar, “The Gulf War and Ideology: The Double-Edged Sword of Islam,” in Haim Bresheeth and Nira Yuval-Davis, eds., *The Gulf War and the New World Order* (London: Zed Books; 1991), p. 217.

As the world moves toward 2014, the declared date of US (and NATO) withdrawal from Afghanistan, we may be witness to increasing violence in the struggle for power under the garb of radical ideological struggles in the name of Islam. Pakistan now has all the ingredients of an unstable state and polity. Fortunately, it is unlikely to collapse completely and/or become a “failed state” though it has failed its own people for six decades. Looking at all this and much more, there appears a serious risk that the elites and leaders of Pakistan may turn to a war against India to divert the disparate groups and opposition to the Pakistan Army, the dominant source of the power structure in Pakistan and, thereby, divert attention from domestic problems. The deep-rooted, burning desire to defeat India has been a major factor in all the four wars that Pakistan has fought with India.¹⁹

Conscious of the risks associated with nuclearisation, Pakistan’s basic goal would be to fight a limited war under the nuclear umbrella and expect the international community to intervene early on and pull most of its chestnuts out of the *jihadi* fire.

It is conceivable that as Pakistan goes down the slippery slope to greater instability, it may consider an attack on India to divert the domestic and international opinion and as a way out of the morass it has got into. Conscious of the risks associated with nuclearisation, Pakistan’s basic goal would be to fight a limited war under the nuclear umbrella and expect the international community to intervene early on and pull most of its chestnuts out of the *jihadi* fire. Hence, the land forces are likely to maintain a strong defensive posture (though threatening a major armoured offensive), with longer range firepower (artillery and conventionally armed missiles) being used extensively to inflict as much damage on the Indian Army as possible and employ the longer range (ballistic and cruise) missiles with conventional warheads to target the IAF air bases. Hence, the main thrust would rely on the PAF and missiles, seeking air dominance over the IAF. Here we must note the likelihood

19. Gauhar, n. 1.

of assumptions (as so often before, especially in 1965 and 1999) that the IAF with its unplanned drop of combat force level from nearly 40 squadrons to perhaps as low as 38 squadrons would be hard put to manage a potential threat from the north as well as fight a competent PAF in the west. As in the past, in 1965 and 1971, a significant part of the Air Force would have to be deployed for the northern frontier, leaving a force on the western front which numerically would be smaller than that possessed by Pakistan by 2015.

Pakistan has paid special attention in its modernisation since Kargil to the Pakistan Air Force and maritime aerial strike capabilities. It has acquired six Swedish Airborne Early Warning and Control (AEWC) aircraft and four Chinese KJ-2000 AWACS. Its further plans to acquire aerial refuelling aircraft along with a large complement of maritime patrol and strike aircraft and supersonic cruise missiles indicate a desire to (i) extend its sea denial boundaries as far as possible; and (ii) achieve long range precision strikes against high value targets in the Indian peninsula all the way down to Kanyakumari.

SOME CONCLUSIONS

The Sino-Pakistan strategic nexus has been obvious since 1965 when Mao was reported to have offered nuclear knowhow to Pakistan. China subsequently supplied a whole range of nuclear designs, technology and materials which made it possible for Pakistan to acquire nuclear weapons capability (with the US facilitating this process further). China supplied nuclear capable ballistic missiles to Pakistan in 1987 (when it had in all probability built its first nuclear weapon)²⁰ and later via North Korea. China has also been reported to have supplied it supersonic cruise missiles. More than 60 percent of Pakistan's conventional weapons have come from China or been manufactured under licence in Pakistan.

20. For China's supplies of ballistic missiles to Pakistan, see Pakistan Prime Minister Moeen Qureshi's statement on August 26, 1993, cited in *The Nation*, August 27, 1993; and Foreign Minister Abdul Sattar's statement to the Senate, August 26, 1993, cited in *The Nation*, August 27, 1993 where he said, "These missiles were bought keeping in mind Pakistan's security needs" which he went on justify in relation to missile attacks across the borders from Afghanistan.

The big question that Indian strategic experts are looking at is the likelihood of a coordinated military action by the two countries against India. The Chief of Staff of the Army was quoted in December 2009 to have advised the Indian Army to be prepared for a two-front war, besides undertaking counter-terrorism duties. Historically, China gave not only political-diplomatic support to Pakistan in its military aggression against India, but also raised the stakes when President Ayub and Foreign Minister Z. A. Bhutto paid a secret visit to Beijing, pleading for help against India. However, China remained apparently neutral in 1971 though it continued military supplies to Pakistan. During Kargil, China maintained near total neutrality.

If China triggers a military clash, Pakistan may be expected to take advantage on the western front.

Hence, what conclusion can we draw from the past history? If China triggers a military clash, Pakistan may be expected to take advantage on the western front. **But if Pakistan (believing that there is a window of vulnerability of the IAF till the end of this decade after which it would not be able to match the IAF) launches a military adventure, overtly or covertly, China may not necessarily undertake any hostile action unless Pakistan is seen to be losing the war (as, indeed, happened in 1965).** But in any case, New Delhi has to remember that (i) it has been facing a two-front military modernisation at a rapid pace; (ii) collusion between China and Pakistan may be situation specific, but India's defences would have to cater for two theatres each requiring significant numbers and quality of armed forces for defence; and (iii) China will continue to supply nuclear-missile technologies, BMD technologies and even potentially its MaRV armed ballistic missiles directly or through North Korea to help Pakistan target IAF air bases and missile delivery capability. Any further delays in force modernisation in the Indian armed forces would only enlarge the existing window of vulnerability which diplomacy may not be able to manage adequately and nor should we expect external assistance in case of a conflict on our frontiers.

AIR POWER IN STABILITY AND ANTI-TERRORIST OPERATIONS

ARJUN SUBRAMANIAM

The recent release of the book *So that Others May Live* by the Chief of the Air Staff (CAS) on June 23, 2011, is a good enough reason to showcase some of the non-kinetic capabilities of air power; capabilities that contribute significantly to nation building and sustenance of the human spirit across the globe. Concurrently, Operation Geronimo, the mission to kill or capture Osama Bin Laden is a classic demonstration of the ability of air power to create strategic effects even with non-kinetic capabilities. A detailed analysis of that operation is important to drive home some lessons on the ability of a state to combat terrorism and exploit the multi-spectral capabilities of air power to good effect.

HISTORICAL PERSPECTIVE

A good point to start would be the period around World War II wherein two operations merit attention when it comes to highlighting the non-kinetic and supporting capabilities of air power. The first operation was the sustenance of Chiang Kai-shek's Nationalist Kuomintang (KMT) forces by the Allied air forces operating out of India via the famous "Hump Route" across the Himalayas. The second and more visible operation was the Berlin Airlift from June 1948 to May 1949 that provided continuous succour and

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relief to West Berlin in the face of a blockade by Soviet Russia. While both operations had the flavour of an unconventional conflict, the sustenance of Imphal by the Allied air forces in March 1944, though not a classic stability operation, highlighted the ability of air power to sustain a force from the air and infuse a sense of stability in operations.¹

Sustaining the war effort of Chiang Kai Shek against the Japanese in China from 1942-45 was always going to be a daunting task considering that the Japanese had blocked the eastern access to China by their swift conquest of Southeast Asia by 1942. The Allies realised that establishing a safe aerial corridor would be the best way of sustaining the Chinese war effort and elements of the US Special Forces operating from southwestern China. This was the genesis of the “**Hump Route**” over the Himalayas into southeastern China that was created from airfields in the eastern part of India between 1942 and 1945.² This “air bridge”, commonly referred to as the “Hump”, was a 500-mile route over the awesome and uncharted three-mile-high peaks of the Himalayan mountains. For the remainder of the war, the Hump operation comprised the sole source of supplies to the Chinese and Americans regular and guerrilla forces attempting to contain the large Japanese forces on the Chinese mainland.

The goal of the Air Transport Command’s India-China Division was to initially deliver 2,500 tonnes of supplies during the early months, steadily increasing the monthly tonnage to 10,000 tonnes.³ The airlift began in April 1942, after the Japanese blocked the Burma Road, and continued on a daily basis from May 1942 to August 1945, when the effort began to scale down. Final operations were flown in November 1945. The Hump airlift delivered approximately 650,000 tonnes of material to China during its 42-month history. The final summary of logged flight time in the airlift totalled 1.5 million hours. The Hump ferrying operation was the largest and

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1. Air Marshal G. E. Gibbs, “Air Power in the Burma Campaign,” *Indian Air Force Quarterly*, vol. II, October 1952, pp. 6-7.
 2. “The Hump,” from http://en.wikipedia.org/wiki/The_Hump, accessed on October 02, 2010.
 3. Billy J. Hoppe, “Lieutenant General William H. Tunner — In the China-Burma-India Hump and Berlin Airlifts: A Case Study in Leadership in Development of Airlift Doctrine,” A research report accessed from [http:// au.af.mil/au/awc/awcgate/awc/hoppebj.pdf](http://au.af.mil/au/awc/awcgate/awc/hoppebj.pdf) on October 02, 2010.

most extended strategic air bridge (in volume of cargo airlifted) in aviation history until exceeded in 1949 by the Berlin Airlift.⁴

The **Berlin Blockade** (June 24, 1948-May 12, 1949) was one of the first major international crises of the Cold War short of actual war, and the first resulting in casualties. During the multinational occupation of post-World War II Germany, the Soviet Union blocked the Western Allies' railway and road access to the sectors of Berlin under Allied control. Their aim was to force the Western powers to allow the Soviet zone to start supplying Berlin with food and fuel, thereby giving the Soviets practical control over the entire city.

In response, the Western Allies organised the **Berlin Airlift** to carry supplies to the people in West Berlin. The United Kingdom's Royal Air Force (RAF) and the recently formed United States Air Force (USAF), flew over 200,000 flights in one year that provided 13,000 tonnes of daily necessities such as fuel and food to the Berliners. By the spring of 1949, the effort was clearly succeeding, and by April, the airlift was delivering more cargo than had previously come into the city by rail. The Berlin Airlift officially ended on September 30, 1949, after fifteen months. In total, the USAF delivered 1,783,573 tonnes, while 541,937 tonnes were delivered by the RAF, totalling 2,326,406 tonnes of food and supplies, nearly two-thirds of which was coal, on 278,228 flights to Berlin. The RAAF (Royal Australian Air Force) delivered 7,968 tonnes of freight and 6,964 passengers during 2,062 sorties. The success of the Berlin Airlift brought humiliation to the Soviets who had refused to believe it could make a difference. The blockade was lifted in May 1949 and resulted in the creation of two separate German states.

Readers may question the relationship between an operation conducted during World War II and 4th Generation Warfare (4GW) and assert that air transport operations comprise a full-fledged role of air operations. While there is no basic disagreement with that argument, the reason why it merits attention is to reiterate the strengths and potential of air mobility operations in sustaining a force or group of people. The same

4. Ibid.

principles would hold good if a city or district is besieged by non-state actors and the state has to do what it can to sustain the garrison with whatever tools it has at its disposal. In such a situation, air transport assets, if leveraged correctly, can act as a significant tool of governance and stability.

THE INDIAN EXPERIENCE

The Indian Air Force too has had significant experience in stability operations and the three operations that would be briefly discussed in this paper are the Srinagar airlift in 1948, Operation Cactus, and UN Peace-keeping Operations. Significantly, all these operations were primarily directed against proxy or non-state actors and carried out by bomber, transport and helicopter crew of the Indian Air Force (IAF).

In a bid to gain control of the erstwhile Princely state of Jammu and Kashmir (J&K), Pathan tribesmen poured into Kashmir on October 20, 1947, aided by the Pakistan Army. Incapable of withstanding the armed assault in his province, the Maharaja of Kashmir, Hari Singh, asked India for help. The Government of India made its assistance conditional upon Kashmir's accession to India. The Instrument of Accession was signed on October 26, 1947, and the next day, Indian troops were airlifted into Srinagar. Taking off from Safdarjang, then known as Wellington Airfield, the IAF landed Indian troops at Srinagar airfield at 09:30 hours on October 27. This was a defining moment as the air landed troops of 1 Sikh Regiment saved the city from the invaders. The continuous air bridge by the IAF (with some Dakotas from the civil airlines) made this possible for the Indian Army and its militia. The Srinagar experience was repeated at Punch and Leh subsequently. Apart from the airlift operations, the IAF supplied essential commodities to the ground troops, thereby enabling sustenance of the offensive action against the invaders.

The **1988 Maldives coup**, whose rescue efforts were code-named **Operation Cactus** by the Indian armed forces, was the attempt by a group of Maldivians led by Abdullah Luthufi and assisted by about 80 armed mercenaries of a Sri Lankan secessionist organisation, People's Liberation Organisation of Tamil

Eelam (PLOTE), to overthrow the Government of the Island Republic of Maldives. The coup was defeated after Indian forces were invited by the Maldivian government to intervene. The operation started on the night of November 3, 1988, when Ilyushin Il-76 aircraft of the Indian Air Force airlifted a battalion of the Parachute Regiment from Agra Air Force Station and flew them non-stop over 2,000 km (1,240 miles) to airland them at the Male International Airport on Hulhule Island. The Indian Army paratroopers arrived on Hulhule less than 12 hours after the appeal from President Gayoom.

The Indian paratroopers immediately secured the airfield and restored control of the capital to President Gayoom's government within hours. In brief, the operation demonstrated the ability of air power to swiftly intervene over large distances against inferiorly equipped non-state actors and act as a potent tool of military diplomacy.

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IAF IN UN PEACE-KEEPING MISSIONS

Air power has formed an integral part of most Indian UN peace-keeping and peace enforcement contingents, particularly in the African continent. Whether it was the Canberra bomber interdictors in the Democratic Republic of Congo (DRC) in the Sixties, or the various helicopter detachments in the DRC, Sudan, Somalia, and Sierra Leone, air power was a powerful instrument of coercion and compellence when it came to dealing with the plethora of non-state actors and rebels in those countries. The experience gained in those situations must be leveraged in operations against non-state actors in India itself. Apart from the limited application of offensive air power by Canberra bombers against the Katangan rebels during the Congo crisis of 1961, IAF attack helicopters have been used sporadically but effectively to provide fire support to UN forces in Sierra Leone and Congo. Indian helicopter detachments in Africa have proved time and again that

presence and visibility are two extremely important characteristics of air power that can be leveraged in non-kinetic and stability operations. Though Indian involvement in UN peace-keeping missions dates back to Korea in the 1950s and the DRC in 1961, the Cold War ensured that the UN did not get embroiled in too many civil wars in Africa as the two superpowers acted as proxies in the region. The end of the Cold War saw increased UN intervention in conflict zones, particularly in Africa. During this period, India's contribution to the maintenance of peace and security in Africa has been exemplary.

Indian peace-keeping and peace-enforcement missions under Chapters VI and VII of the UN Charter have performed admirably in the attempt to bring stability to a continent that is torn with ethnic and tribal strife. The Indian Air Force has played a stellar role in providing aerial contingents to many of these missions and proved that air power has the coercive and deterrent capability to maintain peace and infuse some semblance of law and order in diverse conflict zones ranging from Sudan and Somalia to Sierra Leone and Congo. Most of the conflicts in Africa since the end of the Cold War fall under the umbrella of 4GW, and in such a scenario, it is not unrestricted kinetic application of air power that would succeed, but a calibrated show of force coupled with restrained use of air power — something that the IAF has excelled at. In fact, at a recent US Global Peace Operations Initiative, one of the commanders of an IAF UN contingent in Sudan was invited to share his thoughts on the employment of air power in UN operations as the US was interested in sharing experiences on stability operations with the IAF.⁵

IAF Contribution

The Indian Air Force first contributed air assets in the form of six Canberra bomber interdictors in 1961 in the DRC. These bombers played a pivotal role in ensuring that ground operations against the Katangese rebels could

5. The author is grateful to Air Vice Marshal M. Bahadur for sharing his experiences of the seminar and those of his stint as contingent commander in Sudan. A major portion of this section derives strength from his paper titled "Rotary-Wing Assets in Support of Peace-keeping" that he presented at that seminar.

be undertaken with adequate air cover. After a long gap, the IAF was called into action again as part of the UN mission to Somalia in 1993-94. Since then, it has provided the following assets in UN missions

- Two Allouette helicopters for surveillance, reconnaissance and anti-tank roles in Somalia.
- Four Mi-8 utility helicopters, four Allouettes and three Mi-35 Attack helicopters in Sierra Leone in 2000.
- Five Mi-17 multi-role helicopters and four Mi-25 attack helicopters in the DRC, initially under Chapter VI, and later under a more proactive Chapter VII from 2003-10.
- Six Mi-17s, four Mi-35s and 4 Cheetah helicopters in the DRC from 2010-11.
- Six Mi-17s in Sudan from 2005-11.

Effectiveness of Air Power

The end of the Cold War also saw a shift in the focus of UN mandated operations from intervention in inter-state conflicts to intra-state ones. They also saw a shift in focus from merely brokering peace to attempting to restore stability and governance. In this complex and multi-dimensional endeavour, air power, with its inherent advantages of reach, responsiveness, flexibility, mobility and firepower, became quite the favoured instrument in peace operations. Bosnia marked a significant milestone in UN mandated operations in that it was the beginning of an attempt to clearly define the role of air power in peace-keeping and peace-enforcement functions in terms of where and when to apply offensive air power and where to calibrate and restrict its use to non-kinetic roles like surveillance, casualty evacuation, and the like. Unfortunately, the UN Security Council failed to reach a consensus on clearly laying down the Rules of Engagement (ROEs) for Chapter VII and the issue remained in limbo for a few years, forcing countries like India to constantly ask for ROEs in order to fulfil the mandate and ensure force protection. Indian Air Force assets on UN deployment in all the missions mentioned above have broadly operated under the conditions

that fall under three broad categories. The first one primarily comprised military observer missions that would monitor ceasefires and conduct broad based observation and patrol duties. The sheer presence of aerial observation platforms provided significant deterrence and signalling to the belligerent factions that they were being monitored. The second role was in helping sustain buffer zones between warring factions and aiding the ground contingents with aerial patrols and protection during routine operations. This again was a primarily deterrent posture, with adequate coercive capabilities to ensure protection. The third broad role conformed to the UN's ambitious attempt at brokering peace, maintaining stability and restoring governance through mechanisms like elections. This was achieved through classic military and police operations that involved some use of force. Translating all these missions into roles meant that there would have to be clearly defined ROEs and roles for Chapter VII.⁶ From an IAF perspective, as it gained experience in Africa, the roles also became very clearly defined and are given below.

Roles Under Chapter VI

- Logistics Supply.
- Passenger Transportation.
- Troop Insertion/Extrication.
- Casualty Evacuation.
- Intelligence Gathering.

Roles Under Chapter VII

In addition to the above roles, the following roles were added:

- Armed Role.
- Armed Escort to Utility Helicopters.
- Armed Escort to Ground and Sea-borne Convoys.
- Fire Support to Ground Troops.

6. Chapter VII of the UN Charter deals with specific Articles (39-51) that lay down guidelines for use of force in UN missions.

Importance of Joint Operations

Numerous operations have been conducted by the Indian aviation contingents on deployment with UN missions, particularly in Africa. Most of these missions have been joint operations with either Indian ground components, or with multinational forces. One such operation that demonstrated jointness and synergy of the highest order was Operation Khukri, an operation that was launched to rescue 220 UN soldiers being held hostage by rebels in Sierra Leone in June 2000. The operation is a classic case study of the effectiveness of air power in 4GW when employed in tandem with ground forces in areas of force enhancement and coercive deterrence against a non-state militia.

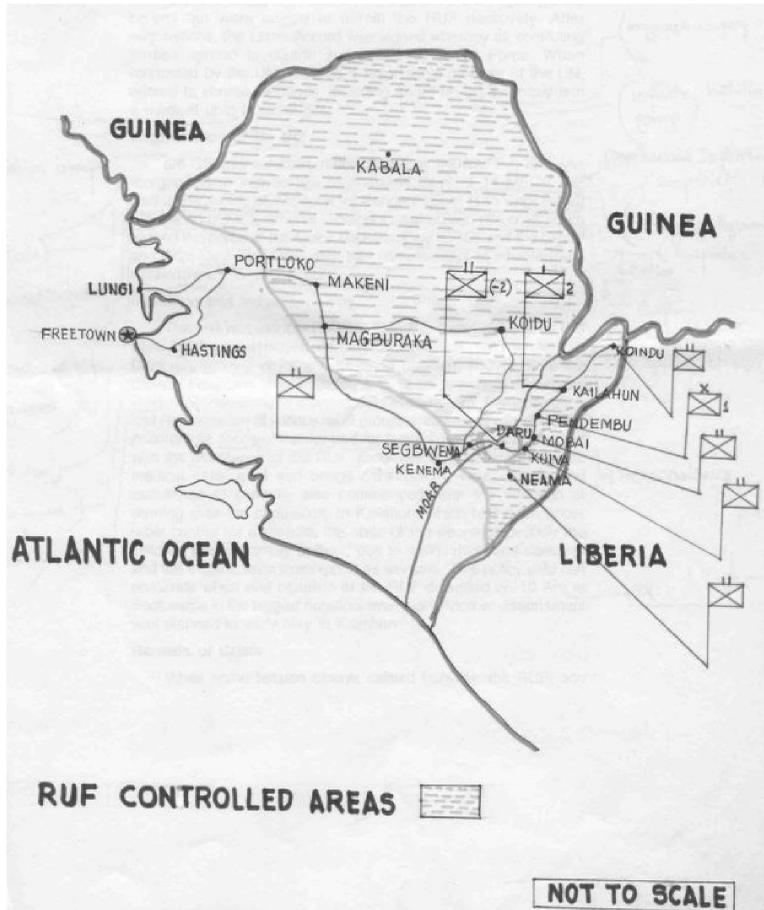
Operation Khukri, Sierra Leone, July 2000

One perspective on Operation Khukri has been offered by Major Anil Raman, the Adjutant of the Indian Battalion Group of the United Nations Mission in Sierra Leone (UNAMSIL).⁷ While the account is a brilliant rendition of events as they unfolded over the entire period, it does not do justice to the all enabling contributions of air power to the success of the operation. This gap was filled by interviewing IAF officers who participated in the operation and including their perspective to give a holistic analysis of the operation. Notable mention will also be made of the contribution by two Royal Air Force (RAF) Chinook helicopters in landing troops into the combat zone without any supporting fire or aerial cover due to bad weather. The entire operation revolved around a situation that saw a battalion group of 220 Indian soldiers from the UN Peace-keeping Force being held hostage in a small town called Kailahun whilst on a patrol (Fig 1). The hostage situation saw the soldiers belonging to two companies of 5/8 Gorkha Rifles Regiment being surrounded by rebels from the Revolutionary United Front (RUF) and unable to break the siege that lasted almost two months from May-July 2000. The inability of the

7. Maj Anil Raman, "Operation Khukri: Joint Excellence," *USI Journal*, from <http://vayu-sena.tripod.com/other-unamsil-opkhukri.html>, accessed on June 15, 2011.

While they were deployed under Chapter VI, the situation clearly demanded invoking Chapter VII and allowing the troops to use unrestricted force against the belligerents.

220 peace-keepers to break the siege was primarily because of the lack of a clear mandate and ROEs for the peace-keepers to fight their way out. While they were deployed under Chapter VI, the situation clearly demanded invoking Chapter VII and allowing the troops to use unrestricted force against the belligerents. Unfortunately, there was no consensus in the UN to lay down ROEs for Chapter VII. As a result, the Gorkhas entered the area of Kailahun with one hand tied behind their back and with clear instructions to engage the RUF in a firefight only if they were sure that there would not be any collateral damage or civilian casualties. In the absence of any clear directions, the Gorkhas found themselves encircled and under siege. In such an uncertain situation, the surrounded Gorkhas were asked to sit tight and wait till an extrication plan was worked out. The ambiguities that existed regarding ROEs between Chapters VI and VII were clearly responsible for the inability of the peace-keepers to take on the RUF in direct military action despite the fact that the RUF were using local villagers as human shields.

Fig 1: Sketch of Area of Operation Khukri⁸

The broad plan for Operation Khukri was to launch an integrated multinational operation that would facilitate the trapped force to execute a fighting breakout and link up with friendly forces outside the town of Kailahun. The RUF rebels concurrently captured some Kenyan troops and another Indian patrol at different locations, and international pressure was mounting on them to release all their hostages. Liberia, a neighbouring country and said to be sympathetic to the RUF cause, was pressurised to negotiate the release of the hostages. Consequently, the Kenyan and

8. Ibid.

Indian patrols were released, leaving the 220 Gorkha soldiers under siege and waiting for relief. The plan for extrication of the 220 personnel from Kailahun revolved around a three-pronged strategy. Firstly, a ground offensive from Daru and Kenema was planned, with lead elements from 2 Para Regiment (Special Forces). The Special Forces would be heli-landed as close to Kailahun to allow the Gorkhas to break the siege and link up with the forces advancing from south to north. Secondly, an aerial evacuation of UN Military Observers from Kailahun and, lastly, an integrated fire support plan that revolved around attack helicopters and artillery to suppress RUF cadres.

To mobilise and build up the troops for the operation from other locations in Sierra Leone, air power swung into action with three Mi-26 heavy lift helicopters, seven Mi-8 utility helicopters, two Chinook heavy lift troop carrying helicopters and one C-130 fixed-wing troop carrying aircraft facilitating an air bridge from different locations to Daru and Kenema. This ensured that forces were built up and ready for combat employment by July 14, 2000. On July 15, two RAF Chinooks heli-landed the company of 2 Para (Special Forces) two kilometres south of Kailahun and then went on to land at a helipad that was prepared and sanitised by the Gorkha Company at 0620 hours. They airlifted the 11 MILOBS and other stores. Following them were IAF Mi-8s and Mi-35s to extricate more stores. Unfortunately, due to deteriorating weather conditions, the IAF helicopters had to return to base. This action by the UN forces activated the RUF militia who were effectively engaged by integrated firepower of the UN forces that comprised rocket attacks by Mi-35 attack helicopters, rocket launches from Armed Personnel Carriers (APCs) and 51 mm mortars. By 1030 hours, the weather had improved and IAF Mi-35 helicopters entered the fray again, providing accurate fire support and pinning down RUF cadres who were in the process of laying an ambush to cut off UN troops who were advancing on the axis Daru-Kailahun to support the paratroopers and the Gorkhas who were now well into their operation of breaking the siege around Kailahun. Simultaneously, 3 Mi-8 helicopters facilitated a heli-borne assault by quick reaction teams on a location further down the axis of Daru-Kailahun. Thus, by mid-day on

July 15, the situational picture saw the Gorkha companies breaking the siege and linking up with 2 Para outside Kailahun with two large UN forces to the south speeding up the axis and clearing any ambushes or reinforcements that the RUF may press into battle.

The task of the advancing UN force comprising the remaining battalion group of 5/8 Gorkha rifles and the Quick Reaction Teams (QRTs) was to secure Pendembu (the rebel RUF HQ) and then link up finally with the Special Forces and two companies. Attack helicopters were used extensively for strafing rocket attacks and flank protection of the advancing columns of UN troops. Once the entire force linked at Pendembu, part of the besieged force was airlifted back to Daru while the remnants of the force reorganised themselves to fight off a counter-attack by RUF forces and tackle ambushes on the way back to Daru. By 0700 hours on July 16, a helipad at Pendembu was prepared and three Mi-8s commenced de-inducting troops to Daru in four waves; the aerial evacuation of selected troops was completed by 1230 hours after which an Mi-35 helicopter effectively engaged about 50-60 RUF cadres who were advancing to contact the UN troops at Pendembu. This operation was undertaken with Forward Air Controller (FAC) support provided by the Adjutant himself and reflected the team work and synergy within the force. The move back to Daru was eventful to say the least in that the UN force had to fight off three ambushes with significant attack helicopter support. A Cheetah helicopter was also utilised to evacuate a casualty on the way. The convoy reached Daru at 1730 hours without any further casualty.

Operation Khukri was a classic example of synergy among all the elements of UNAMSIL that included the Indian Army contingent, the IAF contingent, Royal Air Force assets and all other elements, including Kenyan and British troops.

Significant Lessons

Operation Khukri was a classic example of synergy among all the elements of UNAMSIL that included the Indian Army contingent, the IAF contingent,

RAF assets and all other elements, including Kenyan and British troops. Attack helicopters identified and destroyed rebel positions, Mi-8s inserted and extricated troops from stamp-size helipads, while smaller Chetak and Cheetah helicopters were utilised for casualty evacuation and command and control posts. Some of the tactical lessons that could be derived from an air power perspective were:

- Human Intelligence (HUMINT) and Signal Intelligence (SIGINT) proved decisive in aiding attack helicopter missions.
- The IAF gained valuable operational experience in heli-landed and heli-borne operations in a hostile environment. This was probably the first such experience under fire after the 1971 War with Pakistan when similar operations were carried out in the Eastern Theatre.
- The IAF attack helicopter fleet gained valuable experience in fire support and flank protection operations.
- The psychological impact of air power was decisive and proved to be vital in ensuring that RUF reinforcements failed to concentrate at critical points during the operation. The employment of air power also reinforced the faith of the local population in the ability of UNAMSIL to restore normalcy in the region.
- Lastly, the complex operation was conducted with no collateral damage.

AIR POWER IN ANTI-TERRORIST OPERATIONS

Since the Entebbe operation in which Israeli commandos were stealthily airlifted into Entebbe airfield, to the recent low scale slithering operations conducted by the Indian National Security Guards (NSG) during the Mumbai terror attacks and the Israeli strikes against the Hamas leadership in Gaza, air power has been employed against terrorists in all possible roles, with mixed results. The impediments in employing offensive air power in anti-terrorist operations are many and a clear understanding of these is important for various tiers of the state machinery that include the bureaucracy, police, paramilitary forces and a wide cross-section of the military itself. Use of offensive air power against terrorists in sparsely populated or

underdeveloped terrain outside home territory is a viable proposition with the US-led coalition forces employing Unmanned Combat Attack Vehicles (UCAVs), attack helicopters and fixed-wing fighter aircraft in Afghanistan against the Taliban or against Al Qaeda in countries like Iraq and Yemen. Use of offensive or kinetic air power in urban terrain is a completely different exercise that is dictated purely by political constraints and compulsions coupled with humanitarian issues that relate to collateral damage. The Israelis in Lebanon and Gaza, the US-led coalition in Iraq and the Sri Lankan Air Force against the Liberation Tigers of Tamil Eelam (LTTE) have used offensive air power with varying degrees of success in urban terrain, but faced severe strictures from the international community for excessive collateral damage and loss to civilian life. However, use of offensive air power does have a significant deterrence value and coercive effect on the terrorist leadership, and nations have to take a tough call on this based on national security imperatives.⁹

Employment of air power during the 26/11 Mumbai terrorist attacks mainly comprised air mobility operations to induct NSG commandos.

For the time being, however, nation-states like India prefer to employ the non-kinetic or supporting roles of air power in anti-terrorist or even anti-insurgency operations that mainly include surveillance by UAVs, logistics and communication support by transport aircraft and helicopters and insertion of Special Forces into operations in a hostile environment. The employment of air power during the 26/11 Mumbai terrorist attacks mainly comprised air mobility operations to induct NSG commandos into the crisis zone and enable slithering operations by them to storm the Nariman House.¹⁰

Operations to counter the activity of non-state actors and terrorists as characterised by the North Atlantic Treaty Organisation's (NATO's) expeditionary security and stability operations in Afghanistan, and by coalition operations in Iraq, have been challenging areas for air and space power in recent times. The NATO air and space power theory and

9. B. Raman, *Terrorism Yesterday, Today & Tomorrow* (New Delhi: Lancer, 2006), pp. 3-6.

10. <http://www.indianexpress.com/news/nsg-honing-urban-warfare-and-special-ops-ski/465653/> accessed on April 12, 2011.

doctrine in the main reflect that the history of air warfare is predominantly one of high intensity inter-state warfare.¹¹ The same holds good for most air forces the world over, India being no exception. However, conflict against non-state actors, known variously as 4GW, irregular warfare, small wars, Military Operations Other Than War (MOOTW), Low Intensity Conflict (LIC), and counter-insurgency operations have been the prevalent forms of warfare of the 21st century and could remain so for the foreseeable future given the 'Long War' on global terrorism. Western armed forces, like the Indian armed forces, normally configured to regular or conventional warfare, have often struggled to adapt to such operations. Hence, the US Army and US Marine Corps issued revised counter-insurgency doctrines in December 2006, while the United States Air Force revised its *Air Force Doctrine for Irregular Warfare*.¹² in August 2007. The Allied Joint Operations Working Group has recently agreed that the *Allied Joint Doctrine for Crisis Response Operations* (AJP-3.4) should be expanded to include counter-irregular operations. Moreover, irregular warfare operations are typically seen as land operations, with air in a supporting role only. Consequently, air may be excluded from early planning and find itself relegated to the role of air-borne surveillance or reactive air-borne artillery, and not fully exploited to achieve effects beyond the reach of land. In such circumstances, air becomes liable to the brunt of criticism for collateral damage. Typical manifestation of this criticism was seen during the aftermath of the Lebanon conflict of 2006 that saw the Israeli Defence Forces (IDF) scrambling to defend the employment of air power.

11. See, for example, Phillip S. Meilinger, "Historiography of Airpower: Theory and Discipline," *The Journal of Military History* 64, 2000, pp. 467-501, and Dennis M. Drew, "US Airpower Theory and the Insurgency Challenge: A Short Journey to Confusion," *The Journal of Military History* 62, 1998, pp. 809-32.

12. Headquarters Department of the Army and Headquarters Marine Corps Combat Development Command, Department of the Navy (Joint Publication), Field Manual 3-24 and Marine Corps Warfighting Publication 3-33.5, *Counterinsurgency* (Washington DC: Headquarters Department of the Army, December 15, 2006), <http://www.fas.org/irp/doddir/army/fm3-24.pdf> accessed on October 09, 2010, and Air Force Doctrine Document 2.3, *Irregular Warfare* dated August 2007, http://www.dtic.mil/doctrine/jel/service_pubs/afdd2_3.pdf accessed on October 07, 2010.

ANALYSIS OF DRONE STRIKES IN AF-PAK REGION

The use of overwhelming firepower from the air to crush Saddam Hussain and drive the Taliban out of Afghanistan did lead to some chest-thumping on the part of diehard air power practitioners who had started believing that air power was the panacea for all forms of conflict across the spectrum of warfare. However, the ongoing conflict in Af-Pak and sporadic but violent conflict in Iraq has resulted in a lot of soul searching in terms of identifying the pay-offs of both kinetic and non-kinetic air power in the fight against non-state actors and, most significantly, in the battle to win the hearts and minds of the Iraqi and Afghan people. The idea that air power would play a critical role in the Iraq and Afghanistan Wars could hardly have been predicted in December 2006, when the US Army and Marine Corps issued a completely revised, but air power 'lite', Counter-Insurgency (COIN) manual commonly known as Field Manual (FM) 3-24. Complimentary reviews appeared in unlikely venues such as *The New York Times Book Review*. What seem to have captured the imagination of many who might otherwise be hostile to any military doctrine, were the manual's much-discussed "Zen-like" characteristics, particularly its popular "Paradoxes" section. This part of the manual contained such trendy (if ultimately opaque) dictums as "sometimes, the more force is used, the less effective it is" and "some of the best weapons for counter-insurgents do not shoot." These maxims helped create the perception that the new doctrine was a "kinder and gentler" form of COIN that largely eschewed the concept of "killing or capturing" enemy fighters as a means of suppressing an insurgency.

Supporting this interpretation is the fact that FM 3-24 favours deploying enormous numbers of forces — 20 per 1,000 residents — each of whom, according to the manual, must be prepared to don multiple hats.

All of this discussion left little theoretical room for the role of air power. FM 3-24's examination of air power is confined to a brief, five-page annex

FM 3-24's examination of air power is confined to a brief, five-page annex that essentially conceives air power as aerial artillery.

that essentially conceives air power as aerial artillery. Accordingly, air power is discouraged not just because the use of force is generally disdained by the popular interpretation of the manual's theory, but also because of the mistaken idea that air-delivered munitions are somehow more inaccurate than other kinds of fires.¹³

This process of balancing the use of overwhelming force with the demands of restoring stability resulted in a significant reduction in the employment of offensive air power in Afghanistan in 2009 as part of the "Petraeus Doctrine" that called for a concerted attempt at winning the hearts and minds of the Iraqi and Afghan people. Ironically, this relieved the pressure on the hardcore Taliban militia who now started exerting pressure on the Karzai government, along with the Haqqani group from Pakistan. An analysis of drone attacks in the Swat and Federally Administered Tribal Area (FATA) regions in 2010 reveals a significant increase in offensive strikes against the terrorist leadership, indicating a shift back to the strategy of employing air power to target the leadership, thereby tacitly acknowledging the limited options available to continue to keep the Taliban under military pressure whilst continuing to engage the populace in collaborative nation building. One study shows that the 114 reported drone strikes in northwest Pakistan from 2004 to the present have killed between 830 and 1,210 individuals, of whom around 550 to 850 were described as militants in reliable press accounts — about two-thirds of the total on an average.¹⁴ Thus, the true civilian fatality rate since 2004, according to our analysis, is approximately 32 percent. Besides Baitullah Mehsud, those killed by Predator drone missiles included Saleh al-Somali, Al Qaeda's external operations chief and the link between the militant group's central leadership and its affiliates abroad, in December, and a prominent leader of the Islamic Jihad of Uzbekistan, in September. All told, as many as 10 militant leaders fell to the drones in 2009,

13. *Ibid.*, Appendix A, para. A-26.

14. Peter Bergen and Katherine Tiedmann, *The Year of the Drone: An Analysis of US Drone Strikes in Pakistan, 2004-2010*, New America Foundation Policy Paper, February 24, 2010, p.1.

in addition to hundreds of lower-level militants and civilians.¹⁵ Despite the controversy of collateral damage, drone strikes are likely to remain a critical tool for the United States to disrupt Al Qaeda and Taliban operations and leadership structures, especially in a scenario that involves token withdrawal of 'boots on the ground' from 2011 onwards. In such a situation, aerospace power has to remain the most preferred tool to keep the insurgency in the Swat and FATA regions under control. What has been "game-changing" in this regard is the increased availability of various long-loiter, armed UAV platforms. In essence, the persistent revolution in Intelligence, Surveillance and Reconnaissance (ISR) has resulted in a quantum leap ahead with platforms like the MQ-1 Predator, MQ-9 Reaper, and Global Hawk that have loiter times in excess of 24 hours,¹⁶ persistent eyes on target, micro-kill with Hellfire and 500-pound JDAM (Joint Direct Attack Munition) bombs, synthetic aperture radar, and a host of ISR sensors and communication potential that have fundamentally changed warfare across the spectrum of conflict. Current UAV assets present a whole new dimension to detecting and destroying terrorists' cells. These technological innovations have transformed the all-important intelligence-gathering function at the lower end of the spectrum of conflict where persistence is the key to building an actionable intelligence mosaic. A UAV with an endurance of 24 hours or more is almost like having your own little satellite over a terrorist cell.

OPERATION GERONIMO: THE STRIKE FROM THE AIR THAT KILLED OSAMA BIN LADEN

On May 02, 2011, Osama Bin Laden, the head of Al Qaeda, was killed in an audacious and surgical strike by US Special Forces on a compound

15. Joby Warrick and Pamela Constable, "CIA-Base Attacked in Afghanistan Supported Air-Strikes Against Al-Qaeda, Taliban," *The Washington Post*, January 1, 2010, http://www.washingtonpost.com/wpdyn/content/article/2009/12/31/AR2009123100541_pf.html; "Bomber Fooled CIA, Family, Jordanian Intelligence," Associated Press, January 6, 2010, <http://www.foxnews.com/story/0,2933,582107,00.html> accessed on October 12, 2010.
16. Department of the Air Force, "MQ-1 Predator Unmanned Aerial Vehicle," January 2007 (fact sheet), <http://www.af.mil/factsheets/factsheet.asp?fsID=122>; Department of the Air Force, "MQ-9 Reaper Unmanned Aerial Vehicle," January 2007 (fact sheet), <http://www.af.mil/factsheets/factsheet.asp?fsID=6405>; Department of the Air Force, "Global Hawk," October 2005 (fact sheet), <http://www.nationalmuseum.af.mil/factsheets/factsheet.asp?id=347>. All accessed on October 20, 2010.

in Abbottabad near Islamabad, the capital of Pakistan. It is believed that Osama had been living there since 2005. One of the prime facilitators for the entire operation was aerospace power during both the preparatory phase and the execution phase.

Preparatory Phase

Building an intelligence mosaic of the compound is said to have commenced some time in early 2009, precipitated in great measure by HUMINT. Subsequently, it is very likely that full-scale modelling of the compound would have been done with high resolution imagery from a large number of ISR satellites that have virtually ensured 'persistent stare' into the Af-Pak region. There is even a possibility that US UAVs on training missions in Pakistan could have gathered imagery of the compound to complete the mosaic. Attempts to monitor communications emanating from the compound would also have been a task assigned to aerial platforms. It is believed that two options for taking out Osama were explored in detail. The first one involved precision strikes by fixed-wing aircraft like the F-117 or the B-2 stealth bomber, while the second option involved stealthy penetration of Pakistani air space by a heli-borne force that would descend on the compound to either capture or kill Osama and then extricate themselves in a similar manner. Both options had multiple risks. The compound was a large one, measuring almost 100m X 50m. Contrary to popular belief, even precision strikes would have required a huge quantity of ordnance to be placed on the target area to ensure total destruction. Apart from running the risk of collateral damage, even though the compound was some distance away from the rest of the community, instant assessment of target destruction was difficult and the possibility of Osama Bin Laden surviving the strike loomed large in President Obama's mind. The Special Heli-borne Operation or SHBO, as it is commonly known in India, had its own set of risks. While identifying gaps and penetrating Pakistani air space was never going to be a problem considering the overwhelming electronic superiority enjoyed by the US, the possibility of engaging in a prolonged fire-fight with either the terrorists in the compound, or with Pakistani troops, was

a possibility that had to be factored into the final decision. Interception of the helicopters by Pakistan Air Force (PAF) fighters or engagement by surface-to-air guided weapons while exiting Pakistani air space was also a risk that needed to be considered. Adding to this was the fact that any US casualties in the operation would result in widespread criticism of the Obama Administration, considering that two heli-borne rescue operations attempted by the US in the recent past had failed. Memories of Operation Eagle Claw, the ill-fated hostage rescue attempt in Iran (1980) and the failed Special Forces operation called Task Force Ranger in Somalia (1993) must have weighed heavily on President Obama's mind when it came to decision-making. A brief overview of one of these operations before describing the execution phase of Operation Geronimo would enable the reader to comprehend the enormity of the task at hand when the Obama Administration sat down, some time in mid-2010, to decide which option to go ahead with. One also wonders whether the ill-fated heli-borne operation at Jaffna University by a combined task force of the Indian Peace-Keeping Force (IPKF) against the LTTE leadership was studied.

OPERATION EAGLE CLAW

Preliminary Planning

In April 1980, the US launched an ambitious multi-Service operation to rescue 53 American diplomatic personnel being held hostage in the US Embassy in Tehran by militia of the Iranian Revolutionary Guard.¹⁷ Responding to the crisis, President Jimmy Carter decided on exercising a military option to rescue the hostages after failing to make any headway in diplomatic negotiations with an intransigent Iranian regime led by Ayatollah Khomeini. In the absence of any Special Operations Command, Secretary of Defence Harold Brown and Chairman of the Joint Chiefs of Staff Gen David Jones had no option but to set up a multi-Service task force to plan

17. Charles Tustin Kamps, "Operation Eagle Claw: The Iran Hostage Rescue Mission," from <http://www.airpower.au.af.mil/apjinternational/apj-s/2006/3tri06/kampseng.html> accessed on June 26, 2011. Also see, Russel Edward, "Crisis in Iran: Operation Eagle Claw," in A. Timothy, ed., *Short of War, Major USAF Contingency Operations 1947-1997* (Washington DC: Air Force History and Museums Programme, 2000).

The first mistake was to expect planners with diverse Service loyalties to bond together overnight and create a flawless plan.

the operation.¹⁸ A US Army Major General was appointed the Joint Task Force Commander, with a US Army Colonel who founded the crack Delta Force as Ground Assault Commander, with the Delta Force as the assault force. The air component of the force appeared to be the most fragmented with a US Air Force Colonel commanding the fixed-wing contingent and an experienced US Marine Corps Colonel with extensive night vision expertise heading the rotary-wing or helicopter force.¹⁹ *In hindsight, the first mistake was to expect planners with diverse Service loyalties to bond together overnight and create a flawless plan, and lay down training schedules that would ensure synergy and interoperability of a high order.*

Training

Considering that the plan involved penetration of Iranian air space by three USAF MC-130 aircraft carrying US Army Delta Force commandos accompanied by three EC-130 command and control platforms with fuel bladders to refuel other platforms, complemented by six US Navy RH-53D to airlift the hostages from a pre-determined rendezvous, joint training, rehearsals and picking holes in the plan was imperative for mission success. Unfortunately, neither took place, *resulting in a fragmented and poorly rehearsed plan that was not critically examined by an independent body.* This was the second mistake that contributed to the ultimate failure of the operation.

The Detailed Plan: Eagle Claw

The plan seemed simple enough. The fixed-wing force would get airborne from Masirah (Oman) and penetrate Iranian air space at low levels, evading the poor Iranian radar cover to land at a remote Iranian desert location (Desert One) that had been pre-determined by the Central Intelligence Agency (CIA), hundreds of kilometres from Tehran. After off-loading

18. Ibid.

19. Ibid.

the Delta Force, the MC-130s would exit Iranian air space and head back to Masirah. The EC-130s would remain at Desert One to refuel the US Navy helicopters that would follow, getting air-borne from the USS *Nimitz*, an aircraft carrier positioned in the Indian Ocean and within range of Desert

One. After penetrating Iranian air space, the helicopters would land at Desert One, refuel and heli-lift the Delta Force commandos to a site 50 km from Tehran. From here, the Delta Force would link up with Iranian agents, travel to Tehran, carry out an assault at the US Embassy and the Foreign Ministry office, rescue as many hostages as possible and position them at a soccer stadium close by for evacuation by the helicopter force to Mazariyah. Mazariyah was an Iranian airfield that would be seized and held by a Ranger Task Force that was supposed to have been brought in by the same MC-130 crew that dropped the Delta Force at Desert One and returned to Mazariyah. The operation was planned the same night, with hardly any rest factored in for the crew. At Mazariyah, the hostages would be transferred into a waiting C-141 heavy lift transporter and flown out under cover of orbiting AC-130 gunships, with carrier-based fighter aircraft waiting to suppress any Iranian fighter activity, should they be alerted. The third critical mistake was that *the plan was too complicated and ambitious*.

The third critical mistake was that the plan was too complicated and ambitious.

What Happened

Without going into too much detail, the plan failed miserably. While the fixed-wing force reached Desert One without any mishap, the helicopter force was depleted below acceptable levels by the time it reached Desert One due to multiple reasons that ranged from technical defects and an inability to penetrate adverse weather over the desert in dark night conditions. Added to that was an avoidable collision with a parked C-130 aircraft at Desert One that led to a massive fire and a final abort decision from Washington. In haste, the remaining helicopters were partially blown up and the entire force was evacuated from a blazing Desert One strip by the remaining C-130s.

Why it Happened

Apart from the three macro reasons that have been highlighted earlier in the article, some of the other reasons for the failure of the mission were:

- The Marine pilots chosen had no experience of night vision goggle flying over the desert, particularly in bad weather conditions. They had not been briefed on the possibility of encountering typical Iranian desert sandstorms called *haboob*.
- As alluded to earlier, there was no integrated full dress rehearsal, along with likely contingencies being simulated.
- Intelligence was fragmented and an inability to put together a mosaic of the operation reflected that. The US grossly overestimated their own capabilities and underestimated the repercussions of a plan that had too many variables and loopholes.

While the failure of the operation evoked an immediate response from the US Congress that set up the Holloway Commission to carry out a Special Operations Review, it only resulted in something seven years later. In 1987, the Cohen-Nunn Amendment to the National Defence Authorisation Act allowed the setting up of a joint US Special Operations Command with dedicated funding, a move that would have far-reaching consequences on America's war against the Al Qaeda, 24 years later. It is also believed that the Holloway Commission paved the way for the milestone Goldwater-Nichols Act of 1986 that reorganised the Department of Defence and infused greater inter-Service integration and synergy between the Services and the Department of Defence.

The lessons learnt from Operation Eagle Claw were not repeated in Operation Geronimo; something that becomes quite evident as one goes through the execution phase of Operation Geronimo in the following paras.

EXECUTION: OPERATION GERONIMO

After much brainstorming and what must have been a hectic period of modelling, scenario building, simulation and war gaming, the heli-borne operation with US Navy SEALs as the assault force was finalised as Option 1

for Operation Geronimo. It is highly probable, though not yet revealed by the US, that a precision strike by B-2/F-117 aircraft would be the standby option. On the night of May 01, 2011, two near-stealth or low observable MH-60 Blackhawk helicopters accompanied by two CH-47 Chinook helicopters (some sources indicate that it was four Blackhawks) got air-borne from Jalalabad in Afghanistan. Exploiting gaps in the Pakistani radar cover and blind spots, the aircraft flew undetected into Pakistani air space, using established techniques of 'nap of the earth' flying, to arrive at the Abbottabad compound in the wee hours of the morning of May 02, 2011. In a swift operation that lasted approximately 40 minutes, the SEAL team stormed the compound, killed Osama Bin Laden and four others, captured an unspecified number of terrorists and exited the battle zone before any Pakistani troops from the nearby cantonment arrived on the scene. During the operation, the SEAL team destroyed a Blackhawk helicopter in the vicinity of the compound after it developed a technical defect and flew back in the remaining three helicopters. In the days that followed the operations, military analysts the world over had much praise for the operation and the decisiveness with which it was executed. Before analysing the operation in detail, it would be interesting to highlight the kind of air resources that were committed to this operation in a supporting role, clearly indicating the importance of air power in this genre of warfare. It is believed that while the operation was on, a package of 6-7 aircraft was on station in the FATA region. These included EC-130E/H electronic warfare, MC-130 command and control aircraft, AC-130 gunship AC, E-3 AWACS (Air-borne Warning and Control System) and two F-15Cs on patrol. Additionally, it was reported that the US Navy had deployed an unprecedented three aircraft carriers to support the operation. While the USS *Carl Vinson* and USS *Enterprise* were deployed

The lessons learnt from Operation Eagle Claw were not repeated in Operation Geronimo; something that becomes quite evident as one goes through the execution phase of Operation Geronimo.

in the Arabian Sea, the USS *Ronald Reagan* was in the Indian Ocean.²⁰ Their mandate was probably to step into the fray should the situation escalate in the eventuality of a full-fledged engagement between the intruding force and the PAF. Six Chinook helicopters in the CSAR (Combat Search and Rescue) role were also on standby at Jalalabad.

Operational Analysis

An operational analysis from an air power perspective reveals that many of the lessons learnt draw strength from the characteristics and competencies of air power, some recent and some enduring. The first major lesson learnt is that *persistence* was the key to success. While strategic persistence transcended political affiliations and involved a single minded focus to get Osama, operational persistence to build up situational awareness relied heavily on space-based sensors and HUMINT to draw up a mosaic that inspired confidence and facilitated modelling, simulation and training. *Over the years, the capability of US air power has often dictated the risk taking appetite of the US strategic community*, sometimes with success, interspersed with a few failures along the way. The decision to bomb Hiroshima and Nagasaki proved to be a decisive but risky strategic decision that paid dividends in terms of accelerating the end of World War II. The decision to sustain Berlin from the air could be taken because of US strengths in air mobility operations. Though a risky proposition, it allowed the US to assume leadership of the Western world in the global struggle against the spread of Communism. Operation Allied Force over Kosovo, and Operations Desert Storm, Enduring Freedom and Iraqi Freedom have all been risky strategic decisions of committing US forces in expeditionary operations aimed at protecting US global interests. Ironically, all these decisions rode piggyback on US air power capabilities. Without taking anything away from the forty minutes of Operation Geronimo that was superbly executed by the Navy SEAL team, it was the overwhelming all-round ability of US air power that allowed the operation to ingress and

20. Gulshan Luthra, "US Deployed Three Aircraft Carriers in Support of Operation Geronimo," <http://www.inewsonline.com/2011/05/11/us-deployed-three-aircraft-carriers-to-support-operation-geronimo> accessed on May 15, 2011.

exit the combat zone with no interference either by Pakistani air power or surface forces. In short, President Obama's *risk appetite and confidence in mission accomplishment increased considerably* when he realised the competencies and capabilities of US combat air power in the context of this particular operation, both kinetic and non-kinetic. The next critical enabler during Operation Geronimo was the 'overkill' factor in terms of having adequate back-up assets. President Obama is said to have factored in Murphy's Law²¹ into his contingency planning. **If one looks at the kind of assets that were both air-borne and on standby, they were all air power intensive.** In recent times, there has been a great deal of debate on the relevance of centralised control over air power in 4GW given the unpredictability of the environment. While this can be true in the case of localised and even tactical engagements where a local commander may need independent air assets on call, the principle of centralised control over critical air operations was vindicated during Operation Geronimo wherein operational control rested at the highest level, in keeping with the strategic nature of the operation. Another lesson that was vindicated was the blurring of lines between tactical and strategic operations and the ability of air power to create strategic effects through a tactical operation using non-kinetic platforms with characteristics of stealth, surprise and vertical envelopment. Some of the other general lessons that were learnt during the planning and execution phase had universal applicability and merit appreciation. Setting clear-cut and mission-oriented goals, training with realism, secrecy and willingness to take responsibility for possible failure are all markers for the attention of strategic planners. In the final analysis, Operation Geronimo was a bold military operation that drew a lot from history and past mistakes. It reiterated the necessity for bold action against terrorism and showcased the tremendous potential of air power to create strategic effects in the global war against terror.

21. Murphy's law simply states that "If something has to go wrong, it will — no matter what you do."

AIR POWER AS AN INSTRUMENT OF COERCIVE DIPLOMACY

M. BAHADUR

An airplane was first used in war on October 23, 1911, in the Italo-Turkish War in Libya.¹ As we approach this momentous date that marks a century of the use of manned aircraft in conflict, it is indeed ironic and fortuitous, that air power is being used in anger in, of all the places, Libya, once again. Some writers have started writing the obituary of air power and, indeed, of air forces.² This paper examines the prognosis for war taking place in a unipolar world (which is the likely scenario for the coming decade or two) and leads on to studying the effectiveness of air power as an instrument of coercive diplomacy, taking the ongoing Libyan crisis as a test case.

The world became a more peaceful place after nuclear weapons came into being! This sounds odd, but is true. With two nuclear groupings, the US-led Western alliance being one and the Soviet Union the other, the number of conflicts was restricted unless the vital interests of one of the two protagonists were infringed upon. Solutions were obtained through armed action by nations that acted as proxies of the two superpowers. The violence too was controlled

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1. <http://www.britannica.com/facts/11/1070981/Italo-Turkish-War-as-discussed-in-air-force>, accessed on July 10, 2011.
2. For example, see Martin van Creveld, *The Age of Airpower* (New York: Public Affairs Group, 2011), pp. 423-441.

Why has there been such an outburst of violent behaviour in a world that is supposedly turning increasingly 'civilised' with the passage of time, globalisation and propagation of democratic belief?

and modulated by them through remote control;³ due to the leverages that the two superpowers had with their client states, they were in a position to coerce them to do their bidding.

The demise of the Soviet Empire and the creation of a unipolar world disturbed the equilibrium in the world order and the United Nations (UN) had its hands full with conflicts to resolve. The UN Special Committee on the Balkans (1947-52) was the first mission to be set up after the formation of the UN.⁴ Between 1947 and 1990, 21 UN operations were instituted but in just the decade after the end of the Cold War, i.e. till the beginning of the 21st century, 32 new missions were launched! Between 1987 and 1994, the Security Council increased by a factor of four the number of resolutions it issued, tripled the peace-keeping operations it authorised and multiplied by seven the number of economic sanctions imposed per year.⁵ These figures pale in comparison to the violence seen in some of the bloodiest and long enduring engagements that the world has been witness to — Iraq and Bosnia in the 1990s, Afghanistan, and then Iraq again in this century.

Why has there been such an outburst of violent behaviour in a world that is supposedly turning increasingly 'civilised' with the passage of time, globalisation and propagation of democratic belief? Will things cool down if the world sees a return of the two or multi-bloc system, where a balance of power and calculated and coordinated strategies of the two/three powerful leading nations rein in violence? Possibly so,⁶ and if so, will it be the return of the Russian glory or the continued rise of a resurgent China that will provide the compensatory force?

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3. Richard H. Shultz Jr, "Compellence and the Role of Airpower as a Political Instrument," *Comparative Strategy*, vol. 1, no. 1, January-March 1992 (London: Russak), p. 21.
 4. Michael Doyle and Nicholas Sambanis, "Peace-Keeping Operations," in Thomas G. Weiss and Sam Daws, eds., *The Oxford Handbook on the United Nations* (New York: Oxford University Press, 2008), p. 328.
 5. *Ibid.*, p. 333.
 6. Kenneth N. Waltz, *Theory of International Politics* (Reading, Massachusetts: Addison-Wesley Publishing Company Inc, 1979), pp. 161, 192.

Russia would take a finite time to set its house in order before providing the balancing power.⁷ It is China which is the endurance runner in the game, as it follows Deng Xiaoping's policy of peaceful development and peaceful rise in the 21st century. Jiang Zemin summarised this as the oft quoted "28 character directive" which downplays China's ambitions but affirms a long-term strategy to build up its comprehensive national power with a view to maximise its options *in the future* (emphasis added).⁸ There is, thus, a void that existed in

the past twenty years and is likely to continue for at least the next decade or so till bipolarity or multipolarity is reestablished in the world order. Consequently, the challenges to deterrence in practice are broader and deeper now than they were during the Cold War.⁹ The loss of the balancing force has resulted in a multitude of intra-state conflicts, starting from those in the Balkans in the last century to the ones that the world is witnessing today in Africa and the Arab world. It is these latest upheavals that are engaging the attention of the international community, as the yearning for democracy and the desire to overthrow totalitarian regimes grip the masses.

The jasmine revolution in Tunisia and the subsequent one in Egypt have resulted in a change of regimes and the method of governance through the power of the people. Though the right diplomatic noises were made by the democratic nations of the world, especially the Western powers, no external military armed help was provided. The conflict in Libya has played out differently and has brought into sharp focus the limitations of deterrence and compellence, as we know them. The primary instrument used for coercion has been air power, an instrument which has achieved an almost seductive status

The conflict in Libya has played out differently and has brought into sharp focus the limitations of deterrence and compellence, as we know them.

7. Gp Capt Tim D. Q. Below, "US Nuclear Deterrence – An Opportunity for President Obama to Lead by Example," *The Air and Space Power Journal*, vol. XXIII, no. 4, Winter 2009 (Alabama: Maxwell AF Base), p. 91.

8. Xu Xin, "The Chinese Concept of Twenty Years Strategic Opportunities" in N. S. Sisodia and V. Krishnappa, eds., *Global Power Shifts and Strategic Transition in Asia* (New Delhi: Academic Foundation, 2009), p. 61.

9. Janice Gross Stein, "Rational Deterrence Against Irrational Adversaries?" in T. V. Paul, Patrick M. Morgan and James J. Wirtz, eds., *Complex Deterrence Strategy in the Global Age* (Cambridge University Press India Ltd, 2009), p. 75.

among the power wielders; this is in line with the increasing overreliance by the United States (and as a corollary, the Western nations) on military actions to further national goals.¹⁰ Following the internal upheaval that began in Libya on February 15, 2011, the first air strike by the United States took place on March 19, 2011, followed by the North Atlantic Treaty Organisation (NATO) taking over the responsibility; it has been five months since then, with no end to the conflict in view. This paper will examine whether, after its spectacular showing in the Gulf War in 1991, air power is losing its credibility as a primary tool for military deterrence and compellence in a world that is becoming increasingly more volatile.

COERCIVE ACTIONS

Deterrence and compellence are not necessarily only of the military kind; in fact, economic and political sanctions, along with a host of other measures, constitute the 'bouquet' of actions that can be brought to bear on an adversary. But deterrence as theory and strategy by itself has been under a cloud, with regard to the low efficacy shown in the Seventies and Eighties and later when new nuclear weapon states came into being.¹¹ To study the link between deterrence and compellence with air power, it would be necessary to evaluate how their salient characteristics intermesh.

In simple terms, deterring means to persuade an adversary to desist from initiating an action and not take a step that he is contemplating; and if he does that, then to initiate action toward that end along with a threat of further actions to come — all this, while the main military body is kept in reserve as the deterrent force to prevent the adversary from expanding the scope of the conflict.¹² Compellence is the *actual* application of force to make an adversary *do* something or stop and/or retrace his steps if he has already commenced doing what he was being warned against. There is, thus, passivity in deterrence but affirmative action in compellence. These two diverse actions

10. Cathy Downes, "Unintentional Militarism: Over-Reliance on Military Methods and Mindsets in US National Security and its Consequences," *Defence and Security Analysis*, vol. 26, no. 4 (Routledge Publication), p. 371.

11. T. V. Paul, "Complex Deterrence" in T. V. Paul et al., eds., n. 9, pp. 3-4.

12. Glenn H. Snyder, *Deterrence and Defense* (New Jersey: Princetown University Press, 1961), p. 11.

form the root cause of many irrational decisions taken by adversaries, bringing into question the basic factor of rationality required for deterrence and compellence to follow the 'designated' sequence; this has a bearing on the outcome of the use of air power, which, as will be argued, is modulating the actions of the Gaddafi regime.

Deterrence and compellence require both sides to have 'rational' responses, where cost benefit analyses form the basis of decision-making.

PREREQUISITE OF RATIONALITY

Deterrence and compellence require both sides to have 'rational' responses, where cost benefit analyses form the basis of decision-making. Thus, a challenger in a situation of being deterred weighs the losses or 'punishment' that he would endure were he to take actions contrary to what the deterrer wants. This is for a rational adversary, but what if he does not calculate the costs involved and is motivated instead by reasons that persuaded him to take steps inviting retribution? These causes can be many and could be due to weak bureaucracies, internal strife or ideological and religious reasons. Historically, states faced with imminent defeat or those that are subject to significant punishment from stronger rivals do not do a rethink on the costs that they are being subjected to. Similarly, political leaders who are deeply wedded to a cause or have staked their reputation to a stand they have taken, dig in their heels even in the face of irrefutable evidence that the military odds are stacked against them. Irrationality, thus, does not find place in the deterrence theory and brings in an element of ambiguity in charting or forecasting the future turn of events. The contradictory nature of instrumental and value rationality is resident in the fact that while in the former, events are governed by rationalisation of the thought process, the latter has intangibles like dignity, self-respect, cultural and ideological groundings dictating the course of events, irrespective of the end result.¹³ Additionally, compellence has to be put in motion for the opponent to yield, as Thomas Schelling theorised;¹⁴

13. Paul, n. 11, p. 7.

14. Thomas C. Schelling, *Arms and Influence* (New Haven, Connecticut: Yale University Press, 1966), p. 72.

it implies that deterrence, which is slightly abstract in nature and does not require a visible response to be shown by the deterred, is more acceptable to a rational entity (as he has a veil of plausible denial), than compellence wherein a retracing of steps involves a loss of face and prestige.

An element of subterfuge on the part of the deterrer has entered the equation of conflict prevention or, as will be reasoned, conflict assurance! In the Gulf War of 1991, the Iraqis are reported to have tried to convince the world that they had issues with Kuwait and that they needed 'help' to prevent them from resorting to armed actions. Iraq's economy was deteriorating and it was not in a position to pay for its food imports. Exasperated that the West was not seeing Iraq's viewpoint, Tariq Aziz, the Iraqi Foreign Minister, is reported to have said, "When do you use military power?" According to him, Saddam Hussain had no plan of invading Kuwait and attempted compellence instead, by sending troops to the Kuwaiti border in July 1990. At this stage, a vigorous attempt at deterrence along with inducement by way of refinancing Iraq's debt could have averted the invasion.¹⁵ However, this did not happen and one school of thought feels that "...the United States did not want coercive diplomacy to succeed and planned to trap Saddam into war..... by withholding inducements necessary to persuade Saddam to concede and ease the withdrawal of Iraqi troops from the Kuwaiti border. Tariq Aziz lamented that his government had tried repeatedly to find a diplomatic exit but had invariably found itself trapped by the *determination of the United States to wage war*"¹⁶ (emphasis added). If, in the final analysis, it is concluded that the failure of the strategic, military and political judgment of Saddam and his inability to estimate the impact of air power caused the war, it can also be argued that it was the failure of coercive diplomacy (of which air power was but one ingredient) and the determination of the Western alliance to go to war, that failed to avert the conflict.¹⁷ Did we see 'conflict assurance' in the lead up to the present Libyan crisis?

15. Janice Gross Stein, "Deterrence and Compellence in the Gulf," *International Security*, vol. 17, no. 2, Fall 1992, Harvard University, MIT Press, pp. 158-159.

16. *Ibid.*, pp. 166, 171.

17. *Ibid.*, pp. 176-179.

LIBYAN CRISIS

So, how is Libya in 2011 different? It has not committed aggression against any sovereign country nor has it encroached upon any commercial or economic interests of any nation. After the winds of democratic change swept through Tunisia and Egypt, Libya came into its slipstream, resulting in a wave of discontent affecting the people. One violent incident in February 2011 led to many more and the West saw an opportunity to dislodge Col Gaddafi from power. Demonstrations in Benghazi and other eastern towns were followed by allegations of violence against civilians and the start of a civil war. The West decided to intervene. The United States did not want to enter another regional conflict zone as it was deeply entangled in Iraq and Afghanistan; however, to prevent bickering among NATO members regarding who would take the leadership role, it started the air campaign — with the explicit understanding that after some time, NATO would have to assume responsibility.¹⁸ The intervention has dragged out over months and the tenacity of the Gaddafi regime has astonished all observers. Coalition air power knocked out Gaddafi's air defences and attacked heavy equipment like tanks, Armoured Personnel Carriers (APCs) and vehicles — in fact, any hardware that moved. However, pro-Gaddafi forces have been able to fight a see-saw battle, with the frontlines moving east to west in quick succession. The rebels are a rag-tag bunch and though Western advisers have been positioned in eastern Libya to mould them into fighting units, the results have been pitiful. The opposition's continued weakness on the battlefield has resulted in a stalemate. Slowly, the truth is hitting home and with neither the defeat of the rebels being an option nor Gaddafi staying in power an alternative, the ground is being prepared to add muscle in various forms to the rebel forces, short of inducting ground troops; will this succeed, is the moot question, as Iraq, and Afghanistan have shown that without boots on the ground, a regime change cannot be effected. This political objective of removing Col Gaddafi from power, incidentally,

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18. "Europe's Confused Response," International Institute for Strategic Studies, available at <http://www.iiss.org/publications/strategic-comments/past-issues/volume-17-2011/april/war-in-libya-europes-confused-response/?locale=en>, accessed on June 26, 2011.

This political objective of removing Col Gaddafi from power, incidentally, has not been mandated by the Security Council Resolution 1973, which brings in the question of legitimacy of the methods being employed by the coalition.

has not been mandated by the Security Council Resolution 1973,¹⁹ which brings in the question of legitimacy of the methods being employed by the coalition. The aim, it appears now, is to slowly finish the supplies of the pro-Gaddafi forces and "...tighten the noose around him" as Gen Charles Bouchard, the Canadian head of NATO operations put it.²⁰

That Col Gaddafi's military resistance is no match for the coalition power is almost axiomatic, considering the forces arrayed against him.²¹ But military power does not bring political control — it never has; "conquering and governing are two different processes," as Kenneth Waltz puts it,²² a situation that the Americans are realising to their discomfiture in Iraq and Afghanistan. So, will it be different in Libya or will the world see another quagmire caused by an intervention of Western powers, albeit in the garb of a coalition?

PROGNOSIS

The Bosnian conflict of 1995 (Operation Deliberate Force) is an excellent example of political ineptness on the part of the international community, wherein lack of clear political guidelines made the overwhelming NATO military power impotent in response to Serbian intransigence. The Serbs took full advantage of it and the massacres that followed — Srebrenica being the most infamous of all — showed the international community in very poor light; introduction of clarity in the chain of command and redefining the mandate brought about an end to the conflict through the Dayton Peace

19. Ibid.

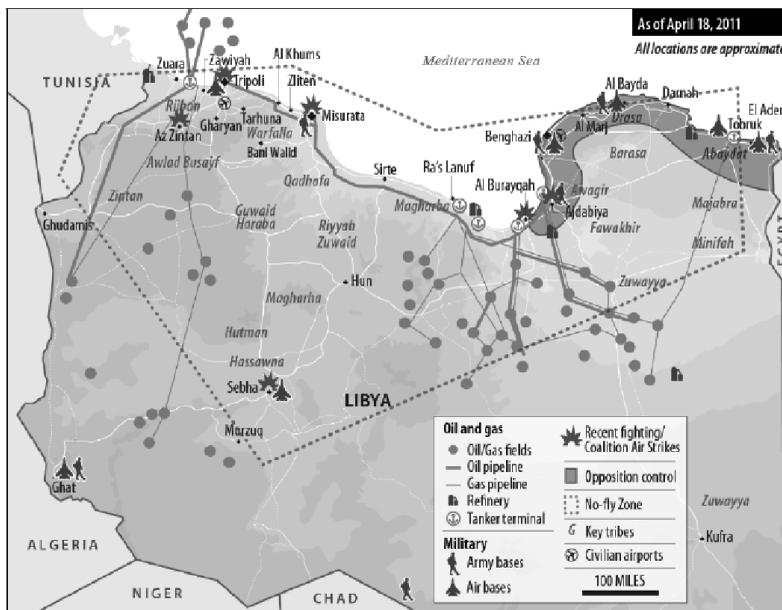
20. http://www.washingtonpost.com/world/natos-libya-campaign-drags-on/2011/06/23/AGSm27kH_story.html, accessed on June 26, 2011.

21. That overwhelming power would finally subdue a materially less endowed opponen was seen in World War II also. John Ellis, *Allied Strategy and Tactics in Second World War* (New York: Viking Penguin, 1990), referred with details by Peter W. W. Wijninga and Richard Szafranski, "Beyond Utility Targeting: Towards Axiological Operations," *Air Power Journal*, vol. III, no. 2, Summer 2006 (New Delhi: Centre for Air Power Studies), n. 15 & 16, p. 138.

22. Waltz, n. 6, pp. 161, 191.

Accords. The second intervention through air power in the region, Operation Allied Force, was more successful but it needs to be accepted that the threat of a ground invasion by Bosnian Croat forces was a major factor that forced Milosovic to cut his losses and bring the conflict to a close. In Libya too, the anti-Gaddafi forces are not militarily strong; no amount of targeting by NATO air forces can make them push back the Gaddafi loyalists decisively. Gaddafi may have lost the air battle, but the rebel opposition never had any air power of *its own*. The mechanised elements of the Gaddafi forces may not move but their troops can, as no Western combatants are on the ground. Libya is a huge country and presently the fighting is continuing only along the northern coastal road. Though Tripoli, the capital, is the centre of gravity of the Gaddafi regime, the major part of the country is not affected by the turmoil and may retain government influence.²³

Fig 1: Map of Libyan Military Facilities, Energy Infrastructure and Conflict



Sources: *The Guardian* (UK), Graphic News, US Department of Defence, US Energy Information Administration, Global Security; Ali Abdullatif Ahmida, *The Making of Modern Libya* (State University of New York Press, 1994). Edited by CRS.

23. Christopher M. Blanchard, "Libya Unrest and US Policy," Congressional Research Paper, accessed at <http://www.fas.org/sgp/crs/row/RL33142.pdf>, on April 25, 2011.

In the Italo-Turkish War of 1911 too, the rag-tag Ottoman troops retreated to the interiors of the vast country when Tripoli fell in October 1911. As long as the operations were within 40 miles of the coast, the Italians could capture any place at will; but, the elusive and highly motivated enemy retreated to the desert whenever it faced any mass concentration of the enemy.²⁴ What stops Gaddafi from taking similar steps?

The aim of the NATO air campaign seems to be more to weaken the Gaddafi regime by engineering defections (by application of brute force), rather than attain military victories. If the challenger, the Gaddafi regime, is willing to pay the ultimate cost, whom can the rebels and the West deter or compel? The regime is irrational, going by the traditional definition of rational action — and the actions of an irrational opponent who is cornered do not abide by ‘accepted’ rules. Anwar Sadat knew the overwhelming military power of Israel but he never ‘normalised’ to the loss of Sinai to Israel in 1967 — Sadat remained undeterred²⁵ and launched the 1973 War to make a political statement, knowing fully well that the military gains, if any, would be extremely limited. In the case of Libya, the issuance of arrest warrants by the International Criminal Court (ICC) for Gaddafi and two other key regime figures makes it more difficult for them to go into exile in another country. While this further increases the incentive to resist, as he has nothing to lose,²⁶ Gaddafi as the challenger would wish for further escalation in order to facilitate greater casualties on the ground due to targeting mistakes that are bound to occur.²⁷ We are seeing this happen in Afghanistan where the Americans, to have an honourable exit, have been forced to discuss a solution by talking to the Taliban.²⁸ Gaddafi, is aiming to split the international community as evident from the statement of the African Union (AU) that, “... AU will not cooperate with the (ICC) arrest

24. van Creveld, n. 2, pp. 17-20.

25. Stein, n. 9, p. 67.

26. “Gaddafi Vows to Fight to Death and Beyond,” *The Times of India* (New Delhi), June 24, 2011, p 18.

27. *Ibid.*, pp. 75. Also “NATO Steps up Pace in Libya,” available at <http://www.iiss.org/publications/strategic-comments/past-issues/volume-17-2011/june/nato-steps-up-the-pace-in-libya>, accessed on June 25, 2011.

28. “Britain in Peace Talks with Taliban, Says Foreign Secy,” *The Times of India* (New Delhi), June 24, 2011, p. 18.

warrant as....it jeopardises efforts to negotiate peace.”²⁹

So far, there is no sign of NATO or the West shifting the Libyan campaign³⁰ into a new gear by inserting troops on the ground — however, this choice may have to be exercised sooner than later. We have already seen the operations getting more ‘intimate’ with initial stand-off strikes by Tomahawk cruise missiles giving way to precision munitions being launched from fighter aircraft to assaults by Apache attack helicopters — implying that the Western combatants were within 6-8 km of the frontline; arms for the rebels have been air dropped by France *due to slow progress on the ground* (emphasis added).³¹ The insertion of ground troops is just a matter of time, as without them, the fractious and amorphous rebels would not be able to bring to bear the concentrated and disciplined force that would be required to subdue troops loyal to the regime. A sobering thought to this is that, as brought out earlier, all the action is taking place only along the coastal road linking Benghazi with Tripoli — leaving the rest of the vast countryside in the centre and south of the country still available for Gaddafi to move to.

Five months and counting! NATO air action has not been able to subdue or strategically affect an opponent that has shown resilience and pragmatism of remarkable proportions. Col Gaddafi has lost control of his skies and cannot move any heavy vehicles which are armed. His command and control centres have been pulverised by precision strikes in the heart of Tripoli; many trusted ministers and senior army officials and diplomats have deserted him — but Gaddafi labours on.

The aim of the NATO air campaign seems to be more to weaken the Gaddafi regime by getting defections (by application of brute force), rather than attain military victories.

29. CNN News, July 04, 2011, available at <http://edition.cnn.com/2011/WORLD/africa/07/03/libya.war/index.html>, accessed on July 08, 2011.

30. “NATO Steps up Pace in Libya,” available at <http://www.iiss.org/publications/strategic-comments/past-issues/volume-17-2011/june/nato-steps-up-the-pace-in-libya>, accessed on June 25, 2011.

31. “In Libya, France Air Drops Arms for Rebels,” *Reuters* report in *The Times of India* (New Delhi), June 30, 2011, p. 20.

Five months and counting! NATO air action has not been able to subdue or strategically affect an opponent that has shown resilience and pragmatism of remarkable proportions.

Is it a failure of air power or a limitation of air power? Or has the air power not been applied correctly? Col John Warden, the architect of the air campaign in the Gulf War and famous for his “five concentric rings” of targeting, would have wanted the centres of gravity of the rings to be “addressed” for arriving at a quick solution. However, this targeting need not only be of the military kind, as the West is seeing to its dismay in Libya; the multitude of focussed attacks on all military targets of importance have not expedited

the cause of the rebels. The argument of ‘timeline’ has got skewed — ‘how long should it take’ was the question that should have been asked prior to the launch of the air campaign meant to compel;³² what is now being asked is, ‘how long will it take.’ The difference in these two variations holds the answer to the stretch of the time domain in Libya — and the culpability does not lie in the capabilities of air power.

THE GADDAFI SYSTEM

An adversary has to be seen as a ‘system’ and the correct facet(s) of power, and not necessarily all of them, need to be brought to bear on that system in a timely manner; each component of power has a rightful place in the overall strategy to engage the adversary. There are theories that propound that it would be better to analyse and target what an enemy leadership holds dear (value or Information Age targeting, thus, hinting at ‘bloodless solutions) rather than being driven by utility or industrial age kinetic targeting.³³ However, others state that the history of warfare shows that politicians have mostly resorted to the use of force and it is

32. Col John Warden, “Strategy and Airpower,” *The Air and Space Power Journal*, vol. XXV, no. 1, Spring 2011 (Alabama: Maxwell Air Force Base), p. 70-72.

33. Wijninga and Szafranski, n. 21, pp. 135-136. Axiology is a combination of the Greek word ‘axios’ meaning ‘worthy’ and ‘logos’ which means ‘theory’. The authors argue that, based on Maslow’s Hierarchy of Needs theory, the adversary leadership should be evaluated for the values it cherishes and these should be addressed by suitable, and not necessarily, air power, means.

futile to think of 'bloodless force' solutions.³⁴ The 'Gaddafi system' draws its sustenance from tribal loyalties, state coercion, personal devotion and fidelity due to the showering of state benevolence and a subservient military apparatus.³⁵ There is an east-west fault line that divides Libya in terms of geography (a vast desert separates the two regions), tribal allegiances, wealth distribution and overall social and infrastructural development. The sense of alienation and stepmotherly treatment has always pervaded the psyche of the people of eastern Libya; hence, one sees the recalcitrance mainly in the east, with the protagonists of the uprising trying to take the 'revolution' westwards towards Tripoli. The defections of high ranking officials that have come about are also of those who are from the east. The main tribes in the west and the elite of Tripoli have not deserted Gaddafi, at least till now. There is a fundamental difference between what happened in Tunisia and Egypt and the uprising in Libya — the buffer provided by the national armies between the civil society and the ruling junta in Tunisia and Egypt does not exist in Libya, thus, leaving a void which no intermediary entity can fill.³⁶ Thus, the moot point is whether, before the start of the air campaign, the Western powers studied the 'Gaddafi power apparatus' with due diligence or were they themselves 'coerced' into intervening due to public pressure, without a proper targeting analysis and philosophy? Have they also been afflicted by the syndrome pervading the Israeli leadership where, "...defending their reputation for deterrence becomes a value independent of other consequences."³⁷ Was the West seduced into thinking that just the way events played out in Tunisia and Egypt, Libya would follow suit once air power was brought to bear on the Gaddafi loyalist army? The way the script and events have played out in slow motion since February 15, certainly seems to suggest so.

34. Warden, n. 32, pp. 73-74.

35. Alison Pargeter, "Rebels with a Cause," *Jane's Intelligence Review*, April 2011, p. 9.

36. *Ibid.*, pp. 9-12.

37. Stein, n. 9, p. 66.

CULPABILITY OF AIR POWER?

So, does air power carry the proverbial cross for the 'stalemate' that one sees in Libya today? Though the rebels in the east have started organising themselves into a political group to provide leadership, albeit with the generous advice and prodding of Western 'advisers', splits have already started emerging in their ranks.³⁸ When Gaddafi goes, as one day he will, due to the enormous military odds stacked against him, will the elimination of the cohesiveness afforded to the rebels by his presence result in societal fissures of the type one has witnessed in Iraq and Afghanistan? Will it see a return of the impatience and lawlessness that has started rearing its head again in Tunisia and Egypt?³⁹ If there is further bloodshed or public strife due to the absence of governance *a la* Iraq and Afghanistan, is it a pointer to the inefficiency of air power to deter and compel? The answer is NO — the blame lies elsewhere!

It is well nigh impossible to indefinitely face up to the kinetic power of a coalition which has more than 100 aircraft and ships from 16 nations flying and sailing unchallenged, all equipped with the modern war-fighting technology of the Western forces. As we go to the press, the Gaddafi regime may well have fallen, militarily defeated or its leaders gone into exile. If a Gaddafi denouement has not happened by then and he has clung on to power, then it is further proof of the overreliance of the Western world on military methods and mindsets and not having properly analysed the cultural and psychological make-up of an adversary from a dissimilar socio-ethnic background — air power's capability to deter and compel does not carry the burden for such a failure.

Air power is a sub-set of the larger picture of a deterrent/compellent ecosystem brought to bear on an adversary, orchestrated along with political, economic and other such tangible and intangible components. In Libya, it cleaned up the air space segment of the environment, allowing the rebels to advance on the ground without any threat from the air. Armoured vehicles of all types and artillery of various hues have been removed from the balance

38. Pargeter, n. 35, p. 13.

39. "4 Months on, Cairo's Tahir Square Turns a Battlefield Again," AFP report in *The Times of India* (New Delhi), June 30, 2011, p. 20.

of the firepower equation. Command and control centres, underground command shelters and such, like the locations of military importance in Tripoli and other cities were treated as legitimate targets and duly addressed. The morale (of the rebels), that intangible with disproportionate positive influence, has shot up. Thus, air power has lived up to its promise and performed at par *with its capabilities*. Inadequate analysis of the enemy as a system is the root cause of the time stretch that has occurred.

Col Gaddafi has his centre of gravity in tribal and clan loyalties, in his ruthlessness and in a mindset that is typical of a cornered adversary, in which no outlet is available for an honourable exit. The mindset has another major constituent, an attitude of martyrdom, against which there is no credible deterrent. The rational theory of deterrence is based on the premise that adversaries would avoid death at any cost — and causing death and devastation is how air power applies its destructive dominance capability by coercing the adversary's psyche. But how does air power deter or compel a mindset based on cultural factors where death is preferable to dishonour?

It is further proof of the overreliance of the Western world on military methods and mindsets and not having properly analysed the cultural and psychological make-up of an adversary.

CONCLUSION

Context matters in actions meant to influence, modulate and channelise the actions of an adversary — cognitive styles of leaders matter too⁴⁰ and can be ignored only to one's own disadvantage. There are other hotspots in the world where similar dissatisfaction among the populace exists, as in Libya. Syria has been on the boil for almost a similar length of time as Libya — but the international community has not intervened. This may be due to geopolitical compulsions (power equations of Syria-Iran versus Israeli regional interests) but demands are already being made and the media orchestrated to ask for military intervention. If President Assad is not able to get his house in order in quick time by some deft diplomacy (and not just state

40. Stein, n. 9, p. 65.

muscle), then the rising clamour of interventionist voices may well overtake the reticence shown so far by the international community. If this happens, then going by recent trends, the onus to bring military power to bear on the Syrian junta may befall air power again. Hopefully, lessons would have been imbibed from the Libyan imbroglio and a systematic and coordinated approach through all organs of power, and not just air power, would be taken.

This brings us to the prophecy of some writers who divine that manned combat aircraft are on their way out; Martin van Creveld has titled his last chapter as “Conclusions: Going Down, 1945?” and concludes that the world’s air forces are “..... going home.”⁴¹ However, earlier in the book, it has been acknowledged that “... usually the effect of air operations has to be evaluated as part of a much larger complex, a difficult and often all but impossible enterprise.”⁴² Therein lies the rub — air power is not down and out. Would Osama bin Laden have been taken out through Operation Geronimo, without the use of air power? Along with the helicopters that took part in the raid, there must have been a full package of the Airborne Warning and Control System (AWACS), Unmanned Air Vehicles (UAVs), fighter escorts orbiting at a safe distance and combat search and rescue groups available in the air. It’s a point to ponder over for the detractors of air power.

41. Creveld, n. 2, p. 441.

42. Ibid., p. 316.

THE BARRIERS TO MILITARY TRANSFORMATION

RAJIV PURI

*Victory smiles upon those who anticipate the changes in the character of war,
not upon those who wait to adapt themselves after the changes occur.*

— Giulio Douhet

History is full of examples of the strongest states failing to take advantage of significant changes of the time and transformations in military affairs. The Mongols missed the gun-powder revolution, the Chinese and the Indians failed to embrace the industrial revolution, while the Russians let the information revolution go by. It is difficult to comprehend why these societies that were among the most advanced and influential in their time, failed to grasp the importance of these major revolutions. Certainly, they were not ignorant of the sweeping changes taking place. Was it that they were too confident of their position and the structures that had led them to this position? Did they get too complacent?

It is not just militaries that suffer from a lack of will to transform. Large business corporations fare no better. Not a single maker of sailing ships made a successful transition to steam power. Sony, a leader in the transistor era and inventor of the famous Walkman, is struggling to compete with Apple's iPod in the digital era. None of the manufacturers of mini-computers

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The longer you are on top, the more convinced you get of your invincibility. The vanquished has no option but to innovate and find new ways of reaching the top.

— not Digital Equipment Corporation or Data General or Prime, invincible giants as recently as the 1980s — made a successful transition to personal computers.¹

Perhaps after an especially successful streak of being a leader, it is unimaginable that an upstart can displace you. The longer you are on top, the more convinced you get of your invincibility. On the other hand, the vanquished, the upstart or the aspirant has no option but to innovate and find new ways of reaching the top. This perhaps best explains

why defeat in war has often been a spur to innovation, from the Prussians' humiliation in the Napoleonic Wars to the Germans' humiliation in World War I, to the Americans' humiliation in the Vietnam War. Out of all these setbacks were born new ways of fighting that led once vanquished forces to victory in future battlefields.² Military transformation has been critical to the success of various countries throughout history and any government that regards it merely as an academic study does so at its own peril.

This paper will look at the reasons why militaries do not readily transform or the barriers to military transformation, and attempts to find ways and means to overcome these. This is not to say that militaries do not transform at all — indeed, they do. However, history reveals that at every cusp of change, there have been militaries that chose to embrace the change and militaries that chose to continue with the legacy.

TRANSFORMATION OF THE MIND

Transformation starts from the mind. For, unless the mind is willing, nothing will change. While talking to the military and civil leadership on the challenges to the leadership in the coming decades Air Mshl N. A. K. Browne had said that transforming a force is easy but transforming people

1. Max Boot, *War Made New* (New York: Gotham Books, 2007), p. 456.

2. *Ibid.*

and attitudes is much more difficult.³ A similar sentiment was echoed by Gen Peter Pace, the first Marine officer to be appointed Chairman, Joint Chiefs of Staff in the US, while speaking on “21st Century Transformation of US Armed Forces.” He said, “If I could only pick one thing (to change), I would pick mindset. I will tell you categorically that if we change none of our toys and simply change the way we think about how to apply them, we will have transformation on a very, very fast path.”⁴

VAdm Arthur K. Cebrowski, the Director of Force Transformation for the US military, had once stated, “Historically, victors don’t learn nearly as well as losers.” A study of the successful French expedition to Naples in 1494, illustrates the point. The French under Charles VIII overran Naples in an unprecedented *blitzkrieg*. The key ingredient of the campaign had been extensive use of mobile artillery. The French had made their cannons lighter with use of better metallurgy and tied them to swift horses rather than oxen as had been the practice hitherto. So static had been the tactics in that era that this one change transformed the way wars were fought. By many accounts, the French invasion of Italy brought in the modern era of warfare. War strategy and tactics which had been relatively static for 1,000 years, changed with bewildering rapidity over the next century or so until the mighty naval armadas of sea-faring colonial powers became the standard war-fighting instruments. It also brought in the end of city-states that had been flourishing so far and heralded the rise of nation-states. Modern warfare would bring in an increasingly greater role for the weapons and weapon systems that could only be maintained and afforded by larger and richer entities.

However, just a quarter of a century later, in 1521, the French suffered a crushing defeat at the hands of the King Charles of Spain whose army had mastered the use of firearms. King Charles reorganised the Spanish Army into formations of tactically unique combinations of combined arms centred

3. Air Mshl N. A. K. Browne, Vice Chief of the Air Staff, Valedictory Address, 3rd Jumbo’ Majumdar Seminar on “Aerospace Leadership in the Coming Decades,” New Delhi, February 4, 2011.

4. Gen Peter Pace, Address to members of the National Defense University, Fort Nair, Washington DC, January 31, 2002, accessed at http://www.nlgmltf.org/pdfs/2nd_Art.pdf.

The Italians were aware of the existence of the cannon in 1494 and the French possessed firearms in 1521 but it was the opposition that chose to employ these weapons in a transformational way.

on armoured infantry. By virtue of this combined arms approach, the formation simultaneously enjoyed both the staying power of its pike-armed infantry, as well as the ranged firepower of its firearms. The French lost because they continued relying on cannon-based artillery and did not adopt infantry firearms. While that had been a good tactic to win over fortified positions in Italy, it could never compete with cavalry and infantrymen in the open fields.

Surprisingly, the Italians were aware of the existence of the cannon in 1494 and the French possessed firearms in 1521 but it was the opposition that chose to employ these weapons in a transformational way. Napoleon had much later stated that “one must change one’s tactics every ten years if one wishes to maintain one’s superiority.” Militaries must guard against the danger of idolising a weapon, a tactic or an institution which they have created as a response to an earlier challenge as it can become a cultural barrier to further progress.

Minds stuck to mindsets and learning (only) the lessons of the last war have been the bane of many militaries. One of the best examples to illustrate the point is the French defence based on the Maginot Line where, based on the experience of the German invasion and the static trench warfare of World War I, the French constructed continuous fortifications along the eastern border to stop any attack from that direction and give them time to mobilise. The fortifications extended over 87 miles from the Swiss frontier to Montmedy and were constructed at an enormous cost of 7,000 million francs.⁵ The fortifications were particularly strong on the French-German border while the Luxembourg and Belgian borders were relatively weak. Military experts extolled the Maginot Line as a work of genius, believing it would prevent any further invasions from the east notably, from Germany. In 1940, the Germans attacked France through the Low Countries where the

5. Brig J. Nazareth, *Creative Thinking in Warfare* (New Delhi: Lancer International, 1987), Ch 4, “The Military Environment for Creative Thinking,” p. 60.

defences were thinnest and simply bypassed the defences. The adage that “generals always fight the last war” best describes the French military mindset of the time.

A lead in technology is also no guarantee for leadership and can be very easily squandered away if there is no focus and vision. In the late Thirties, the Germans had discovered the power of nuclear fission. The Army War Office of the Army Ordnance Department had as early as 1939 been made aware of the potential use of power of nuclear fission for a weapons programme. After an enthusiastic pursuit of the weapons programme for three years, the War Office ceded control of the programme to the academics because it wanted all resources to be available for the war effort which had started suffering setbacks at this point in time.⁶ The Americans meanwhile successfully pursued a similar programme and three years later, used the atomic weapons to end the World War in favour of the Allies.

Even a lead in transformational thought can be lost due to organisational myopia.

Even a lead in transformational thought can be lost due to organisational myopia. During World War II, the German Army made brilliant use of tanks in a *blitzkrieg* to run over large parts of Europe. Interestingly, it was the British and the French who had first planned to field thousands of tanks in a massive *blitz* in 1919, that would have anticipated many of the innovations employed by the Germans twenty years later.⁷

A British infantry officer, Col J. F. C. Fuller had, during World War I itself, suggested using mobility and the firepower of tanks to avoid the appalling stalemate of trench warfare. In 1920s, the British Army did more than any other to make this a reality. In 1927, at a time when the Germans did not have even a single tank, Britain set up the Experimental Mechanised Force, the prototype of the armoured division, equipped with medium and light tanks, self-propelled guns and motorised infantry. This force carried out large scale exercises and manoeuvres which were followed with greater interest in Germany and Russia than in Britain itself. Meanwhile, the French

6. Jeffrey T. Richelson, *Spying on the Bomb* (New York: W. W. Norton & Company, 2006), pp. 25-26.

7. Boot, n. 1, p. 216.

also had some very good tanks. The Char B1 was the best heavy tank design in the 1920s and the armour was so impenetrable that German shells would simply bounce off it. Similarly, the Somua S35 medium tank was also world class, with speed, hitting power and protection as good as any rival's. Yet, the French military leaders did not capitalise on the potential of tanks.

As on September 1939, the Germans had fewer infantry divisions, fewer artillery guns, smaller number of fighters and bombers, and, significantly, just 2,439 tanks pitted against more than 4,200 tanks that the Allies had.⁸ Another account pegs 2,600 German tanks against 4,450 of the Allies during the German invasion of France and the Low Countries.⁹ While the exact numbers may be difficult to establish, there is no doubt that the Allies enjoyed both qualitative as well as quantitative superiority.

Why, then, did the Germans win in France? The prevalent impression of the time that the Germans had superior numbers or, for that matter, superior equipment, is certainly false. The general mindset in Britain, perhaps due to its unique geography and the requirements to safeguard the colonial possessions, was to invest more in air and naval forces than in land forces. Or may be the British were just not willing to change; after all, they were ruling almost half the world at that time and were justified in sticking to the old ways. Interestingly, the British War Office did assign Basil H. Liddell Hart, then a young career officer and another early proponent of armoured warfare, to rewrite its tactical manual; however, his manoeuvre warfare concepts were deleted from the completed manual.¹⁰ In another example of military myopia, Maj Gen Percy Hobart, associated with tank development and armoured tactics from its infancy, who had earlier, as a Brigadier commanded the 1st Tank Brigade (the first ever tank formation) and then trained the armoured units in Egypt (later 7th Armoured Division) was eased into retirement, based on hostile War Office information regarding his "unconventional" ideas about armoured warfare.

8. Prof Ernest R. May, *Strange Victory: Hitler's Conquest of France* (New York: Hill and Wang, 2000), pp. 476 -477.

9. John J. Garstka, *Patterns in Innovation*, in *Transforming Defense Capabilities: New Approaches for International Security*, ed. Scott Jasper (Boulder, Colorado, USA: Lynne Rienner Pub Inc, 2009) p. 69.

10. *Ibid.*, p. 67.

The British and French thinking was still looking at winning trench warfare while the Germans mastered the art of manoeuvre and speed — they reduced distances with mobility and, above all, were able to coordinate all their forces into a combined-arms approach. The Germans were victorious because they had a decisive edge in doctrine, training, planning, coordination and leadership. What was revolutionary and unprecedented about the *blitzkrieg* was not the new technology the Germans employed, but rather the unprecedented way in which they mixed new and existing capabilities.

The British and French thinking was still looking at winning trench warfare while the Germans mastered the art of manoeuvre and speed.

Noted French historian and intellectual Marc Bloch, in his first-hand account of the French defeat, blasted the military leadership for failing to realise that an entirely new way of fighting wars had been evolved. He said, “What drove our armies to disaster was the cumulative effect of a great number of different mistakes. One glaring characteristic is, however, common to all of them. Our leaders, or those who acted for them, were incapable of thinking in terms of a new war. In other words, the German triumph was, essentially, a triumph of intellect — and it is that which makes it so peculiarly serious.”¹¹

TRANSFORMING MINDS AS A SYSTEM

Transformation historically constitutes one of two forms: it is in response to a revolution in military affairs, or it will prove to be the catalyst for such a revolution itself. Moreover, in contrast to prevailing military beliefs, transformation remains primarily the product of intellectual energy, and is

11. Marc Bloch, *Strange Defeat: A Statement of Evidence Written in 1940*, translated by Gerard Hopkins (Oxford: Oxford University Press, 1949), Reprinted in James M. Brophy ed., *Perspectives from the Past: Primary Sources in Western Civilizations* (New York: W. W. Norton, 2002), Vol. 2, pp. 727-29, accessed at http://dev.prenhall.com/divisions/hss/app/BW_TEST/Western_History/documents/Marc_Bloch_from_Strange_Defeat.htm on June 11, 2011.

There exists a historic bias against intellectuals (thinkers) in favour of individuals of action (doers).

rarely a result of technology alone.¹²

Throughout history, we come across Generals and leaders who won battles despite being handicapped in terms of the quantity and quality of the forces they commanded, by employing superior strategy, tactics and innovativeness.

Surely, military wisdom and scholarly learning play an important part in winning wars. While academicians and military professionals have debated the value of intellectual pursuits to the art of war since ages, nobody has attempted to address an important issue: the notion of institutional intellectualism versus individual intellect and its catalytic role as a driving force for military transformation.

Many thinkers from the military and outside have endeavoured — with varying success — to convince the leadership that there exists a historic bias against intellectuals (thinkers) in favour of individuals of action (doers).¹³ It is a commonly held opinion that intellectuals in the military offer little of practical value and fail to function effectively as combat leaders. While it is possible for exceptional combat leaders like Joshua Chamberlain and George Patton to employ their intellect in solving battlefield challenges, this is very different from the individual who uses his intellect to drive institutional change that results in transformation throughout the organisation as a whole.¹⁴ A lot of transformational thought has indeed been evolved by military officers who did not participate extensively in combat or rise very high in the military system. In fact, many officers espousing change have been ridiculed, passed over for promotions and even court-martialled while in service.

12. The authors have argued that while technology is unarguably vital to progress, military revolutions usually happen as a result of new operational concepts, changes in organisational structures and evolution of doctrinal thought. Williamson Murray and MacGregor Knox, ed., *The Dynamics of Military Revolution, 1300-2050* (Cambridge, England: Cambridge University Press, 2001).
13. Col Lloyd J. Matthews, "The Uniformed Intellectual and His Place in American Arms," *Army Magazine*, July-August 2002, accessed at <http://www.freerepublic.com/focus/news/735611/posts>, on June 07, 2011.
14. Commander Steven W. Knott, *Knowledge Must Become Capability: Institutional Intellectualism as an Agent for Military Transformation* (Carlisle Barracks, PA: US Army War College, 2004), accessed at <http://www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA424406>, on June 03, 2011.

In the past, military leaders enjoyed immense power and authority. On most occasions, they were also the sovereigns. Therefore, success or failure in the battlefield was usually attributed to individual leaders. However, in the last couple of centuries, there has been a progressive march of democracy and militaries have become an organ of the larger nation-state, answerable to the people through the elected political leadership. While the senior military leadership still enjoys immense power in most countries, political and civilian control of the military is increasingly becoming the norm. Moreover, within the military, there has been a large amount of horizontal expansion. The number of General Officers and their equivalents in all militaries has increased without an actual increase in the overall cadre strength or the functions of the military. AVSC II resulted in an increase in additional 30 three-star posts in the Indian armed forces.¹⁵ As a result of these changes, the authority and independent decision taking ability that an individual officer enjoys is progressively waning. Another significant change is the tremendous impact of technology on military affairs. It is no longer possible for a single officer to have in-depth knowledge of all the domains. As a result of the above changes, Staff Officers have become indispensable links in the military machinery. Major changes in policy, doctrine, organisational structure and new procurements are more staff driven than ever before and therein lies the argument for building up institutional intellect.

Institutional intellectualism can be defined as system-sponsored critical thinking that focusses on continual evolution and forward thinking within the organisation. An institutional mechanism is essential because modern militaries operate simultaneously over various separated domains in terms of geography, technology, functions and equipment. If all of them were to evolve individually, they would all be moving at a different pace, direction and level. Institutional intellectualism achieves a synergistic effect that can effect transformation in a highly disciplined, organised and coordinated

15. "Cabinet Approves About 1,900 New, Senior Posts in Armed Forces," *The Times of India*, October 03, 2008.

fashion. Collective ideas tend to be more effectively transformed into reality and resulting military capability.

It is imperative that institutional intellectualism be embedded within the organisation's structure (formal or informal) so that it is capable of influencing mainstream thought and processes. Individual thinkers working within the system will always encounter opposition to change from entrenched traditional elements. However, an institutional push for transformation can build greater momentum. Finally, institutional intellectualism can only succeed in an organisational climate that promotes free-thinking and an honest exchange of ideas. The transformational reforms of the Prussian military best illustrate the case for institutional intellectualism for an entire military organisation in response to an adversary's military revolution.

Following the destruction of the Prussian Army at Jena-Auerstädt in 1806, Carl von Clausewitz sardonically observed that "it was not just a case of a style (of warfare) that had outlived its usefulness but the most extreme poverty of imagination to which routine has ever led."¹⁶ The Prussians never realised that the character of war had fundamentally changed until they were overwhelmed so swiftly and decisively by Napoleon's Army.

Indeed, the Prussian Army had arrived on the battlefield woefully ill-prepared for battle against Napoleon. Despite a self-confidence firmly rooted in the military achievements of Frederick the Great, the Prussian Army of 1806 was institutionally flawed. The officers, more concerned with social status than professional matters, were of inconsistent talent and inadequately trained. The soldiers too were poorly trained and lacked a patriotic spirit because their interests were not one with the King. Moreover, the Prussian Army also suffered from poor administration and equipment; specifically, the troops lacked proper uniforms, weapons, field gear and rations. The military organisation and tactical doctrine employed by the Prussians were obsolete as well.

Acknowledging the need for change, Prussian King Frederick William III convened a military reorganisation commission in 1807 to investigate

16. Günter R. Roth, "Operational Thought from Schlieffen to Manstein", accessed at <http://www.history.army.mil/books/OpArt/germany2.htm>, on June 03, 2011.

the debacle at Jena-Auerstädt and propose reforms to the existing military structure. The principal members were Prime Minister Baron Carl von Stein, Gen Gerhard von Scharnhorst, Col August von Gneisenau, Maj Carl von Grolman, and Maj Hermann von Boyen; Clausewitz, as a young Captain and administrative assistant to Gen Scharnhorst, also became a *de facto* participant of some influence. Scharnhorst was selected to the commission because he was one of few senior military leaders who had performed well on the field against Napoleon; besides he had gained universal respect as a military scholar and thinker while serving as Director of the highly regarded Militärische Gesellschaft (Military Society), the first institution of its

kind devoted exclusively to the academic study of war. Scharnhorst chose the remaining members of the commission based on their intellectual contributions and their recent performance in combat; in short, they were the “best and brightest” the Prussian Army had to offer.¹⁷

In its first set of reforms, the commission corrected straightforward organisational discrepancies. The army received improved uniforms and equipment, modern weapons and new tactical procedures. In the next phase, the commission focussed its attention on more difficult challenges: the socio-political flaws. Hitherto, commission in the Prussian officer corps was the sole prerogative of the aristocracy and was granted on the basis of political influence and family lineage rather than merit or military potential. The reformers transformed the officer corps, first, by persuading the King to grant eligibility to all elements of society. New officers would receive appointment through a universal examination process blind to station or

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17. Charles E. White, *The Enlightened Soldier: Scharnhorst and the Militärische Gesellschaft in Berlin, 1801-1805* (New York, 1989), pp. 128-131.

influence. This measure alone served to expand significantly the talent pool from which candidates came, and it proved to be the principal foundation upon which the new Prussian officer corps would rest. Military academies and staff colleges were set up to train officers.¹⁸

In tandem with reforms to the officer corps, the commission also pursued significant transformational objectives in recasting the Prussian soldier. At Jena-Auerstädt, the soldiers did not constitute a national army; in fact, most viewed war as solely the concern of the King and the aristocracy. Consequently, the average soldier was bereft of *esprit de corps* or patriotic spirit. The commission instituted a system of egalitarian universal conscription which denied exemption to any element of society and mandated a shorter period of obligation. Recruitment of foreign mercenaries was stopped and the rich could not buy an exemption.

However, the most noteworthy and long lasting reform was the creation of the General Staff system to administer, train, and lead this new army. This measure proved the most unprecedented and intellectually revolutionary of all the reforms in the commission's efforts. The Prussian Army meticulously selected, organised, and empowered the best officers — intellectually and professionally — to function collectively 'as a single' brain responsible for strategic and operational planning, as well as for the direction of operations once hostilities commenced.

Creation of the General Staff system was indeed one of the greatest military transformations of modern times. Its success lies in the fact that even today, almost all the modern militaries follow a similar staff system. The achievements of the reorganisation commission provide a persuasive example of institutional intellectualism as an agent for military transformation. Working under a mandate from King Frederick, the commission operated within, and as a function of, the military system. Moreover, it enjoyed a degree of intellectual freedom and engaged in a critical exchange of ideas that were remarkable for the time. Eventually, the General Staff system itself became an epitome of institutionalised intellectualism.

18. Boot, n. 1, p. 121.

OVERCOMING ASYMMETRY

Modern warfare has a unique dimension, not seen in earlier periods: that of asymmetry. In the era of hand to hand combat or even in the age of edged weapons, it was not possible for a hugely inferior adversary to consider combat with an overwhelmingly superior enemy. Of course, there were instances when smaller forces defeated much larger forces but the difference between the two forces was not greater than a factor of two or three. In the age of firearms, the difference went up to as much as a factor of ten or twenty, as was the case during most of the colonial conquests, but in the last two decades or so, certain groups have challenged militaries that have a hundred times more personnel in their ranks, budgets that are thousands of times greater, and technology that is many generations ahead. Conflicts in Afghanistan and Chechnya reflect this trend.

The difference in technology between some of the modern militaries and others, including non-state groups, is ever increasing. But technology has its limitations too. Today, so great is the stranglehold of technology and so prohibitive the cost that it has become virtually impossible for militaries to deviate from planned trajectories even when the environment itself changes. The dependence on technology has increased more than on any other resource, in fact, on many occasions at the expense of other capabilities. It is routinely lamented in Western literature that so much money was spent on spy planes and so much faith attached to them that Human Intelligence (HUMINT) as a resource was neglected to the detriment of accurate intelligence.

Just as the militaries became fixated with technology, the technologically impoverished adversaries transformed themselves to blunt the technological edge of the militaries. Realising that it was not possible for a technologically challenged adversary to fight and win in a conventional war, the adversary chose to fight in an unconventional manner. The established militaries were caught off guard. In Vietnam, Chechnya, Iraq and Afghanistan, the most powerful militaries of the time were hard pressed to counter the transformed enemy. The more astute (adversaries) came to understand that the Information Age offered new opportunities for “asymmetric

Of course, as militaries transform, they must not make the mistake of assuming that the experience in past wars or for that matter even current wars presents them with a model for the next war.

warfare” – the ability to inflict great damage on a powerful adversary by using unconventional weapons.¹⁹ Nimble, flexible and networked groups like Al Qaeda are far more willing to experiment and change than large militaries that are happier to follow established procedures and Standard Operating Procedures (SOPs). Money, an important resource to effect any change, is made available to modern militaries after an inordinately long vetting process, but can be spent without any accountability by groups like Al Qaeda.

As the world painfully learned on September 11, 2001, the challenges of the new century are not as predictable as they were during the Cold War. No one could have imagined that terrorists would hijack commercial airliners, turn them into missiles and use them to strike the World Trade Centre, killing thousands of innocent civilians. It can be correctly assumed that we could be surprised again in the time to come by new adversaries who may also strike in unexpected ways. The US today has unparalleled land, sea and air power and it makes little sense for potential adversaries to compete with these strengths. So rather than building competing armies, navies and air forces, they will likely seek to challenge the US asymmetrically. Similarly, other groups all over the world will be looking to exploit the vulnerabilities of the established powers and building capabilities with which they can exploit them.

So what can the militaries do to counter the new threat? Quicker reorientation, faster equipment acquisition process and flexibility to effect rapid changes based on circumstances could be some of the issues worth examining. This too is a facet of transformation. In Afghanistan, fighting the first war of the 21st century, the horse cavalry was back and being used in previously unimaginable ways. Coalition forces employed existing military capabilities, from the most advanced laser-guided weapons to the

19. Ibid., p. 351.

most elementary, a man on horseback. Technology and legacy were used together in unprecedented ways, with devastating effect on the adversary's physical assets as well its morale. Of course, as militaries transform, they must not make the mistake of assuming that the experience in past wars or for that matter even current wars presents them with a model for the next war. Preparing to fight the last war is a mistake repeated throughout much of military history.

An ability to adapt will be critical in a world where surprise and uncertainty are the defining characteristics. Preparing for the future requires thinking differently and developing the kinds of forces and capabilities that can adapt quickly to new challenges and to unexpected circumstances. To achieve this, militaries have to put aside the established ways of thinking and planning, take risks and try new concepts.

OVERCOMING TANGIBLE BARRIERS

A range of very practical hurdles challenges transformation. Limitations of available technology, shortfall in quantity and quality of human resource, limitations of budgetary and material support, different demands and trajectories of each Service, civil-military relationship of the society, reluctance to change and fear of losing turf are some of the issues that could slow down the momentum for change.

Technology is usually credited as being the main driver of transformation. It has universal applicability, is easily understood and easy to sell. Technology in the military sphere is developing as rapidly (and sometimes even faster) as the changes reshaping the civilian sector. The 20th century witnessed the greatest and fastest exploitation of technology ever, resulting in an increasingly bigger chasm between societies that were in the forefront of technology and those that got left behind. It has been persuasively argued by Alvin Toffler and many others that the rate of change is ever increasing and the gap between generations of technology is reducing. In less than a hundred years, tanks, submarines, aircraft, radio, nuclear weapons, ballistic missiles and precision weapons amongst many other inventions transformed the way wars were fought. Never before in the history of

The technology on offer may not be the best that is available. It would be naïve to assume that technological lead can be created by buying it.

warfare had military hardware changed so fast. Swords and spears were in vogue for thousands of years, longbows and firearms for hundreds of years, sailing ships and cavalry for as long but in the last one hundred years, the changes have been fast and furious. By the time the Cold War ended, computers and information technology were seen as the next big change, to be followed by lasers, robotics and artificial intelligence. In the 20th century, transformation in modern militaries had become synonymous with technology. The last hundred years have perhaps seen more change than the previous two thousand put together.

Paradoxically, all this changed with the advent of the information age. James Blaker in his book *Transforming Military Force*, said that in the Information Age, technology is available, not just to the relatively wealthy, industrialised, educated or endowed nations but to anyone who has the incentive to innovate.²⁰

How does this affect military transformation? In fact, it has been argued earlier in the paper that transformation is usually the result of intellect rather than technology. Indeed, but that was true when two adversaries enjoyed contemporary and similar technological capability as was the case with the French and Spaniards in 1521 or the Germans and British in 1939.

While technology alone may not bring transformation, lack of technology can certainly hold back transformation or at least make it prohibitively expensive. The Russians were the first to articulate the need for a military transformation but could not achieve it as they failed to exploit the emerging technologies. It can be argued that lack of technology can be overcome by buying it. Of course, but this has huge limitations and comes with a price either in terms of prohibitive costs or losing a certain amount of sovereignty at least in so far as independent policies and decision-making are concerned or in terms of granting concessions to the seller. Even then, the technology

20. James R. Blaker, *Transforming Military Force* (Westport: Praeger Security International, 2007), p. 36.

on offer may not be the best that is available. It would be naïve to assume that technological lead can be created by buying it.

Not only is it important to gain mastery of the current technologies, it is even more important for military leaders to visualise the potential of futuristic technologies and invest both human and material resources. It is vital for a military and society to work together to take full advantage of what technology has to offer. The lack of the Indian armed forces' involvement, especially the Army and Air Force, in pursuing high technology projects along with scientific and industrial complexes, is baffling. The military must have the agility to explore technologies that do not address an immediate threat, but could itself pose a threat in the future if it was aggressively pursued by an adversary or a potential adversary. In this context, it would be prudent for a military to identify future technologies and assign some bright officers to pursue their progress. This has to be a continuous process.

There is, of course, the counter argument that information technology has flattened the technology dispersal. Few, if any technologies, much less scientific concepts, will remain the property of one country for long in the Information Age. While this is true to a great extent, it cannot hope to eradicate the large amount of differential between various countries in the exploitation of Industrial Age technologies. Mere availability of theoretical knowledge on the internet cannot ensure that a nation can produce jet fighters or tanks or battleships.

A change is perceived as a transformation when plotted against time. The notion of "transformation" itself is problematic, primarily because the term has come to mean almost anything pertaining to change, but also because there are no defined time-frames. It is germane to highlight the immutable factor of time. Transformational changes take years, even decades to take effect. The Prussian reformers put sweeping socio-political-military changes in place between 1807 and 1812. As a result, the Prussian Army performed significantly better in the campaigns of 1814 and 1815 against Napoleon; yet the full return on their intellectual labour was not fully realised until the wars of 1866 and 1870, in which the Prussian Army defeated Austria and France and established the Prusso-German nation as the greatest

Organisations that have successfully transformed have usually had a few senior leaders who understood the new environment and brought about change in complex organisations serving for a long period of time.

power in Europe. When seen through the prism of history, it presents the dilemma of elasticity of time; changes spread over say 50 years, as was the case with Prussian military reforms and their subsequent effect on the battlefield, look almost as a point in time now, whereas changes spread over ten years today appear to be taking inordinately long to fructify, leading to finding of faults with the system.

We have seen that even the most dramatic change in large military organisations usually spans a decade or more. Whenever, such changes have taken place in the past, there has been a leader, an officer or a team of officers that has been involved with it for a fairly long time. This ensures continuity of vision and commitment to the cause. On the other hand, frequent changes in leadership are likely to leave the ship rudderless. The levels of commitment of different officers will be dissimilar and it is quite possible that some of the later incumbents may actually reverse the change. This is a typical phenomenon in modern militaries where nobody has a sufficiently long tenure.

The personnel policies of the militaries today typically rotate officers out of assignments every two to four years. This posting cycle may be adequate and even appropriate for officers whose responsibilities are direct and continuous and deal with the day-to-day running of units such as operations officers, commanding officers and flight commanders. It is, however, less desirable where they are tasked with effecting military transformation. Here the officers are dealing with long-term projects that have huge costs and a large number of variables. A frequent change in officers handling such projects is likely to disturb the planning and execution of the project. Besides, an officer not connected with the vision is far more likely to succumb to the lobby, resisting the change, than one who visualised the project. Organisations that have successfully transformed have usually had a few senior leaders, who understood the new environment and brought

about change in complex organisations, serving for a long period of time compared to typical officers' tenures. While it may be naïve to ask for long tenures at the highest levels in modern militaries, it may be far more practical to assign middle and junior level officers to projects for longer durations.

Human resource transformation is often the most difficult to accomplish yet can be most critical to successful transformation. Uniformity and creativity are two ends of military thinking.

Uniformity is required to fulfill the basic functions of the military; and creativity is required for the military to move forward. Military organisations exert strong pressures on the individual to conform. These pressures are cultural blocks to creativity which tend to reduce the potential leaders to mediocrity. An existing system creates its own vested interests which in turn fosters barriers to change.²¹ Any organisation whose culture inhibits critical self-assessment, learning and rigorous experimentation, is unlikely to succeed in covering new ground. It is essential for leaders to recognise when new career paths need to be supported to fully realise the potential of an emerging war-fighting capability.

Donald Rumsfeld, the American Secretary of Defence, had said, "The roadblocks to military transformation are enormous, and overcoming them requires leaders who believe in, and advocate, the changes being introduced."²² Most people have an inherent tendency to want to stick with what they know and are comfortable with rather than change. Instituting change, particularly in a large organisation like the military, requires far more than issuing a directive or barking an order. People can be commanded to implement a change but they need to be persuaded if the change is to become permanent.

Intellectual efforts to drive transformation will always have to contend with traditional conservative elements supporting the status quo and resisting change.

21. Nazareth, n. 5, pp. 38-39.

22. Donna Miles, "Rumsfeld Shares Transformation Philosophy with Chinese Military", American Forces Information Service News Articles, accessed at http://osd.dtic.mil/news/Oct2005/20051020_3102.html, on June 04, 2011.

Intellectual efforts to drive transformation will always have to contend with traditional conservative elements supporting the status quo and resisting change. More importantly, transformation requires changing culture and attitude besides changes in weapons and systems and consequent budgetary and manpower allocations. With every change, there will be sections within the military that will lose importance and others that will gain. Those who expect to lose turf are most likely to resist.

A significant obstacle is a military brass wedded to existing weapon systems, strategy and organisational structure. In the US, the military brass was content to let Defence Secretary Rumsfeld talk about transformation as long as his plans didn't interfere with their own priorities. He wanted additional spending on missile defence, satellites and intelligence while they had their own shopping lists: new ships, airplanes and armoured vehicles, as well as more people to operate them. Everything changed when Congress passed the \$1.35 trillion tax cut and the Administration signalled a limit on defence budget increases, making it clear that there probably was not enough money to fund the differing desires of Rumsfeld and the Joint Chiefs.²³

Just as there is acute competition between the different organs of the state for resources and money, there is even greater competition within the different Services of the military. The air, land and naval forces compete with each other for a greater share in all aspects of existence; from a greater doctrinal role to increase in defence allocation to buy more weapons and equipment to pitching in for additional manpower. At an even lower level, there is competition within the elements of each Service; tanks vs artillery or manned vs unmanned aircraft or submarines vs aircraft carriers. Different departments and directorates try to sell their idea of operations. Under such conditions, a coherent transformation programme is extremely difficult to implement. It is not unusual for a commander to shelve a programme in favour of another, just because he happens to be from that stream of the military.

23. Thomas E. Ricks, "For Rumsfeld, Many Roadblocks, Miscues and Resistance Mean Defense Review May Produce Less Than Promised," *The Washington Post*, August 07, 2001, accessed at <http://www.washingtonpost.com/ac2/wp-dyn/A28526-2001>, on June 03, 2011.

There is also the issue of synergising transformation efforts. Unless this happens, various elements will transform independent of each other. This will not result in the whole being greater than the sum of the parts. New capabilities, specially weapon systems, are very expensive and must be integrated with existing systems and capabilities. There is an inescapable requirement to streamline the whole process of transformation. Somebody has to be in charge of the whole process. It is too expensive to be frittered away in penny packets.

Modern military transformation is not confined to the military sphere but requires considerable civil-military interaction.

Modern military transformation is not confined to the military sphere but requires considerable civil-military interaction. These interactions may concern tangible elements such as commitment of budgetary support and manpower to transformation efforts. On the other hand, transformation may be stymied if deemed inconsistent with a society's history, norms, and collective memory. Balancing the "societal imperatives" emanating from the civilian realm and the "functional imperatives" from the military realm can be the source of considerable tension.²⁴ Interaction between the military and civilian leadership, thinkers and elites is necessary to ameliorate these stresses. This interaction often involves an exchange of information concerning the costs and benefits of a particular transformation programme. In certain cases, the rationale and benefits of a particular transformation initiative are fairly obvious, and this communication can occur smoothly.²⁵

Changes do not stop with changing just the uniformed personnel but must extend to the elected representatives who must stay updated with

24. Samuel Huntington, *The Soldier and the State: The Theory and Politics of Civil-Military Relations* (Cambridge, MA: Harvard University Press, 1957), p. 2.

25. For example, at the end of the Cold War, it was fairly obvious to European civilian and military leaders that their militaries could downsize given the dramatically reduced likelihood of a conventional war in central Europe. These force reductions had the readily apparent benefit of freeing up resources (i.e. a "peace dividend") for other purposes. Jolyon Howorth, "The Transformation of European Military Capability," in Curtis Gilroy, ed., *Service to Country: Personnel Policy and the Transformation of Western Militaries* (Cambridge, MA: MIT Press, 2007), pp. 37-40.

Transformation is born of intellectual energy, but it can succeed only within an institutional framework wedded to the system.

the security scenario, civilian officials who must become more agile and flexible in their approach and to defence industries which must respond by changing their operations to produce the new or different equipment needed.

ANALYSIS

Military transformation has been the greatest driver of history. If one were to reflect on history for a moment, the most notable events that come to mind are the great military conquests by Alexander, Genghis Khan, Hannibal, Babur, Napoleon and many others, depending on the history books that one has read. However, what is common in all these is that each one of these victories was won not by overwhelming force but by sheer genius, innovativeness, employment of new weapons and sometimes of older weapons but in a novel way, and bold experimentation. The record for the vanquished is equally unvarying; failure to learn the new ways of war-fighting.

Just as visionary minds have changed the world, stagnant minds have been the roadblocks to progress. We live in a world where the system runs because most people conform to the laid down norms and nowhere is this truer than in the military. However, a deeper study of military history reveals that conformity, while vital to success at the tactical level, has usually lost to creativity at the higher levels. It is not easy for a military to discard the known for the unknown as the price of failure could be survival itself. On the other hand, not staying ahead of change could be equally self-destructive. Therefore, the only option available with militaries is to encourage radical thinking and innovative ideas but implementation after rigorous experimentation. A culture of creativity and intelligent risk taking is essential to foster transformation.

Transformation is born of intellectual energy, but it can succeed only within an institutional framework wedded to the system. Organisational endorsement as granted by King Frederick provided indispensable legitimacy to the Prussian military transformation. In the United States, the creation of

the Office of Force Transformation under the direct purview of the Secretary of Defence was a similar exercise that carried out transformational activities during the better part of the last decade. Transformational changes need institutional backing.

We have seen earlier that military establishments are averse to encouraging radical thinking and, yet, unless there is new thought, there is no progress. With the higher standards of education and the democratisation process in the society, better results can be attained by fostering the individual soldier's intellect and innovativeness. The Israeli Army is an excellent example of a military that evolved into one of the best fighting forces without the restrictions of conformity and entrenched mindsets. However, for militaries with glorious histories and long standing traditions such an approach, though desirable, may be impractical. Establishment of think-tanks is one of the ways by which leadership at all levels can benefit from the creative thinking of those inclined towards it without disturbing the conformity required in the rank and file of the military. However, this can only succeed if the organisation provides active encouragement and wholehearted support. It is unfortunate that militaries reserve their best officers to carry out tasks that are mundane and need no greater intellect than following the drills rather than freeing them up for higher level thinking.

Modern militaries operate over many domains simultaneously. Air, land, sea and space, besides cyber forces, must cooperate and coordinate their operations to achieve success. However, when it comes to effecting change, each of these forces, led by different leaders, tends to follow its own culture and trajectories. Surprisingly, even the acquisition and procurement procedures could be different. The combined arms approach has been in vogue for the last five hundred years or so and is only getting stronger. Therefore, it is essential that all the three Services synergise their transformation effort so that the doctrines, organisation structures and equipment are in sync with each other. The Indian armed forces are hurtling towards transformation at breakneck speed and will be spending colossal amounts of money on new equipment. They must ensure that there is coherence and coordination between different elements of the military, and that the money is well spent.

Transformation takes time to achieve. Therefore, officers involved in transformational activities need to be given longer tenures and encouraged to undergo rigorous academic study. Effecting transformation requires a flatter and nimble bureaucracy that is forward looking rather than precedent based.

Besides building new capabilities, transformation also requires rebalancing existing forces and existing capabilities. For example, the experience in Afghanistan showed the effectiveness of the unmanned aircraft. But serious students of warfare knew of its seminal role in action by Israel *two* decades earlier. However, the Afghanistan experience also revealed how few of these aircraft were available even with the US military and what their weaknesses were.

CONCLUSION

Transformational changes in warfare occur when new technologies and tactics combine to reshape the face of battle. Although many transformations are rooted in technological innovations, a successful transformation requires adaptations in mindsets, military organisation, training and doctrine. And if there is a single dominant factor to explain why some militaries have managed changes better than others, it is not technical genius but rather forward thinking and visionary mindsets.

Visionary leadership, foresight, innovative thinking and organisational encouragement are as important as technology. As far as intellectual and doctrinal innovation is concerned, it seldom evolves in response to top-down guidance. Breakthroughs in theory usually come from operational practitioners and academic researchers with deep insight. Assignments dealing with transformational activities must be staffed with the “best and brightest” to ensure that the highest calibre of intellectual power, energy, and vigour is applied to transformation activities.

When militaries do manage change properly, the rewards are impressive. The importance of not missing out on the next big change in warfare should be on the mind of every military leader.

CHINA'S CIVIL AVIATION INDUSTRY

VISHAL NIGAM

The Civil Aviation Administration of China (CAAC) was formed after the civil war on the lines of Aeroflot. Though its main function was to manage the civil aviation sector, it functioned under the direct control of the People's Liberation Army Air Force (PLAAF) along with its assets and, therefore, operated more like a paramilitary organisation. The sector was typically governed by a chain of command consisting of the CAAC; 6 regional civil aviation bureaus; 23 provincial civil aviation bureaus and 78 civil aviation stations; and CAAC functioned both as a regulator and an operator¹. The system was highly centralised and, therefore, most decisions emanated from the top, leaving very limited margin for flexibility at the lowest level in the chain of command. The changes started to take shape after Deng's economic reforms when CAAC took the initiative of '**corporatising**' the sector by bringing in path-breaking reforms. However, the major structural changes in CAAC took place after the industrial restructuring in China;² change in the sovereignty of Hong Kong and, finally, as a result of China's entry into the World Trade Organisation (WTO).

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1. Chen Hongmin, "Evolution of China's Air Transport Development and Policy Towards International Liberalisation," *Transportation Journal*, March 22, 2003, accessed at www.thefreelibrary.com/Evolution+of+China's+air+transport+development+and+policy+toward+s...-a0105916570, on February 14, 2011.
2. Between 1995 and 2000, the number of state owned enterprises fell from 118,000 to 53,489 as part of industrial restructuring and, as a result, 35 million state workers were laid off.

CAAC as a regulator decentralised the airline sector and made it independent of the PLAAF.

CAAC as a regulator decentralised the airline sector and made it independent of the PLAAF. It passed on greater autonomy to the six regional civil aviation bureaus and enabled them to not only take operational decisions but also become responsible for their balance sheets. The next logical step was to separate the dual function of CAAC which until now had functioned both as a regulator and an operator.

Therefore, whilst CAAC retained its primary role as a regulator, the functional control was transferred to the six regional civil aviation bureaus. Hence, what emerged on the drawing board was a two-level chain of command instead of the earlier four levels and the six regional civil aviation bureaus became six independent state-owned airlines. By 1993, the number of local carriers had proliferated, and as a result there were 41 airlines in China, of which 28 provided both passenger and cargo services. The industry became unwieldy with too many small airlines unable to manage their economies of scale, resulting in losses, and, eventually, many of them either had to be further subsidised or were forced to shut down.

CAAC once again restructured its approach from the earlier policy of encouraging competition to one of consolidation. Small non-profit making airlines were made to merge into three primary airlines, led by Air China, China Eastern and China Southern. They became operators with rights not only to buy/lease aircraft but also became entities vested with greater financial and administrative autonomy³. CAAC, on the other hand, divested a large part of its ownership responsibility to become a single regulator, controlling the civil aviation sector in China. However, it continued to hold stakes in airports located at major cities in the coastal areas and the Tibet Autonomous Region (TAR). The aim of consolidation was to improve global competitiveness and enhance the internal regulatory mechanisms of the airlines. The effects of these changes became visible by year 2000, when private capital and foreign investment started to flow in and Chinese airlines also became a part of code-sharing with major international airlines. By

3. n. 1.

2010, China started to record double digit growth in air travel, investments on fixed assets soared to \$2.5 billion and passenger volumes surged to 126 million, which was expected to quadruple by 2020.⁴ The reforms were gradually taking shape and domestic airlines started to get into partnerships not only with the foreign airlines but also manufacturing biggies like Boeing, Sikorsky, Embraer and Airbus. The growing economy, along with the surge in air passenger travel, created a boom in the market for aircraft manufacturers who wanted to set up shop and derive benefits from the growing commercial jetliner market in China.⁵

In 2005, CAAC also opened up civil aviation to domestic investors, thus, breaking the age old monopoly of CAAC and promoting fair competition and a level playing field in the sector.

REFORMS SINCE 2000

The new millennium witnessed CAAC gradually dissolving its ownership rights, change in the sovereignty of Hong Kong and China's entry into the WTO, eventually resulting in a series of reforms in China's civil aviation industry. The Chinese leadership started to believe that protection was not the *mantra* and growth had to be embedded in the process of market transition coupled with liberalisation. CAAC brought in a number of amendments in the policy framework, leading to an 'open sky' policy which would offer better opportunity for overseas as well as domestic operators. To galvanise the process, CAAC formulated guidelines to encourage foreign investment in airlines, airports and airport management systems; and joint ventures in aircraft maintenance and the manufacturing sector. It redefined the existing norms of ownership and capital investment from foreign airlines was raised from 35 percent to 49 percent. In 2005, CAAC also opened up civil aviation to domestic investors, thus, breaking the age old monopoly of CAAC and promoting fair competition and a level playing field in the sector. As a

4. Xinhua News Agency, "China Civil Aviation Industry Up By 31.7% in H1," *China Daily*, November 9, 2010.

5. Alan Williams, *Contemporary Issues Shaping China's Civil Aviation Policy: Balancing International with Domestic Priorities* (Ashgate Publisher, 2009).

result, almost a dozen private airlines acquired licences, a majority of which were Low Cost Carriers (LCCs) like the Spring Airlines. The philosophy of LCCs was based on a single type of aircraft operating short distance routes, with high aircraft utilisation, efficient operations in a robust network environment augmented by efficient travel agencies.⁶

Along with an increase in passenger trips, there was also an increase in the demand for small aircraft and helicopters generated by the growing requirement to travel between the cities and islands in China. This was a result of the spectacular growth story of the Chinese economy and an astronomical rise in the 'millionaire' population. The increased requirement for small aircraft and helicopters also became a good business opportunity for the aviation industry in the small aircraft segment. However, to energise this section of the sector, CAAC had to carry out air space reforms and open the low level air space (below 1,000 metres) for general aviation other than the military, which in the future could also be utilised for Search and Rescue (SAR), off-shore exploration, aerial photography as well as short hop aerial transportation within and outside city limits⁷. The Shanghai Securities News Agency had reported that the control zones of Shenyang and Guangzhou were identified for trials of low-altitude air space and, if feasible, would also be replicated in other control zones. CAAC also divested its ownership from a large number of local airports and partnered with foreign investors as per the guidelines on deepening civil aviation reforms. As a result, a number of airports, large and small, started to sprout and major airlines set up hubs to operate freely to destinations across China. A booming economy and reforms in the air space triggered a demand in the small aircraft segment as well as in the airline industry, which started to show signs of operating in a market oriented economy. China in the new millennium was witnessing an all round growth in the civil aviation sector

6. Anming Zhang, "Low Cost Carriers in Asia: Deregulation, Regional Liberalisation and Secondary Airports," *Research in Transport Economics Sauder School of Business, UBC*, Vol. 17, February 2009, accessed at www.hamburg-aviation-conference.de/pdf/present2009/Session-II-Anming-Zhang.pdf, on February 15, 2011.

7. Xinhua News Agency, "China to Open Low-Altitude Airspace for Private Planes," *China Daily*, November 15, 2010.

EU-CHINA SYNERGY

The European Union (EU) too recognised the huge potential in the future Chinese aviation market and, hence, was ready to go that extra mile rather than watch it grow from the sidelines. The passenger traffic had soared from a meagre 2,75,000 in 1990 to a bounteous six million in 2004 and was expected to outpour to 500 million by 2020! The EU and China, at the aviation summit held at Beijing in July 2005, signed a joint declaration and agreed to synergise key stakeholders and forge closer ties in areas of mutual interest like infrastructure; aviation safety and security policy; regulatory cooperation and convergence; and air traffic management. The declaration chalked out a roadmap, bringing together 250 leading representatives from airlines, aerospace industries and different service providers. The two sides agreed to gradually open their aviation sectors by increasing capacity entitlements in relation to market access and through regulatory mechanisms to facilitate airline operations. This, in turn, would then provide significant benefits to passengers and opportunities to operators in both China and the EU⁸. They also allocated a budget of \$10.5 million to pursue research focussed on sharing and developing technologies for cleaner, less polluting and safer aircraft to be carried out by the European Commission and China's Ministry of Industry and Information Technology (MIIT).

Paul Valery, a French philosopher of the 20th century had said that the "trouble with our times is that the future is not what it used to be" and the future for the Chinese aviation industry at large appears to be heading in a direction very different from its past! The civil aviation sector, on an average, has grown at an annual rate of 17 percent since the 1980s and the trend appears to be on the rise ever since. The strategy for the next 20 years would, therefore, be to capitalise on this growth and if the trends are anything

The civil aviation sector, on an average has grown at an annual rate of 17 percent since the 1980s and the trend appears to be on the rise ever since.

8. Joint Declaration on EU-China Cooperation in Civil Aviation signed on the occasion of the EU-China Aviation Summit, Beijing, June 29-July 01, 2005, by Mr Yang Yuanyuan, Minister of Civil Aviation in China and Mr Jacques Barrot, Vice President of the European Union on EU-China Cooperation.

to go by, CAAC estimates a whopping 1.5 billion passenger trips by 2030 when China will emerge as the largest air transport market in the world — a future very different from its past, which not even a prognosticator could have predicted in the 1980s!⁹ The only downside to this prognosis being that air travel in China is almost six times more expensive than rail and other conventional methods of travel. It is being further challenged by an increasing network of high speed railway lines which are expected to cover 13,000 km by 2012. Therefore, the strategy for the aviation sector in China will have to be to induct LCCs, improve efficiency through punctuality and better management practices and, thus, enhance passenger confidence. However, to be perceived as an alternative to the conventional and much cheaper modes of transportation, the aviation sector has no choice but to make the fares more competitive as compared to surface transport.

GENERAL AVIATION

The rapid economic rise also had an impact on the sociological factors and the internal dynamics in China. There was a sudden increase in the number of entrepreneurs and a country once acclaimed to have the most egalitarian society and income distribution was now witnessing an end to 'Mao's Socialism' and China was fast becoming the world's most 'unequal society'. The manifestation of these sociological changes had led to an increase in the number of millionaires with assets greater than \$1.5 million, whose life style was naturally shifting gears, and time for them was money.¹⁰ Naturally, many of these opulent and ambitious Chinese had the inherent desire to own their business jets and, hence, the new millennium witnessed an increase in the demand for private air services as well as small, medium private business jets and helicopters. China presently has under 1,000 small aircraft (which include both business jets and low-end fixed-wing aircraft used for forestry and agricultural purposes) as compared with 220,000 in the United States and 330,000 in the world.¹¹ The Chinese economy has been

9. Xin Dingding, "China's Civil Aviation Fleet Set to Double," *China Daily*, October 29, 2010.

10. Wang Qiang and Xin Dingding, "Golden Decade Takes-off for Aviation," *China Daily*, October 16, 2010.

11. Wang Ying, "Aviation Sector Set to Take-off," *China Daily*, November 16, 2010.

vibrant and the market has sufficient capacity to absorb a greater number of small and medium business jets as well as helicopters; however, the present demand has been dampened by the country's slow processes and the slow pace of aviation reforms.

Further reforms and opening low-level air space in China for use by private operators will energise the general aviation industry and boost the demand for small and medium aircraft. Yang Xiaonong, a private plane consultant, in an interview to *China Daily* mentioned that the present guidelines to operate these aircraft are stringent and do not clearly elaborate China's aviation policy. Many potential buyers are, therefore, sceptical about the complex and time-consuming approval procedures and high cost of operations and maintenance. An open sky regime augmented with technology would help remove the fog of uncertainty, invigorate demand for small aircraft, push up the requirement for aviation services, exploit the unexplored market worth \$150 billion and finally provide the aviation industry an opportunity to bridge the existing gap between demand and supply for this category of aircraft. According to a report in *China Daily*, a village in east China's Jiangsu province announced plans to buy 20 aircraft for pilot training and tourism after the government announced its intentions to open low-altitude air space for general aviation. Huaxi, the richest village in China, spread in an area less than one square kilometre, home to the steel and textiles industries, and also the first village to generate close to \$2 billion in revenue in 2003, expressed its desire to own a fleet of aircraft in the next five years with the aim of establishing a pilot training base as well as boosting tourism once the low altitude air space opens up in China.¹²The potential for growth in the civil aviation sector is unprecedented and the industry is eagerly waiting to absorb the multi-billion dollars from the market, and sharpen the competitive edge in the coming decade to establish a foothold in the air transport industry in China.

12. Xinhua News Agency, "Wealthiest Village to Purchase 20 Aircraft in 5 Years," *China Daily*, November 23, 2010.

CIVIL AVIATION INDUSTRY

The growth in the sector had to naturally be multi-dimensional and, therefore, other than energising the airline industry, it was also imperative to include plans for the construction of new airports, work on the expansion of the existing ones, create large and medium hubs for new airlines, along with maintenance and training centres, and ensure adequate availability of pilots and skilled technicians to overhaul the aircraft. According to rough estimates, it has been projected that by 2020, China's civil aviation sector alone will require more than 50,000 pilots! At the end, the strategy had to be centred on availability of aircraft and, therefore, the Chinese aviation industry had to generate adequate capacity either through partnerships or joint ventures to produce the required number of aircraft in order to meet the demand.

The global recession of 2008 had slowed down the development process and some of the world's richest economies had started to shrink; according to the International Monetary Fund (IMF), the global economy had shrunk by 0.9 percent in 2009. The recession was showing effects and most of the major airplane manufacturers based in these countries were feeling the heat. At the same time, China was recording a staggering 9 percent rate of growth and the aviation sector too was growing at a double digit rate. The Chinese aviation market was expected to generate sales of over \$450 billion in the next two decades and every airplane manufacturer in the world was ready to play the role of either a partner or a competitor. Airbus, in a joint venture with the Aviation Industry Corporation of China (AVIC), invested over a billion dollars to set up an Airbus 320 plant in the Tianjin aerospace industrial park to manufacture 300 aircraft by 2016. AVIC also had signed a multi-billion dollar deal with Boeing to manufacture parts for the Boeing 747 and its other variants at the same plant. AVIC had invested close to half a billion dollars to manufacture helicopters not only for its growing domestic demand but also to cater for the international market. In a recent report that appeared in the *Global Times*, AVIC, along with United States Aerospace (USAE) had been trying to bid its 13-tonne AC-313 medium lift

helicopter for the US Navy's VXX helicopter programme¹³. China is working its way up and cooperating as well as collaborating with majors like the Canadian Bombardier, Boeing, Embraer, Eurocopter Group and Augusta Westland as it strives for leadership in the world's aerospace sector. Thomas Enders, Airbus President, has mentioned that the Chinese are "very eager and very ambitious" and likely to catch up with the Western level of efficiency at the Airbus sites in China. He was comparing the Broughton plant in the UK as a supplier with the plant at Tianjin, after the first 'Made in China' Airbus was delivered to Sichuan Airlines. It is said that the Airbus plant at Tianjin, which has cranked up at a breathtaking pace is almost a replica of the hangar at Hamburg, producing one aircraft a month and expected to rise to four a month by 2011. Efficiency, high quality infrastructure, strategic partnerships, joint ventures and Foreign Direct Investment (FDI) in the civil aviation industry have been key enablers to bridge the gap for future demand for a medium size passenger aircraft in China.

The market transition, as a result of industrial restructuring in China permitted foreign investors to get into a strategic partnership with the domestic players and participate in this huge '**Chinese Dream**'. Foreign companies started to pour into China through the route of FDI, set up Maintenance, Repair and Overhaul (MRO) facilities and large aviation parks. The technology infusion as a result of growth in the civil aviation sector would naturally have a cascading effect on the aviation industry, which was getting energised to prepare itself as a leading player in the world's aerospace industry. There were a few global players who saw technology transfer to China as a potential risk while others saw it as an opportunity and a win-win situation. One such example comprised the Airbus plants at Beijing and Tianjin which have been developing carbon composite

The market transition as a result of industrial restructuring in China permitted foreign investors to get into a strategic partnership with the domestic players.

13. Fu Wen, "Hopes for First Ever Military Export to West," *Global Times*, January 28, 2011.

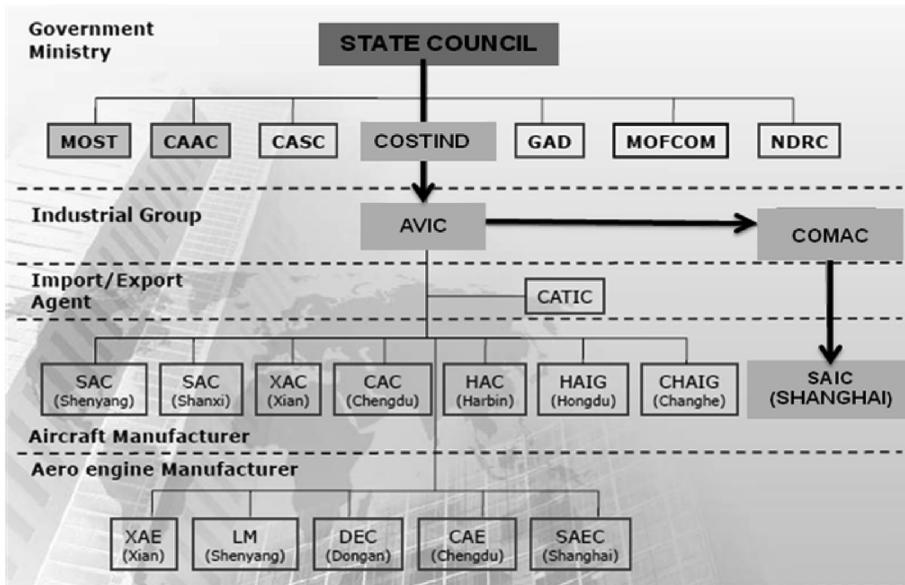
The reforms in the aviation sector had been an ongoing process since the time Deng opened the economy.

technology for their next generation Airbus 350XWB and, thus, intruding into what was once the sole domain of Airbus UK. This particular case was turning out to be a win-win situation for both China and Airbus; whilst, on the one hand, China was getting the technology knowhow, on the other, Airbus was smartly trying to leverage funding from the UK as a bargaining tool for its Airbus 350 and Airbus 400 military transport aircraft, citing China as an alternative location. Beyond doubt, all global players were aware that Western technology transfer will help Chinese play catch-up in military aviation but, at the same time, also acknowledged that at a time of recession, this was the price for the ticket most of them were ready to pay to get entry into the Chinese aerospace market.

COMAC

The reforms in the aviation sector had been an ongoing process since the time Deng opened the economy. China continued to make changes, many of which were based on the experiences of major global players. The leadership too was sensitive and allocated funds for the development of a passenger aircraft in the 11th and 12th Five-Year Plans. AVIC was reorganised to look into core areas like type of aircraft, engines and systems. Similarly, the civil aviation sector too was restructured into main businesses like air transport, helicopters, engines and aircraft systems. Hence, the model was structured along the lines of the state providing '*state-of-the-art*' infrastructure to attract foreign investors either through joint ventures or FDI to create centres of excellence. The Commercial Aircraft Corporation of China (COMAC) was one such centre of excellence, which functioned under the Commission of Science Technology and Industry for National Defence (COSTIND) and AVIC for developing 70 and 150-seat passenger commercial aircraft. (Fig 1)

Fig 1



- MOST Ministry of Science and Technology
 CAAC Civil Aviation Administration of China
 CASC China Aerospace Corporation
 COSTIND Commission of Science Technology and Industry for National Defence
 GAD General Armament Department
 MOFCOM Ministry of Commerce
 NDRC National Development and Reform Commission
 COMAC Commercial Aircraft Corporation of China
 CATIC China Aviation Technology Import Export Corporation

COMAC was established in May 2008 with registered capital of under \$3 billion. Being located at Shanghai gave it the dual advantage of, first, being financially supported by the cash rich Shanghai local government and, second, easy accessibility for foreign partners keen on setting up a joint venture in China. COMAC, therefore, became a consortium consisting of the local Shanghai government, AVIC's Commercial Aircraft Corporation,

Shanghai Aircraft Industrial Corporation (SAIC) and the Xian-based design institute also called the First Aircraft Institute (FAI) which had a branch in Shanghai. Though AVIC had much larger assets, in the pecking order, COMAC was ranked higher which was evident from its leadership and the chain of command. A former Minister, Zhang Qingwei and Vice Minister Jin Zhuanglong of COSTIND were appointed as Chairman and President of COMAC; not surprisingly, both were members of the Standing Committee of the Communist Party of China. The major stakeholders of COMAC were the state owned Assets Supervision and Administration Commission to which it reported and had assets close to a billion dollars,¹⁴ AVIC, Shanghai government, along with the Aluminium Corporation and Baosteel Group Company of China.¹⁵

COMAC, after the 11th Plan, had two major civil aircraft development projects on hand; one was the 70-seat single aisle ARJ 21 and the other, the 150 seat-single aisle C919 passenger aircraft. The C919 is expected to take to the skies by 2016 and is also being projected as a future replacement and potential competitor to Boeing 737 and Airbus 320. However, some experts have tried to downplay this development plan, calling it “numbo jumbo” as they feel that in the absence of technology to manufacture an aeroengine, no country can claim the ‘high ground’ to possess the capability to manufacture an aircraft. This is true to a large extent, but the Chinese, as we know, are experts in defying basic laws and, according to some reports, have already signed an order to sell 100 C919 to their state-owned airlines — Air China, China Southern and China Eastern. It is believed that the ARJ 21 has a backlog order for 240 aircraft not only from domestic airlines but also foreign companies like GE Capital Aviation services as well as Lao Airlines.¹⁶ The Chinese market is expected to grow at a double digit rate and by 2020, require more than 4,000 aircraft; business valued at over \$450 billion and, hence, sufficient capacity for the ARJ21-700 and C919 to do business in the domestic market. However, CATIC is also looking at exploiting

14. Xinhua News Agency, “COMAC gets Order for 100 C919 Jumbo Jets,” *China Daily*, February 15, 2011.

15. Leithen Francis, “China Restructures Its Aerospace Sector,” *Flight International*, October 28, 2010.

16. “China’s COMAC Sign Deals for 100 Aircraft Orders,” *The Economic Times*, November 16, 2010.

the foreign markets through exports of these aircraft and, therefore, CAAC has been working closely with the Federal Aviation Agency (FAA) and European Aviation Safety Agency for certification which would then provide CATIC greater flexibility to export these machines.

COMAC is the main agency vested with the responsibility of manufacturing passenger aircraft in China.

C919

COMAC is the main agency vested with the responsibility of manufacturing passenger aircraft in China and in the coming years, is expected to compete with Boeing and Airbus to gain a foothold in the aerospace sector. China is probably the only other country with the national will to replicate the fairy tale story of the European and American passenger aircraft industry. The President and CEO of Honeywell China and India had, in an interview to *China Daily*, said that **“China is going to build the third leg of the aerospace industry after North America and Europe”** — recognition from a potential competitor which not only reinforces the confidence but also the conviction of the Chinese leadership in its civil aerospace sector. COMAC subsequently unveiled its first home grown 17 metres long, 3.96 metres wide and 5.6 metres tall ‘**Chinese beauty**’ called C919 at the 8th International Aviation and Aerospace exhibition held in Zhuhai on November 16, 2010. The C919 is expected to make its maiden flight in 2014 and be ready to be delivered by 2016 after certification. COMAC has also established many joint ventures and is working closely with half a dozen domestic and over a dozen international suppliers for the development of a fuselage for the C919. It expects a future order of 2,000 aircraft and strives to occupy the same status in China as Boeing did in America and Airbus in Europe. It also aims to become a preferential brand and the mainstay of China’s passenger aircraft manufacturer which in the next two decades should have the capacity to absorb almost 4,000 aircraft consisting of both large and medium size jets, along with 800 additional regional jets.¹⁷

17. Wang Zhouqiong, “Big Jets Take-off with 100 Orders,” *China Daily*, November 23, 2010.

ARJ21

The ARJ21 is a regional jet manufactured by COMAC's SAIC. The aircraft is powered by the GE CF 34-10A high bypass ratio turbo fan engine to meet the diverse and demanding conditions to operate across the western regions in China. The engines are pod mounted at the rear of the fuselage, forward of the swept T-tail, and equipped with Full Authority Digital Engine Control (FADEC). The powerful engines mounted on the ARJ21-700 will give it a better climb performance and enable operations from short runways at high altitudes. The final assembly of this aircraft was completed in March 2007; the first ARJ21-700 took to the skies in November 2008 and the certification was completed in 2009, ready to be delivered by end 2011.¹⁸

The aircraft is the result of teamwork between COMAC and different units under AVIC like Xian, Chengdu and Shenyang, along with foreign investors in joint venture partnerships. Chengdu manufactured the nose section; Shenyang assisted in the empennage; Xian Aircraft Design and Research Institute assisted in designing; and the final assembly was carried out by Shanghai directly under COMAC. Subsequently, COMAC also launched the development plan to manufacture the ARJ 21-900 along with Bombardier Aerospace in the 90-149 seat commercial aircraft category which is expected to roll out by the end of 2011. The other versions include the freighter carrier ARJ21F and the business class of aircraft, the ARJ21B.

The ARJ21-700 cockpit is equipped with state-of-the-art avionics consisting of an integrated Rockwell Collins high resolution flat panel Liquid Crystal Display (LCD) with Electric Flight Control Systems (EFCS). Honeywell is supplying them with the fly-by-wire flight control system along with the VHF-4000 voice and data receiver with data link communications. It has a Rockwell Collins FMS 4200, Flight Management System (FMS) which provides multiple waypoint navigation; fuel planning; and Standard Instrument Departure (SID), along with standard terminal approach and arrivals. It also has a fully integrated Engine Indication and Crew Alerting System (EICAS) along with the Rockwell Collins AHS-3000 solid state weather radar, Traffic Collision and Avoidance System (TCAS)

18. http://www.acac.com.cn/site_en/product04.asp, assessed on February 23, 2011.

and an Air Data Computer (ADC). Eaton Corporation is providing the cockpit panel lighting, while Sagem is providing the flight deck control system which has an interface with the fly-by-wire system.¹⁹

Aviation Parks

The stakes are high and China wants the whole nine yards in the huge Chinese aviation market.

Formation of COMAC was part of a vision to create infrastructure for China's aviation industry and the vision document consisted of setting up a research and training base at Pudong along with an assembly line plant in Baoshan, Shanghai prefecture (Fig 2). Similar parks were also set up in partnership between the Tianjin government and CAAC to build infrastructure for China's civil aviation technology (Fig 2). Tianjin Aviation Park eventually became a base for the Airbus 320 assembly line and the manufacturing hub for China's civil helicopters. The future plan is, however, to set up a global aviation industrial city with a technical advisory service, manufacturing hub and research training centre. The Tianjin municipal government, along with AVIC, is also building China's helicopter industrial base in the Binhai region in Tianjin, with an investment of nearly \$3 billion (Fig 2). Around the same time, AVIC General Aircraft Corporation Limited, a joint venture between the Zhuhai government and AVIC, with investments close to \$3 billion, set up a general aircraft industrial base at Zhuhai (Fig 2). The infrastructure at the park had sections for aircraft designing, manufacturing, flight testing, and air traffic management and airport operations.²⁰ These global parks will eventually promote development of large and small passenger aircraft, helicopters and executive jets, and the technology used on these platforms will finally 'spin-in' to the military aviation industry in China.

Formation of COMAC was part of a vision to create infrastructure for China's aviation industry.

19. www.aerospace-technology.com/projects/arj21/, accessed on February 23, 2011.

20. CCID Consulting, "China's Aviation Industry: Aeroengine Starts" (Published by CCID management consultant), July 27, 2009, <http://en.ccidconsulting.com/en/io/mr/mr/cs/webinfor/2010/04/1272329397066742.htm>, accessed on February 21, 2011.

Fig 2



Source: CCID Consulting, January 2009

The Western companies have been partnering with the Chinese companies since the mid-1980s. McDonnell Douglas had signed an agreement with the Shanghai Aviation Factory in 1985 to manufacture 25 MD82/83. In 1995, Sikorsky selected Changhe as its business partner to manufacture the empennage for S-92 and, in 1997, a consortium was formed among Harbin, Eurocopter and Singapore Aviation Company to manufacture EC-120 helicopters. A joint venture model is not new to China, but what has changed is the strategy and the methodology of implementing these partnerships. The journey has been fruitful and the Chinese aviation industry is fast becoming a part of the global chain, with major participants like GE, Rolls-Royce, Boeing, Airbus, Embraer, Pratt & Whitney Canada, Honeywell and Collins, all vying for a piece of the pie in the growing civil aviation market in China.

China is also becoming an emerging destination for the MRO business, not just regionally but also globally. During the recession, 5 percent of the global aviation fleet was grounded for want of maintenance and the MRO demand was relatively flat, however with evidence building that the worst economic recession is heading towards substantial financial recovery, major airlines are expected to get back to their earlier levels by the end

of 2011. According to Frost and Sullivan, China in 2000 earned 10 percent of the Asia-Pacific MRO revenue and its share in 2010 had increased to 21 percent, almost equalling Singapore. From the long-term perspective, the global revenue in the MRO industry is expected to grow annually at 4 percent to reach a level of \$65 billion by 2020 and \$90 billion by 2030. However, when it comes to a breakdown of individual countries, India and China are expected to grow annually at almost 9 percent, while Asia-Pacific is at 4 percent, Middle East at 6 percent, Europe at 2 percent and America at 0.2 percent in the MRO business.

Boeing and Airbus are pushing hard for joint ventures to set up MRO facilities in China. Boeing Shanghai Aviation Services is certified and is focussing on 'line maintenance' as well as 'heavy maintenance' and modification work on Boeing 737 NG aircraft. Engine manufacturers like GE, Rolls-Royce, Snecma, CFM international Pratt & Whitney are also actively campaigning to tango in the fast growing MRO industry in China. Ameco Beijing is in a joint venture with Lufthansa Technik and Australia's Qantas for engine overhaul. Taikoo Spirit Aerosystems Composite Company Limited (TAECO) along with HAECO (Hong Kong Aircraft Engineering Company) and a few others have set up overhaul services for composite components, for both narrow and wide bodied aircraft in Jinjiang. While HAECO has opened an extension centre in Hong Kong, TAECO has done the same in Xiamen and together would be able to handle 12 Boeing 747 and five Boeing 737 simultaneously. HAECO is also expanding its business plans with Taikoo Sichuan Aircraft Engineering Services to carry out heavy checks on the Airbus 320 for Sichuan Airlines based in Chengdu. Other such 'overhaul' partnerships include Guangzhou Aircraft Maintenance Engineering Company Limited (GAMECO) which sees a huge potential in tapping the future MRO business by becoming a part of the integrated Asia-Pacific Region, along with players from Australia, New Zealand, Singapore and India. It is, therefore, apparent that the core of aerospace activity has shifted towards Asia and in particular China, which in the future, is expected

China is also becoming an emerging destination for the MRO business, not just regionally but also globally.

China is striving to emerge as a leader in the world's aerospace market. It sees its commercial planes some day challenge the best in the world.

to grow at close to double digit year on year.²¹

WINDS OF CHANGE

China is striving to emerge as a leader in the world's aerospace market. It sees its commercial planes some day challenge the best in the world from Boeing, Airbus, Embraer and Bombardier. The Western companies' generosity in helping China pursue its dreams was not without a vested interest and aimed at tapping the potentially huge Chinese aviation markets. The Chinese market has become a lucrative destination for the Western companies, which, in all fairness, are not ready to watch its growth from the sidelines but rather wish to participate in this wonderful 'Alice in Wonderland' like growth story of China's civil aviation sector. However, like the American proverb "there ain't no such thing as a free lunch," the Western companies' participation in the development of the Chinese civil aviation industry also came with the potential risk of helping China play catch-up in military aviation, as was exhibited when the Chinese flew the J-20 prototype on January 11, 2011. At the same time, some Western strategists also believed that China was too far behind in both civil and military airplane technology to cause any real fears and, therefore, brushed such ideas aside, due to the attraction to the multi-billion dollar market as they did not want to miss such a lucrative opportunity.

'Chimerica' have been getting more and more intertwined not only economically but lately, also through their strategic partnerships. China, as in December 2010, had \$891 billion in holding in the treasury bonds in America, the largest by any country.²² China is becoming an indispensable power and Brzezinski had floated the concept of the G-2 at the G-20, which would put China and America at the forefront of international affairs. During Obama's first state visit to China in November 2009, Hu and Obama in a joint declaration stated that both were committed to building a "positive,

21. Tom Ballantyne, "China, India to Lead MRO Growth," *Orient Aviation*, May 2010.
 22. www.treasury.gov/resource-center/data-chart-center/tic/Documents/mfh.txt, accessed on February 28, 2011.

cooperative and comprehensive relationship in the 21st century”.²³ During Hu’s visit to America in 2011, which has been the most hyped top-level US-China encounter since Deng’s historic visit almost three decades earlier, agreements worth \$45 billion were signed which included a \$19 billion dollar deal for the order of 200 Boeing aircraft. Hu in his speech mentioned that the bilateral trade had exceeded \$350 billion and US consumers were annually saving \$70 billion by purchasing Chinese made goods!²⁴ The US investments in China had already exceeded \$60 billion and China’s investment in the US was at \$4.4 billion. The significant part of the 4,000 word joint communiqué was that **“China welcomes the US as an Asia-Pacific nation,”** implying China’s consent to share the space as well as the US accepting in principle China’s shift from being a continental to a maritime power in the region.

The Americans are ready to share technology and many trade secrets with China as part of the strategic partnership. GE, in a joint venture with AVIC, is selling jet engines to Chinese airlines that are buying Boeing and Airbus airplanes, either directly or through partnership with Snecma of France. GE is also in a joint venture with COMAC and sharing technology related to communications, navigation, cockpit displays and controls, and will further contribute its state-of-the-art avionics technology — a high-performance core computer system that operates as the avionics brain of Boeing’s new Dreamliner.²⁵ The other joint ventures in avionics have been with Honeywell, Rockwell Collins, Eaton Corporation and Thales, all competing for the C919 as well as ARJ21-700/900 aircraft. The Chinese government has made it clear that all its partners should be ready to “share technology and knowhow” to make the partnership work.

The risk and concerns that Western technology transfer to the civil aerospace industry would seep into the military aviation sector are genuine

23. “New Development in China-US Relations Bears Strategic Significance,” *Peoples Daily Online*, November 19, 2009, <http://english.peopledaily.com.cn/90001/90776/90883/6817359.html>, accessed on February 28, 2011.

24. Jayadeva Ranade, Distinguished Fellow at the Centre for Air Power Studies, “China-US Summit Wary Co-existence,” *National and Defence Aerospace Power*, January 31, 2011.

25. David Barboza, Christopher Drew and Steve Lohr, “GE to Share Jet Technology with China in New Joint Venture,” *New York Times*, January 17, 2011.

because of the close ties between China's commercial arm and its military aviation industry (Fig 1). The Chinese too, neither have any intentions of insulating their military aviation industry from the 'spin-in' benefits likely to accrue from the civil aircraft industry. At the same time, technology transfer is an almost 'must have' component in any joint agreement and a gateway to gain access to the Chinese markets. Airbus which set up a joint venture with Harbin Aircraft, ran into bad weather because of technology-transfer in the composite component plant; it became a major sticking point for Airbus, which subsequently had to be forced down. It can only be conjectured that the ARJ21-700, future C919, along with the much hyped J-20 5th Generation stealth fighters would be the prospective beneficiaries from transfer of knowhow in composite technology. The spin-in is also expected from the avionics as a result of joint ventures with Honeywell, Rockwell Collins, Eaton Corporation and Thales through COMAC. The stakes are indeed high; and the question that needs to be answered is whether the companies are trading their future for immediate sales in China? The beneficiary now is China but for how long? Technologies and processes need to be continuously improved but does China have the infrastructure as well as capacity to improvise in the future? If yes, does it have the capacity to improvise faster than its competitors? The reality is that the West is willing to graciously accept '**advantage China**' and considers partnering with China as a '**necessary evil**'. At least for now and some time to come, the immediate beneficiary no doubt is the 'aviation industry of China'.

INFORMATION WARFARE: ELEMENTS AND FORMS

RAKESH ARORA

Information has always been important to human beings in all their endeavours. Throughout history, individuals, groups and nations have strived to expand the information available to them and restrict that available to the adversary or competitor. Knowledge and the information explosion resulting from the industrial revolution and the requirement of its dissemination to the people at large gave rise to what was termed 'information overload'. Research in the fields of Information and Communication Technology (ICT) enabled the storage of large amounts of information, fast processing, and retrieval. These developments in the field of ICT brought about a paradigm change in the human capacity to handle information. Amongst other things, ICT brought about a quantum leap in efficiency in the core sectors of the economy like industry, communications, transportation, energy, etc. On the flip side, this increased efficiency made these sectors heavily dependent on the use of information and ICT.

This dependence, in turn, increased the vulnerability of the core sectors, and the society at large, to disruption in the flow of information. Information as an entity and its flow are more vulnerable and need to be protected like other national assets. Long recognised as one of the elements of national power, along with diplomacy, military and economic power, information

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Gaining and exploiting the relevant information is termed 'Information- in- War' and has been utilised extensively since ancient times.

has assumed greater weightage in the present society. This phenomenal rise in the importance of information in the late 20th century led military thinkers to treat 'information' both as a weapon and a target in modern conflicts.

Information has also been used in wars since historical times to gain decisive advantage over the adversary. Activities of intelligence gathering, surveillance and reconnaissance, essentially a survey of the enemy locations, therefore, have been important preoccupations of military planners and commanders. This aspect of *gaining and exploiting* the relevant information is termed 'Information- in- War' and has been utilised extensively since ancient times. The ongoing information revolution has catapulted *information per se* and *its flow* to such a position of prominence that these have become lucrative targets of attack in a conflict. Information Warfare (IW) deals with the aspects of attacking and defending information and the process/means of its dissemination. As the effect of disruption or denial of critical information is far greater than that obtained through physical attacks on traditional targets of war (viz. population centres, critical industry or roads and bridges), IW has become a favourite topic in the study of Effects-Based Operations (EBO).

This paper would endeavour to explore various aspects of information and its relevance as an instrument of waging war and a vulnerable target in conflicts. Evolution of various forms of IW will then be traced. The concept of IW as defined by the USA, Russia and China will then be compared and a suggested framework will be proposed for an Indian definition of information warfare.

WHAT IS INFORMATION?

Information, though it sounds trivial, is central to the concept of IW. Information in the simplest terms is generated by processing compiled data into a usable form. This data, however, is not there to be collected. The human mind experiences 'phenomena' and 'sensations' which form data. It

is this data that, when compiled and processed through prior knowledge, becomes 'information'.

Information, therefore, derives from the environment and the events occurring in it. It is also dependent upon observation and interpretation. This means that two persons can derive different information from the same environment, observing the same phenomena. In order to arrive at coherent information, a set of rules should be defined for observations and their interpretation. Defining rules becomes even more important when machines or computers are used to analyse the observed data. In the systems theory, the term information is used to denote data that are processed to be useful i.e. to be able to answer questions like "who", "what", "where", "when", "how much", etc. US Army Field Manual 100-6 defines information as "data collected from the environment and processed into a usable form."

Knowledge is information that has been tested and accepted as factual:

- Through cognition — the mental process that receives or develops unverified information (beliefs).
- Through assessment or testing to prove the information.
- By acceptance of the information as factual.

Information Functions

The activities of information acquisition, storage, processing, modification and, finally, dissemination are termed information functions. Interestingly these information functions are applicable to industrial enterprises as much as these are to the post industrial age 'knowledge enterprises'. For example, when a pneumatic pump is set to cut off at a predetermined maximum pressure while filling an automobile tyre, it incorporates an information function regardless of the fact that the mechanism of cutting off is mechanical and not electronic. Similarly, an automatic answering machine attached to a telephone performs an information function when it announces the absence of a person after a given number of rings and records a message from the caller. Both these examples demonstrate the independence of information functions from the type of application and from the technology employed.

Availability of quality information with the least possible time lag has always been high on the priorities of military commanders.

Extending the concept to military applications, activities of surveillance, reconnaissance, navigation and intelligence gathering have been conducted by militaries since the beginning of conflict. Since all these actions involve acquisition, processing and dissemination of information, they can be termed military information functions. Thus, information functions that enhance and support the employment of military forces may be termed military information functions.

INFORMATION-IN-WAR AND INFORMATION WARFARE

Availability of quality information with the least possible time lag has always been high on the priorities of military commanders. The concept of (use of) Information-in-War refers to the activities of acquisition and exploitation of information about the enemy, his strengths, weaknesses, motivations, force structure, morale, strategies, tactics, etc. Acquisition of information in war, therefore, always precedes hostilities, and, in fact, can actually prevent hostilities. Examples of exploitation of superior information in war are available since the medieval period wherein smaller armies of local chieftains, armed with better knowledge of local terrain, routes, obstructions, etc., won many tactical battles against larger forces. Guerrilla warfare also demonstrated the tactical advantage brought in by the element of surprise and knowledge of local terrain. The Marathas of southwestern India under Chhatrapati Shivaji combined these tactics of guerrilla attacks with skillful diplomacy to great advantage against the vastly superior armies of Bijapur and later those of Mughal Emperor Aurangzeb. The advent of ICT in the late 20th century provided commanders with a potent tool for faster gathering and analysis of information relating to intelligence, surveillance, reconnaissance and actual combat operations. On the other hand, increased use of computers and communication systems has also added increased vulnerability to the activities of information gathering and processing.

Information Warfare (IW), on the other hand, targets the information and information exploitation mechanism of the adversary. It also aims at denying, delaying disrupting or otherwise manipulating the quality and quantity of information available to the adversary and corrupting his decision-making systems, including the human mind, while protecting own systems against such actions from the adversary. IW, therefore, views information itself as a separate realm, a potent weapon and a high value target, which can separate ‘the head

from the body’. In the absence of reliable decision-making systems, and fed with inaccurate and delayed information, even the best brains would make incorrect and arbitrary decisions. Psychological warfare and military deception, the earliest known forms of IW, aim at corrupting the decision-making capability of the human mind by feeding corrupted and inaccurate information to the adversary. Thirteenth century Mongol King Genghis Khan, who built the largest contiguous empire in known history, practised the art of psychological warfare when he asked each of his soldiers to light three torches in the night to give an impression of invincible numbers.

Since information is handled by automated electronic and computer systems, an attack on information can be conducted by attacking/ destroying or otherwise manipulating these systems to disrupt, deny or corrupt the processing and flow of information. Examples of attacks on information handling systems are the bombing of the server or exchange room of a military installation (hard kill) or corrupting its software through hacking (soft kill). Similarly, defending the switching facility (through military means) is an example of IW, as is using intrusion prevention and anti-virus programmes to protect the facility’s software.¹

Since information is handled by automated electronic and computer systems, an attack on information can be conducted by attacking/ destroying or otherwise manipulating these systems.

1. Ronald Fogleman and Shiela E Widnall, “Cornerstones of Information Warfare”, <http://www.c4i.org/cornerstones.html>, accessed on May 26, 2011.

TERMINOLOGY

Information Warfare (IW)/ Information Operations (IO) and associated issues have been defined and redefined many times in the last two decades by many countries. Although the USA was the first to articulate and publish definitions and doctrines on IW, Russia and China have been quick to follow with their own concepts of IW. Further, as each country colours the concepts according to its unique cultural and geo-political environments, how countries define IW/ IO and utilise the concept in their strategies and doctrines gives an insight into their strategic thought and culture, which could then be utilised in developing India's definition of IW.

For the purpose of this study, definitions of information operations, information warfare, information environment and a few other related aspects/elements as given in the US Department of Defence (DoD) Joint Publication 3-13 (JP 3-13, Information Operations, released on February 13, 2006) will be considered as the basic reference and other definitions will be compared with these for their relative points of agreement and departure. Definitions of a few other terms as per JP 3-13 are placed at the appendix to this paper for ready reference.

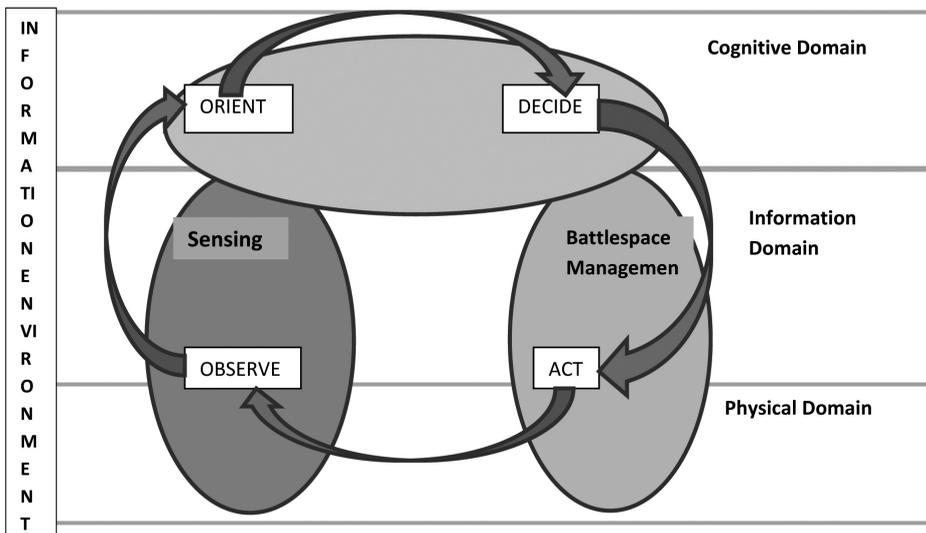
Information operations, according to JP 3-13, are described as the integrated employment of Electronic Warfare (EW), Computer Network Operations (CNO), Psychological Operations (PSYOP), Military Deception (MILDEC), and Operations Security (OPSEC), in concert with specified supporting and related capabilities, to influence, disrupt, corrupt, or usurp adversarial human and automated decision-making while protecting our own. There are five supporting capabilities: Information Assurance (IA), Physical Security, Physical Attack, Counter-Intelligence (CI), and Combat Camera (COMCAM), and three related capabilities: Public Affairs (PA), Civil-Military Operations (CMO), and Defence Support to Public Diplomacy (DSPD).²

According to the US Air Force (AFDD 2-5 of the year 2005), IO is, "Integrated employment of the capabilities of **influence operations**,

2. Chapter II, *Core, Supporting and Related Information Operations Capabilities*, US Air Force Doctrine Document 2-5, January 11, 2005, pp. II-1.

electronic warfare operations, and network warfare operations, in concert with specified Integrated Control Enablers (ICE, to gather and exploit activities, earlier termed Information-in-War) to influence, disrupt, corrupt, or usurp adversarial human and automated decision-making while protecting our own.” It is pertinent to note that in this definition, capabilities of PSYOP, MILDEC and OPSEC have been included in influence operations and CNO has been expanded and renamed as network warfare operations.

The information environment is the aggregate of individuals, organisation and systems that collect process or disseminate information. As the information is acquired from the physical domain through sensors in the information domain, taken to the cognitive domain housing decision-making systems and the human (commanders’) brain, the information environment includes all these domains. The decision, once arrived at, needs to be disseminated again through the information domain to enable actions in the physical domain. Superimposing these activities of the Observe, Orient, Decide, Act (OODA) loop on the physical information and cognitive domains, one gets a picture as shown below:



Martin Libicki lists seven forms of information warfare which according to him were identified by one or another expert as a defining example of such warfare.

All three capabilities of IO viz. influence operations, electronic warfare operations and network warfare operations operate in three different domains of the information environment. Electronic warfare operations work in the physical and information domains and their effect is felt in the cognitive domain as well. Network warfare operations focus on the information domain and aim at influencing sensors, hardware/software and humans. Influence operations focus on affecting the perceptions and behaviour of leaders, groups, and even entire populations. The means applied can be physical, informational or both.³

Advances in ICT provide opportunities to societies and militaries to transfer and process information at faster speed in the information domain. At the same time, it enables an adversary to affect that information. Essentially, the information domain continues to expand with the application of new technologies. The processes of observing, operating, deciding and acting can be utilised for attacking all types of targets, whether military, political leadership, command and control or even critical industries.

EVOLUTION OF US CONCEPT OF INFORMATION WARFARE

Early writings on the subject of IW in the US linked it to the Revolution in Military Affairs (RMA) and the evolution of the Industrial Society into the Information Society. Accordingly, information was thought of as a '*new tool for waging war*' across its spectrum, from the crisis situation right up to the restoration of peace. Thomas Rona, one of the early proponents of information warfare, defined it as, "The strategic, operational, and tactical level competitions across the spectrum of peace, crisis, crisis escalation, conflict, war, war termination, and reconstitution/restoration, waged between competitors, adversaries or enemies using information means to achieve their objectives."⁴

3. Ibid.

4. Thomas Rona, quoted in Martin C. Libicki, *What is Information Warfare* (Institute for National Strategic Studies, NDU, August 1995), p. 4.

Martin Libicki lists seven forms of information warfare which according to him were identified by one or another expert as a defining example of such warfare. These are Command and Control Warfare (C2W), Intelligence-Based Warfare (IBW), Electronic Warfare (EW), Psychological Warfare (PSYWAR), Hacker Warfare, Economic Information Warfare (EIW) and Cyber Warfare.⁵

Libicki further brings out the complex structure and problems in assigning its various forms to various directorates in the Pentagon as, "C2W was assigned to the operations directorate within the Joint Chief of Staff (J3), command and control systems for security was the province of the C4 directorate. Forms of IW that involved establishing systems of battlefield intelligence, reconnaissance and surveillance fell under the intelligence directorate (J2). Finally (future) information architecture would be associated with long-term planning in J5."⁶

Perhaps the first official definition of information warfare was given by Gen Ronald Fogelman, then USAF Chief of Staff, and Shiela E. Widnall, then Secretary of the Air Force, in their document *Cornerstones of Information Warfare* in the year 1997, "Information Warfare is any action to deny, exploit, corrupt or destroy the enemy's information and its functions; protecting ourselves against those actions and exploiting our own military information functions."⁷

The US Air Force Doctrine on Information Operations (AFDD 2-5 dated August 05, 1998) defined information warfare as, "Information warfare is information operations conducted to defend one's own information and information systems or attacking and affecting an adversary's information and information systems...Information warfare involves such diverse activities as psychological operations, military deception, electronic warfare, both physical and information ('cyber') attack, and a variety of defensive activities and programs. It is important to stress that information warfare is a *construct* that operates across the spectrum, from peace to war, to allow the effective execution of Air Force responsibilities."⁸

5. Ibid.

6. Ibid., p. 5.

7. Fogelman and Widnall, n. 1.

8. Foreword to the Air Force Doctrine Document 2-5, dated August 05, 1998, accessed online at http://www.dtic.mil/doctrine/jel/services_pubs/afd2_5.pdf, on May 27, 2011.

The subsequent doctrine on Information Operations (AFFD 2-5 dated January 11, 2005), further elaborated the concept of 'Information- in- War', which was now renamed as Integrated Control Enablers (ICE) — *to gain and exploit capabilities that are critical to all air, space and information operations*. The concept of Information Operations (IO) had by now also evolved to "...gain a superior information advantage (information superiority)". The activities of psychological operations, military deception, etc. defined as parts of information warfare in the earlier doctrine have been regrouped into capabilities like influence operations, electronic warfare operations and network warfare operations according to the effects achieved at the operational level. An interactive relationship between ICE (gain and exploit) and IO (defend/attack) capabilities has also been emphasised. The doctrine also recognises the need for mutual support between military operations and IO as it says, "(The) doctrine recognizes a fully integrated spectrum of military operations. Information operations, like air and space operations, ought to be effects-based. Both air and space operations can support and leverage information operations, just as information operations can support and leverage both air and space operations."⁹

However, the current definition of IO offered by the US DoD Joint Publication (JP 3-13 dated February 13, 2006), lists information superiority as its key goal. According to the doctrine, "IO are described as the integrated employment of Electronic Warfare (EW), Computer Network Operations (CNO), Psychological Operations (PSYOP), Military Deception (MILDEC) and Operations Security (OPSEC) in concert with specified supporting and related capabilities, to influence, disrupt, corrupt or usurp adversarial human and automated decision-making while protecting our own."

The evolution of the American concept of IW/ IO can be seen from the subtle differences in the successive definitions in the above documents.

While the first definition, given by the then USAF Chief of Staff and then Secretary of the Air Force in 1997, talked about denying or destroying the enemy's information and safeguarding our own, the second listed in the IO doctrine of 1998 goes on to list various forms of IW viz. psychological

9. Ibid.

operations, military deception, electronic warfare and physical and information attack. It also stressed that infowar operates across the spectrum from peace to war.

Two subsequent definitions have omitted the term information warfare in favour of a broader concept of IO instead. The key goal of IO had now been identified as gaining superior information advantage or information superiority.

AFDD 2-5 of the year 2005 also groups activities of psychological warfare, military deception and electronic warfare, etc. into influence operations, EW operations and network warfare operations, depending upon the effects generated at the operational level. Interdependence of Information-in-War and IO has also been emphasised as both are considered mutually supportive. This AFDD also considers military operations and IO as mutually supportive in that both can leverage each other for an effects-based approach.

The key goal of IO had now been identified as gaining superior information advantage or information superiority.

RUSSIAN CONCEPT OF INFORMATION WARFARE

Economically (and militarily), Russia is not even a shadow of what the USSR was before its collapse in 1991. The Russian economy, society and state as a whole are in a process of transition from a Communist to a market driven democratic system. This transition, coupled with free exchange of information, makes the common citizen vulnerable to manipulation by glib marketing campaigns and exploitation by promises of quick economic prosperity. Today's Russian security experts believe that no other issue is more fraught with uncertainty than the current and future information environment. The apparent reasons for this thinking are many, some of which are:

- Citizens and decision-makers are now faced with a deluge of information from various religious, political and ideological sources, access to which was earlier forbidden. This, when the majority of the people are not clear about the ideological and political moorings of the state, could be a source of destabilisation.

The Russians attach great importance to the subject of information operations/warfare, next only to that of nuclear weapons.

- Information, according to the Russians, has developed into an important strategic resource. Information technologies have influenced business practices, financial markets and even the capabilities of military weapons. Countries that enjoy information superiority may be more inclined to employ military force as they could now achieve military objectives without a significant loss of life. The Russians believe that the North Atlantic Treaty Organisation (NATO) intervention in Bosnia and Kosovo was successful because of their information superiority. This strategic importance and reach of information into all walks of life can allow some countries to dominate some others in the military-political realm.
- Finally, there are few legal constraints, even at the international level, which could deter information intervention or even attacks. This, in a way, encourages rogue elements and nations to attack other nations' critical infrastructure sectors that depend upon ICT, like the financial system, electrical distribution and even civil aviation and rail network, etc.

Because of all these reasons, the Russians attach great importance to the subject of information operations/warfare, next only to that of nuclear weapons. As information influences the economic, social, political and other components of national power, the Russians believe that information warfare is to be conducted during both peace-time and war-time. During peace, the term used in the Russian lexicon is the information security of society and the government in the psychological, scientific, cultural, and information production spheres. In its war-time usage, it refers to the attainment of superiority in the use of information protection and suppression systems, to include command and control, EW, and reconnaissance.

Adm Vladimir Pirumov (Retd), is perhaps, the most authoritative person to define the term so far. He was an instructor of electronic warfare and later

was the Scientific Adviser to the President of Russia. He defines information warfare as follows.¹⁰

“Information warfare” is a new form of battle of two or more sides which consists of the goal-oriented use of special means and methods of influencing the enemy’s information resource, and also of protecting one’s own information resource, in order to achieve assigned goals. An information resource is understood to be information which is gathered and stored during the development of science, practical human activity and the operation of special organisations or devices for the collection, processing and presentation of information saved magnetically or in any other form which assures its delivery in time and space to its consumers in order to solve scientific, manufacturing or management tasks.

His definition implies that information warfare is an activity that can be carried on in peace-time as well as war-time. For strict war-time scenarios, Pirumov offered a definition of information warfare in operations that aimed at gaining an information advantage which reads:¹¹

“Information warfare in operations (combat actions)” is the aggregate of all the coordinated measures and actions of troops conducted according to a single plan in order to gain or maintain an information advantage over the enemy during the preparation or conduct of operations. An “information advantage” assumes that one’s own troop and weapon command and control components are informed to a greater degree than are those of the enemy, that they possess more complete, detailed, accurate and timely information than does the enemy, and that the condition and capabilities of one’s own command and control system make it possible to actualise this advantage in combat actions of troops (forces).

10. Timothy L. Thomas, “The Russian View of Information War,” in Stephen J. Cimbala, ed., *The Russian Armed Forces at the Dawn of Millennium* (Chase Side, London: Frank Cass, 2011). Accessed online at <http://www.csl.army.mil/usacsl/publications/RW.pdf> on June 11, 2011.

11. Ibid.

Military Definitions

Definitions provided by the Russian General Staff Academy treat IW in a psychological-technical and operational-strategic sense. The first applies more to the peace-time and the latter to the war-time use.

The first states,

Information warfare is a way of resolving a conflict between two opposing sides. The goal for one side is to gain and hold an information advantage over the other. This is achieved by exerting a specific information-psychological and information-technical influence on a nation's decision-making system, on the nation's population and on its information resource structures as well as by defeating the enemy's (command and) control system and his information resource structures with the help of additional means such as nuclear assets, weapons and electronic assets.

And the operational-strategic version defined information war as:

Within the framework of the execution of the operational strategic missions of offensive and defensive troop units, information warfare consists of the specially planned and coordinated-integrated actions of the forces and assets of intelligence and early warning, command and control, communications, deception and electronic warfare, whose purpose is to guarantee the achievement of the goals of operation (of its combat actions).¹²

However, there are many other components of IW that Russian published material, in both the military and civilian domains, addresses. These components offer an understanding far beyond what is included in the definitions above. Some of the topics covered in these writings are:¹³

Role of Federal Agency for Government Communications and Information (FAPSI): Since February 19, 1993, FAPSI has been entrusted with ensuring information security for government communication

12. Ibid., p. 99.

13. Adapted from Timothy L. Thomas, "Russian Views on Information Based Warfare," *US Air Power Journal*, Special Edition 1996, pp. 26-33.

and information. Four specific matters that have been assigned to FAPSI's jurisdiction are: special communications, including government communications, the cryptographic and engineering-technical security of encrypted communications, intelligence gathering activities in special communications field, and, finally, provision of special information to higher bodies of authority. In this regard, FAPSI fulfills many of the missions assigned to the National Security Agency in the USA. It has also been charged with fighting domestic criminals and hackers, foreign special services and 'information weapons'. According to Russian terminology, 'information weapons' are meant for gaining unsanctioned access to information and putting electronic management systems out of commission.

Computer Virus Warfare: The Russian military has been studying virus or software warfare as one of the most important aspects of future warfare. Virus warfare presents special problems at the strategic level as its use bears an impersonal imprint, is easily disguised as banal hooliganism or can hide itself as measures to protect the copyright and commercial interests of the firms for their own software. If virus warfare is successful, there may not exist a need to decide matters through violence. One Russian officer wrote, "There is no need to declare war against one's enemies and to actually unleash more or less large military operations using traditional means of armed struggle. This makes plans for hidden war considerably more workable and erodes the boundaries of organized violence, which is becoming more acceptable."

Information Component of Combat Potential: The increasing importance of information in command and control, and information support systems in the accomplishment of combat missions became amply clear to the Russians who observed war with great interest. An assessment by Russian observers credited US victory as coming from overwhelming superiority in logistics and in combat information support systems (C3ISR systems). Perhaps for the first time in recent history, the side with preponderance of weapon systems did not win. In the view of Adm V. Pirumov, "Information support predetermined the development of a new generation of reconnaissance equipment that led to more precise target location. Computer aided troop and

weapon control stations were also made possible by applying information support technology." Pirumov estimated that the use of information technology increased the combat capability of the multinational forces by a degree of two. He also added, "All this makes possible the conclusion that the priority and weight of the contribution of information support to combat effectiveness in developed countries determined the dominant role of the electronic-fire concept of conducting warfare."

Information Accumulation, Processing and Integration: A Russian analyst, V. N. Medvedev, defined the dissemination of information in the armed forces as, "The process of the creation, broad-scale incorporation and application in various fields of activity of the armed forces under any conditions, of methods, systems, and means of obtaining gathering processing, storing and using information." This process is the key to informed decision-making. Fast reacting processors are mandatory to reduce the time required to decide and act. Therefore, timely gathering and utilisation of information is of extreme importance. Information accumulation, processing and adaptation are now as important, especially in the areas of reconnaissance and EW systems. Integration of such information obtained (and accumulated) to the command and control systems is critical to what Russians call '*combat system theory*'. The goal is to link this information to all the systems through a secure and stable data communication link, creating a synergy of effort where the overall effect is greater than the sum of the parts.

Perception Management: Disinformation is an old Russian technique of deception, often targeting specific people, and social groups. The purpose is to influence the consciousness and thinking of a person or a target group or even a nation. The erstwhile Soviet Union carried out disinformation campaigns through a well-oiled propaganda machine. One of their methods of getting people to do what they wanted them to do was through reflexive control. Reflexive control creates a pattern or provides partial information that causes an enemy to react in a pre-determined manner without him realising that he is being manipulated.

Russian Information Warfare Doctrine 2000: In September 2000, Russia published a very specific and important information-related document,

the Information Security Doctrine of the Russian Federation. Signed by President Vladimir Putin, Russia's Information Security Doctrine presents the purposes, objectives, principles, and basic directions of Russia's information security. It defines information security as "the state of protection of its national interests in the information sphere defined by the totality of balanced interests of the individual, society, and the state." The doctrine declares that the "implementation of the guarantees of the constitutional rights and liberties of man and citizen concerning activity in the information sphere is the most important objective of the state in the field of information security." Some of the main points of the doctrine are:¹⁴

- First, the document discusses the national interests of the Russian Federation in the information sphere, including the protection of information resources from unsanctioned access.
- Second, the document examines the types of threats to Russia's information security. These include constitutional rights that protect one's spiritual life, information support for state policy, the development of the information industry, and the security of information.
- Third, the document identifies external and internal sources of threats to Russia's information security.
- Fourth, it outlines the state of information security in the Russian Federation and the objectives supporting it, discussing tension between the need for free exchange of information and the need for restrictions on dissemination of some information.
- Fifth, general methods of information security in the Russian Federation—legal, organisational-technical, and economic—are outlined.
- Sixth, the document discusses several features of information security: economics, domestic policy, foreign policy, science and technology, spiritual life, information and telecommunication systems, defence, law enforcement, and emergency situations.
- Seventh, the goals of international cooperation in the field of information

14. Timothy L. Thomas, "Russian Information Warfare Theory: Consequences of August 2008," in Stephen J. Blank and Richard Weitz, eds., *Russian Military Today and Tomorrow* (Strategic Studies Institute, US Army War College, July 2010), p. 272.

security are discussed, such as the ban on information weapons and the coordination of law enforcement activities.

- Eighth, the doctrine describes the provisions of state policy regarding information security: guidelines for federal institutions of state power, and balancing the interests of the individual, society and the state in the information sphere.
- Finally, organisational elements of Russia's information security system are described; these include the President, Federation Council of the Federal Assembly, the State Duma of the Federal Assembly, the Government of the Russian Federation, the Security Council, and other federal executive authorities, presidential commissions, judiciary institutions, public associations, and citizens.

Anatoly Streltsov, one of the doctrine's authors, noted that the components of the doctrine provide for the constitutional rights and freedoms of citizens to obtain and use information, while providing for Russia's spiritual renewal, the development of moral values, patriotic and humanistic traditions, and cultural and scientific potential. According to Streltsov, "Currently (in the year 2000), Russia's information security does not fully comply with the needs of society and the state, lacking sufficient legal, organizational, and technical backing."

Information Security in Defence Sphere: According to the Information Warfare Doctrine 2000, information security in the defence sphere involves: (a) information infrastructure of the elements of military command and control, and elements of control of the branches of the armed forces and scientific research institutions of the Ministry of Defence; (b) information resources of enterprises of the defence complex and research institutions; (c) software and hardware of automatic systems of command and control of the forces and weapons, arms, and other military equipment furnished with computerisation facilities; and (d) information resources, infrastructure and communication systems of other forces and military components and elements.

Building Cyber Espionage and Hacking Capabilities: The erstwhile USSR nurtured teams of bright mathematicians, scientists, and computer

programmers who could build stable algorithms to control guided weapons, spacecraft and allied systems. Russia has built on that legacy and tried to make up for deficiencies in hardware/microelectronics by building teams of programmers for computerisation in the civil and military arenas. Alongside, teams of patriotic hackers have sprung up, presumably with covert government support, who can attack and access most secretive files hidden behind firewalls and intrusion detection systems. Two news items, one of the Russian development of hacking capabilities and the second of the attack on US military computers would illustrate this point. According to a recent report in the BBC news website (March 11, 2010):¹⁵

Mr Kaspersky has made his name battling the world's cyber criminals. The computer security guru says hackers in China and Latin America generate the greatest number of cyber-attacks. The most sophisticated come from his own country. "Russian attacks look more professional. The malware and design is more complicated and more technical," Mr Kaspersky says. "I think it's thanks to Russia's technical education. Its graduates are probably the best."

And another report, again from BBC, stated, more than ten years ago (October 08, 1999):¹⁶

Hackers, apparently working from Russia, have broken into US Government computer systems for over a year, an FBI official has said. The intruders stole "unclassified but still sensitive" information from US military computers, an FBI deputy assistant Director, Michael Vatis, said. Mr Vatis, also a Director of the National Infrastructure Protection Centre, told a US Senate subcommittee on technology, terrorism and government information that the intrusions appeared to have originated in Russia.

The Los Angeles Times reported on Thursday that other officials had said some of the attacks had been traced to servers about 20 miles outside Moscow.

15. Accessed online at <http://news.bbc.co.uk/2/hi/technology/8561910.stm> on June 15, 2011.

16. Accessed online at <http://news.bbc.co.uk/2/hi/americas/469006.stm> on June 15, 2011.

China carefully observed the Gulf War wherein American dominance of Iraqi forces was primarily attributed to achievement of information superiority (and air superiority).

It said the pattern of attacks suggested that they might involve someone working in an office: they took place on weekdays between 0800 and 1700 hours Moscow time, but not during Russian holidays.

This patriot band was probably responsible for the attack on Estonia in 2007, when its government and public websites were corrupted, and public services delivered through the internet were severely affected for days together. Similarly, during 2008, in the conflict with Georgia, Russian hackers could compromise even the Georgian President's site. One observer wrote on ZDnet.com (during end 2008), "The attacks originally started to take place several weeks before the actual 'intervention' with Georgia President's website coming under DDoS attack from Russian hackers in July, followed by active discussions across the Russian web on whether or not DDoS attacks and website defacements should, in fact, be taking place. The DDoS attacks are so sustained that the Georgian President's website has recently moved to Atlanta (USA)."¹⁷

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CHINESE CONCEPTS OF IW

China carefully observed the Gulf War wherein American dominance of Iraqi forces was primarily attributed to achievement of information superiority (and air superiority). It then started a process of theoretical reflection, analysing Western practices and amalgamating them with classical Chinese military thought, evolving strategies and doctrines to meet with likely future threats. Thus, the Chinese doctrine has evolved from that of people's war to people's war under modern conditions, limited war under high-tech conditions to limited war under informationised conditions. As will be seen, China's strategies, developed since the early Nineties have emphasised:

17. Blog of Dancho Danchev on August 11, 2008, at <http://www.zdnet.com/blog/security/coordinated-russia-vs-georgia-cyber-attack-in-progress/1670>.

- Practical combination of IW and Maoist and Marxist military thought to guide IW issues under military constructs.
- Conducting 'people's war in the IW domain' by finding ways of using inferior equipment to achieve victory over the enemy's superior equipment, by attacking the enemy's weaknesses and vulnerabilities, and exploiting own strengths.
- Use of superior tactics to compensate for inferior technology.¹⁸

The Chinese way of conducting people's war in the IW domain is by converting millions of civilians, who understand and can use computers, into fighters who can eavesdrop on enemy computers or can disrupt their functioning by sending large amounts of useless data. Since it is difficult to discern where the attack originated from, the targeted country may not be able to apportion blame or retaliate. The internet can also be used for political mobilisation by sending a large number of patriotic e-mail messages and posting material for educating and influencing the masses.¹⁹

Primarily for use in the military domain as an asymmetric tool, the Chinese have defined IW as the sum of all information capabilities for breaking the enemy's will to resist by attacking the enemy's cognitive understanding and convictions, forcing it to give up all resistance and terminate the war. Xie Guang, the then Vice Minister of Science and Technology and Industry for National Defence, defined IW in December 1999 as: "IW in a military sense means overall use of various types (of) information technologies, equipment and systems, particularly command systems, to shake the determination of the enemy's policy-makers and, at the same time, the use of all the means possible to ensure that that one's own systems are not damaged or disturbed."²⁰

Concept of Information Operations: The Chinese view IO as specific operations at the core of IW, in fact, a manifestation of IW on

18. Wang Pufeng, "Challenge of Information Warfare," in Michael Pillsbury, ed., *Chinese Views of Future Warfare* (Washington DC: National Defense University Press, 1997), at <http://www.au.af.mil/au/awc/awcgate/ndu/chinview/chinacont.html>, accessed on May 26, 2011.

19. Wei Jincheng, "Information War: A New Form of People's War," in Pillsbury ed., *Ibid.*, Part Four at <http://www.au.af.mil/au/awc/awcgate/ndu/chinview/chinacont.html>, accessed on May 26, 2011.

20. As quoted by Vinod Anand in "Chinese Concepts and Capabilities of Information Warfare," *Strategic Analysis*, October-December 2006, p. 785.

the battlefield. IO can be defensive or offensive and can be conducted across all strategic operational and tactical levels. Various elements of IO, according to the Chinese military authors, are: centralised command and decentralised control, multi-dimension inspection and testing, timely decision-making and integration of military and civil actions. Maj Gen Dai Qingmin, then Director of the People's Liberation Army's (PLA's) General Staff, responsible for IW and IO, defines IO as, "A series of operations with an informationalised environment as the basic battlefield condition, with military information and information systems as the direct operational targets and EW and computer networks as the principal form. Various strategies have been outlined as the Chinese would wish to deploy superior strategies to compensate for inferior equipment and, in the case of IO strategies, may compensate for gaps in information about the enemy".²¹

In keeping with the concept of utilising civilians for IW, China has turned some of the 1.5 million reserve forces into mini-IW regiments. The People's Armed Forces Department (PAFD) has reportedly organised militia/ reserve IW regiments at district levels in many provinces. PAFD, in its exercises in the early 2000, practised the following 10 methods of IO to validate its concepts:²²

- Planting information mines.
- Conducting information reconnaissance.
- Changing network data.
- Releasing information bombs.
- Dumping information garbage.
- Disseminating propaganda.
- Applying information deception.
- Releasing clone information.
- Organising information defence.
- Establishing network spy stations.

21. Dai Qingmin, "Innovating and Developing Views on Information Operations," *Beijing Zhongguo*, August 20, 2000, article reviewed by Timothy L. Thomas in "China's Electronic Strategies," *Military Review*, May-June 2001, pp. 72-77.

22. *Ibid.*, p. 77.

Chinese Integrated Network Electronic Warfare: Half Cousin of Net-Centric Warfare? The National Defence White Paper of 2002 perhaps for the first time used the phrase Integrated Network Electronic Warfare (INEW), wherein it noted that in 2001, many PLA studies and exercises explored the features and patterns of an integrated network-electronic warfare. However, earlier in 2002, in an article in the journal *China Military Science*, Maj Gen Dai Qingmin (head of the 4th Department of the General Staff), explained the concept of INEW, parts of which contradicted the White Paper. For example, he stated that the concept placed more emphasis on active offence, whereas the White Paper emphasised a traditional active defence focus. Dai equated INEW with IO, which the White Paper did not, noting that it “serves as information operations theory with Chinese characteristics.” This concept appears to be a half cousin of the popular Pentagon transformation concept of Network-Centric Warfare (NCW). While the American concept makes mention of developing and leveraging information superiority, the INEW objective, according to Dai is about seizing information superiority.²³

IW, Dai argues, is composed of six forms: operational security, military deception, psychological war, electronic war, computer network war and physical destruction. Barring physical destruction, all these forms have been borrowed from the American definition of IO given in JP 3-13, referred to earlier.

INEW, according to Dai, refers to a series of combat operations that use the integration of electronic warfare and computer network warfare measures to disrupt the normal operation of enemy battlefield information systems while protecting one’s information superiority—similar to the US definition of IO. While network war disrupts processing and use of information, EW disrupts acquisition and forwarding of information. The core of computer network warfare is to “disrupt the layers in which information is processed, with the objective of seizing and maintaining control of network space.”

The depth to which this concept has been developed can be gauged by the minute details in which each element has been explained by Dai.

23. Timothy L. Thomas, “Chinese and American Network Warfare,” *Joint Force*, Quarterly Issue Thirty Eight, available at http://www.dtic.mil/doctrine/jel/jfq_pubs/1538.pdf, accessed on June 06, 2011.

The main targets of INEW are enemy military, political, economic and social information systems, making the attacks more effective than any traditional combat operation.

According to him, INEW emphasises integrating combat operations by merging command, forces, objectives, and actions. Command integration is its unified planning, organisation, coordination, and control. Forces integration means its use in a complementary manner; and objective integration is its simultaneous use against enemy Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR), while action integration is its coordination to produce combined power.

Dai listed the characteristics of INEW as its comprehensive nature, its integrated methods and expansive nature (battlespace), and the integrated nature of its effectiveness. Forces integration implies the synthesis of platforms with networks.

The main targets of INEW are enemy military, political, economic and social information systems, making the attacks more effective than any traditional combat operation. INEW also treats the battlefield as a system of systems replete with information-based systems. INEW, therefore, can be thought of as a means of participating in the system-versus-systems battle and attaining information superiority since systems are centres of gravity for a combat force. People and weapons become insignificant when not structured within a system. The concept is quite similar to the American idea of systems integration except that INEW emphasises ideology and philosophy as well. This concept also borrows from two transformations: the first being the change from EW to several forms and methods such as INEW: the second transformation emphasises both offence and defence, with priority on the development of offensive information operations equipment.

COMPARING AMERICAN, RUSSIAN AND CHINESE CONCEPTS

The USA had taken a lead in defining the concept of IO/IW and had influenced the thinking in both Russia and China. All three countries agree

on the growing importance of information warfare/ information operations. Although the USA has discontinued use of the term information warfare in their current doctrine, both Russia and China continue to use the term in their writings. Ideas like information superiority, information dominance and command and control warfare find a place in the writings of all three countries. However, there are subtle differences in the definitions and views about IO and related concepts. Some of the salient points of differences are:

Peace-time Application: Russia and China treat IW in a more holistic manner i.e. a set of activities to be pursued during both peace and conflict, than the USA which defines it as an activity to be undertaken during times of crisis. The Chinese define four forms of IW: preemptive strike capability, asymmetric warfare, local war under informationised conditions and people's war.^{24, 25}

Technology Vs. Strategy: Many of the Chinese concepts originate from the ancient Chinese *Secret Art of War: 36 Stratagems*, written over 2,500 years ago. Deception is one of the most important concepts that recurs many times in these stratagems e.g. cross the sea under camouflage; kill with a borrowed knife; conceal a dagger in a smile, etc. These stratagems are particularly applicable to IW which covers a long period of time and requires patience and perseverance, a trait that comes naturally to Asians and the Chinese in particular. Chinese military experts have criticised US doctrine for being much too technology driven and overlooking the 'strategy' dimension. Further, American doctrine focusses heavily on the information and information systems of the opponent, while ignoring softer psychological factors. The Chinese have emphasised affecting the opponent's psyche so that he loses the will and capability to fight.

The Russian view of IW also echoes many Chinese concepts in that it maintains that IW is to be conducted in both peace-time and during the build-up towards hostilities, and, in fact, throughout peace and war. Similarly,

24. Weigong Shen, "A New Form of People's War," *China Military Science*, June 2006, accessed online at http://www.fas.org/irp/world/china/docs/iw_wei.htm, on June 07, 2011.

25. Zhenxing, Pu Feng, "The Challenge of Information Warfare," *China Military Science*, April 1995, accessed online at http://www.fas.org/irp/world/china/docs/iw_mg_wang.htm, accessed on June 07, 2011.

the peace-time definition of IW includes psychological/informational/technical influence over the population and information resource structure to bring an end to the conflict situation.

Nuclear Angle: The Russian view differs from both the American and Chinese ones on one major issue, in that it talks of “defeating the enemy’s control system and his information resource structures with the help of additional **means such as nuclear assets, weapons** and electronic assets”. Neither the USA nor China has mentioned the use of nuclear weapons in its doctrine.

Types of Deception: All three countries consider deception to be a vital part of their IW effort. But there are subtle differences in the depth and the period for which it is to be used. The USA uses the term MILDEC as a core capability of IO in order to mislead the enemy’s decision-making systems and the human (commander’s) mind. The Russians, on the other hand use the term *maskirovka* (actions executed to deliberately mislead adversary military decision-makers about friendly military capabilities, intentions, and operations, thereby, causing the adversary to take specific actions that will contribute to the accomplishment of the friendly mission (definition by thefreedictionary.com) as an independent type of operational support to influence an adversary. This essentially covers the aspects of American MILDEC and OPSEC. It is conducted on a daily basis and on all levels.²⁶

In the case of China, deception is the mainstay of the IW/IO concepts. This is the bedrock on which most Chinese strategies are developed.

Time Perspective: This is perhaps, the longest in the Chinese concept of IO, covering several decades as compared to the Russians. The US takes a much shorter time perspective as compared to both China and Russia, as it is related to specific conditions and conflict situations. For a longer term influence on strategic and political levels, Americans use the term *strategic communication*. However, strategic communication is not included as either an element or a core capability of IO, though they are closely related.

26. Roland Heickero, *Emerging Cyber Threats and Russian Views on Information Warfare and Operations*, report published by FOI, Swedish Defence Research Agency. Accessed online at <http://www2.foi.se/rapp/foir2970.pdf>, on June 07, 2011.

Information Superiority: The US Joint Publication 3-13 defines information superiority (or dominance) as a key enabler of the transformation and evolution of joint command and control. In fact, gaining information superiority is one of the key reasons for conducting information operations (as defined in the USAF doctrine AFDD 2-5). Russian analysts also agree that information superiority will be the main condition of victory in 21st century wars. Russian analyst Bogdanov, in an article in *Military Thought* (April 2001), wrote, "It will be impossible to achieve strategic and operational objectives in future wars without achieving superiority over the adversary in the information sphere."

Chinese literature defines information dominance (*zhixinxiquan*) as the ability to defend one's own information while exploiting and assaulting an opponent's information infrastructure. This information superiority has both technological and strategic components. On the one hand, it requires the capability to interfere with the enemy's ability to obtain, process, transmit and use information to paralyse his entire operational system. Till this point, the definition agrees with the American concept of information dominance. On the other, some Chinese writers have asserted that information superiority is not determined by technological superiority (alone), but by new tactics and the independent creativity of commanders in the field. This once again places much more emphasis on the strategic, personnel and organisation related components of the conflict, an idea that is central to Chinese theory of IW.

DEFINING IW IN THE INDIAN CONTEXT

Even though the Indian armed forces are capable of protecting physical borders, in today's Information Age, movement of ideas, information and knowledge needs to be regulated more than the physical movement of people. The Information Age has thrown up many new challenges that need to be addressed in order to maintain India's position as a leading nation in the world community. In the past, because of our weak patent laws and non-codification of traditional knowledge, many ideas and concepts were lost to the so-called developed nations that were quick to patent them in

their own countries. Even the ubiquitous *Neem* has several properties and chemicals that have been patented abroad for their efficacy against various bacteria or as an antibiotic, etc.

Information exfiltration through computer hacking has emerged amongst the most serious threats to information security. Computer network attacks that have been traced to China have targeted India's core sectors, including the Information Technology (IT) sector, in one instance even taking away a lucrative contract from a third country.²⁷ China has even tried to penetrate various Indian government servers, including those at the National Security Adviser's (NAS') office. One such attempt on December 15, 2010, was admitted by the outgoing NSA Mr M. K. Narayanan when he said, "This was not the first instance to hack into our computers." The attack came in the form of an e-mail with a PDF attachment containing a Trojan which allows a hacker to access a computer remotely and download or delete files.²⁸

The first step towards the development of the Indian information warfare concept, therefore, would be to define India's priorities and national interests in the information sphere. The information sphere would include all available information in both civil and military arenas, and accumulated knowledge whether in electronic, print or any other media or traditional knowledge passed down by word of mouth or execution methodologies unique to a particular area or community, etc. It also touches upon the cultural and spiritual lives of the people.

Information security, for the purpose of defining IW can then be thought of as "the state of protection of India's national interests in the information sphere defined by the totality of interests of its citizens, including NRIs, society at large, and the (Indian) nation-state." The importance of information, during both peace and war, necessitates formulation of IW concepts for the entire spectrum of peace, operations other than war, imminence of hostilities and full-fledged

27. Josy Joseph, "Indian Infotech Sector is Main Focus of Chinese Spying," *DNA India*, December 15, 2008. Accessed at <http://www.dnaindia.com/report.asp?newsid=1213993&pageid=0> on June 12, 2011.

28. Richard Beeston and Jeremy Page, "China Tried to Hack on Our Computers, Says India's Security Chief M. K. Narayanan," accessed at <http://www.timesonline.co.uk/tol/news/world/asia/article6991789.ece>, accessed on June 12, 2011.

war. Taking the necessity to include both offensive and defensive elements into consideration, a proposed Indian definition of IW could read like:

Information Warfare is a form of competition between two or more sides, consisting of both nation-states and non-state actors, involving use of special means (informational, cyber, psychological or technical) and methods of influencing the other party's information resources, and also of protecting one's own information/ knowledge resources, in order to achieve assigned goals and broader national interests.

CONCLUSION

An evolving concept like IW/IO needs careful definition of all its elements and forms due to the enormity of issues related with it. Its amorphous nature that encompasses technological and non-technological activities gives it the characteristics of a science as well as an art. Its facets of formulation of rules and procedures for the purpose of intelligence gathering, surveillance and reconnaissance, etc. and their analysis fall within the realm of science. On the other hand, the finer aspects of crafting persuasive or deceiving messages, depending upon who the message is meant for, generating relevant knowledge and managing its flow to the relevant persons and disrupting that of the enemy, keeping the morale of own forces high while demoralising the enemy forces require military strategists to be artists first and military commanders later. Information operations are seen as consisting of conduits of information, cutting across various disciplines like strategy, planning, command and control, IT, communication, personnel planning, etc. Therefore, their importance in the formulation of strategy also needs collective and collaborative effort on the part of the armed forces and civil wings of the government dealing with geo-political considerations.

Developing a relevant and current definition of IW for India is all the more important as this forms the first step towards formulating a policy and doctrine of IW. An IW doctrine, once prepared, would need a review, say every three years to integrate changes in technology and geo-political situations.

Appendix A

**SOME BASIC DEFINITIONS OF IO RELATED TERMS AS PER US DOD
JP 3-13 (INFORMATION OPERATIONS)**

Information Operations Information Operations (IO) are described as the integrated employment of Electronic Warfare (EW), Computer Network Operations (CNO), Psychological Operations (PSYOP), Military Deception (MILDEC), and Operations Security (OPSEC), in concert with specified supporting and related capabilities, to influence, disrupt, corrupt, or usurp adversarial human and automated decision making while protecting our own.

Core Capabilities IO consists of five core capabilities which are: PSYOP, MILDEC, OPSEC, EW and CNO. Of the five, PSYOP, OPSEC and MILDEC have played a major part in military operations for many centuries. In this modern age, they have been joined first by EW and most recently by CNO. Together, these five capabilities, used in conjunction with supporting and related capabilities, provide the Joint Force Commander (JFC) with the principal means of influencing an adversary and other Target Audiences (TAs) by enabling the joint forces freedom of operation in the information environment.

Supporting Capabilities Capabilities supporting IO include Information Assurance (IA), Physical Security, Physical Attack, Counter-Intelligence, and Combat Camera. These are either directly or indirectly

involved in the information environment and contribute to effective IO. They should be integrated and coordinated with the core capabilities, but can also serve other wider purposes.

Related Capabilities

There are three military functions, Public Affairs (PA), Civil Military Operations (CMO), and Defense Support to Public Diplomacy, specified as related capabilities for IO. These capabilities make significant contributions to IO and must always be coordinated and integrated with the core and supporting IO capabilities. However, their primary purpose and the rules under which they operate must not be compromised by IO. This requires additional care and consideration in the planning and conduct of IO. For this reason, the PA and CMO staffs particularly must work in close coordination with the IO planning staff.

ABBREVIATIONS USED

IW	Information Warfare
IO	Information Operations
ICT	Information and Communication Technologies
EBO	Effects-Based Operations
US DoD	United States Department of Defence
JP 3-13	Joint Publication 3-13 (Information Operations)
CNO	Computer Network Operations
EW	Electronic Warfare
PSYOP	Psychological Operations
MILDEC	Military Deception
OPSEC	Operations Security
IA	Information Assurance
CI	Counter-Intelligence
COMCAM	Combat Camera
PA	Public Affairs
CMO	Civil Military Operations
DSPD	Defence Support to Public Diplomacy
USAF	United States Air Force
AFDD	Air Force Doctrine Document
C2W	Command and Control Warfare
EIW	Electronic Information Warfare
J3	Joint Chiefs of Staff

THE CHANGING PATTERNS OF GLOBAL CLIMATE CHANGE ARCHITECTURE

DHANASREE JAYARAM

“It is the responsibility of each human being today to choose between the force of darkness and the force of light. We must, therefore, transform our attitudes, and adopt a renewed respect for the superior laws of DIVINE NATURE.”¹ These words of Maurice Strong, former Secretary General of the United Nations Environment Programme (UNEP) at the 1992 Earth Summit sparked off a fresh debate that forced the international polity out of slumber. If the 20th century was marred by World Wars and other conflicts that took a toll of millions of lives, the 21st century is turning out to be the century of environmental wrath that could take even more lives than any form of conflict. The human-induced process of environment change that was set off in the 20th century by the industrialisation drive of the developed countries is gradually worsening as the international community awaits a consensual deal. One could say that it is not the definition of climate change that needs to be looked into; it is the definition of ‘response to climate change’ that needs to be transformed so that the ‘measures’ bear fruit.

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1. Maurice Strong, Opening Speech of 1992 Rio Earth Summit, Policy (Science and Public Policy Institute: March 10, 2008), see <http://scienceandpublicpolicy.org/policy.html>, accessed on June 10, 2011.

India is one of the most vulnerable countries in the world not only due to its geographical conditions but also its weak infrastructure.

Geo-politically, climate change is an issue that encompasses all facets of international politics that steer a nation's march towards achieving national comprehensive power. Ironically, the international negotiations themselves have become synonymous with 'conflict' rather than 'cooperation.' Resolution of the geo-political chaos is the key to effective tackling of the effects of climate change. To be more futuristic and perhaps idealistic, the negation of the geo-political chaos and the introduction of an alternative such as technology cutting across political fault-lines should be given due attention. The first step towards that would be restandardisation of international relations that would create political willingness.

India is one of the most vulnerable countries in the world, not only due to its geographical conditions but also its weak infrastructure. At the international level, as an important participant on the negotiating table, India has come a long way from being a silent spectator to being a leading voice from the developing world. However, the road ahead seems challenging as in an increasingly competitive world, with wealth comes power, with power comes responsibility and with responsibility comes liability. At the national and local levels, the country needs to examine the methodology of adopting a robust climate change policy that simultaneously deals with three issues — energy management, development and reduction in emissions of pollutants and Greenhouse Gases (GHG) — since it is grappling with poverty and an energy deficit. The presence of extreme poles in this country that are being dictated by the differing stances of the political class, the judiciary as well as the activists, forms the core of the debate. The constant tussle between the government and the activists in terms of environmental governance has always been in the limelight. While the government has to fulfil the short-term goals shaped by vote-bank politics which could be at odds with environment protection, the activists want to embark on a system-overhaul process which could give rise to an eco-conscious society, encouraging only environment-friendly policies, compromising development. The judiciary

plays a critical role as a check on the government and the industry, yet the loopholes have rendered 'environmental justice' flawed in many cases. As part of an India-centric evaluation of the impact of climate change, this paper would also delve into the intricacies of national security that could be threatened in various ways. As the world gears up to deal with the vagaries of climate change – the crux of environment change – both the theory and practice of politics of climate change would be revisited in the subsequent pages. This could map out the steps that could tighten up global efforts in the areas of adaptation and mitigation. These physical and metaphysical issues are hard to disentangle like the Hegelian dialectic but an effort would be made to reach a 'synthesis' through analysis and case studies. The first and foremost task is to understand climate change as it is and as it is perceived through the prism of international relations.

REDEFINING CLIMATE CHANGE

A Multifaceted Phenomenon

Climate change is a dynamic phenomenon that has multiple layers. To classify it as merely scientific or meteorological will be too simplistic. In today's world, every issue develops tentacles that reach out to various spheres, usually guided by conflicting ideologies. This is the reason why definitions have become transient and relative. Though climate change is incontrovertibly a global phenomenon that has universal causes and consequences proven by the scientific community time and again, it affects different entities or spheres differently, making the task of framing the exact definition highly contentious. In geo-politics, this becomes even more complicated since the world is clearly divided into nation-states with lucidly delineated boundaries and cogently defined national interests.

On the one hand, the international community represented by various organisations has come up with definitions that have got acceptance worldwide. But one has to take into account the politics of climate change which guides the fundamental theories related to it; the former has assumed significance to such an extent that the real dangers of climate change

are being overlooked. The starting point of the differences between the perspectives of the scientific and the political communities is the definition itself exemplified by the Inter-governmental Panel on Climate Change (IPCC) and the United Nations Framework Convention on Climate Change (UNFCCC) respectively. The latter defines 'climate change' as "a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods."² The former states, "Climate change refers to a statistically significant variation in either the mean state of the climate or in its variability, persisting for an extended period (typically decades or longer). Climate change may be due to natural internal processes or external forcings, or to persistent anthropogenic changes in the composition of the atmosphere or in land use."³ While the UNFCCC specifically focusses on climate change attributable to human activities for obvious reasons, the IPCC looks at it more holistically by making a distinction between 'climate change' that is triggered by human activities and 'climate variability' that is ascribed to natural causes. It is the human activities that have divided the world into several blocs and the definitions yet again vary from bloc to bloc since the degree of impact and the urgency of response to climate change are variable.

Geo-politics and International Relations Approach

The geo-politicians draw conclusions based on these diverse perspectives of climate change and, thus, expand the definition to include the facet of international security. According to them, it is the architect of the process of redrawing the world map, besides being the platform for the 'clash of interests' between nation-states. In international relations and world politics, the environment has always been one of the top priorities and with the advent of the concept of climate change, it has assumed even

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2. The United Nations Framework Convention on Climate Change, Article 1 (for the purposes of this Convention), Paragraph 2, see http://unfccc.int/essential_background/convention/background/items/2536.php, accessed on March 18, 2011.
 3. IPCC Working Group I: The Scientific Basis, Appendix I – Glossary, see <http://www.ipcc.ch/ipccreports/tar/wg1/518.htm>, accessed on March 18, 2011.

more significance. The blame-game over the origin of climate change and the debate over the possible measures to tackle it have turned it into a playground of power politics. Just as it has divided nation-states, it has also divided the international theorists. The debate between the 'modernists' and the 'ecoradicals' is the most noteworthy one. The former group is of the belief that environmental protection cannot be achieved at the expense of development. Thus, they champion the cause of environmental protection and promotion of the development agenda concurrently. This model essentially lays emphasis on the upgradation of the existing scientific and technological resources that could mitigate environmental degradation. However, these environment-friendly techniques have been rejected by the 'ecoradicals' according to whom the only way to decelerate the dramatic rise in pollution and exhaustion of natural resources is to halt the process of growth itself. This was also the central finding of a group of scholars of the Club of Rome who published "Limits of Growth" in 1972. They strongly believe that progress in science and technology cannot solve the problems that the entire humanity will face since the ecosystem does not have the capacity to withstand 'human atrocities' beyond a certain point. They call for a complete overhaul of human nature, lifestyle and population control measures.⁴ These two theories are two sides of the same coin. The first one accepts the reality of the current economic growth model that is central to any country's comprehensive power theory but it fails to make an assessment of the notion of development. Though it promises to provide long-term solutions, it fails to gauge the status of the environment in the long run. The second one takes a more idealistic stand that regards the whole world as one organism and that destruction of one part would result in the destruction of the entire planet. It completely excludes the needs of a growing as well as demanding population. Though it has a long-term perspective, it fails to give an alternative to the current economic model apart from demanding decentralisation, devolution and diffusion of powers of the nation-state in order to generate 'ecocentric' communities. New environmentalism

4. Robert H. Jackson and Georg Sørensen, *Introduction to International Relations: Theories and Approaches* (UK: Oxford University Press, 2007), pp. 261-263.

New environmentalism is deemed an offshoot of the emerging threats of global warming and climate change.

is deemed an offshoot of the emerging threats of global warming and climate change. The theory of new environmentalism recognises the fact that global warming is a symptom and not a problem; and the problem lies in the wasteful and exploitative nature of human society. It also takes into account the energy stress along with energy security which is closely linked to climate change.

It must also be noted that climate change, like any other environmental problem, could lead to both conflict and cooperation — epitomised by the realists and the liberalists respectively. This is the reason why while talking about environmental degradation or climate change, it is equally important to analyse the environment from the perspective of the state. States evolve their environmental policies according to their national interests — immediate, concrete, abstract or distant. Despite the fact that global warming and climate change affect all humanity and not just one state or a few states, they are likely to be categorised under the ‘environment which is owned by none’ since they force the international community to cooperate, based on national interest. This is proved by the ‘failure’ of the Kyoto Protocol which entered into force in 2005 due to the overpowering of the overall interests of the world by the states’ interests.

The phenomena of global warming and climate change also challenge the concept of sovereignty. While state sovereignty continues to be the most decisive factor in international politics, the environment debunks state sovereignty to a certain extent. The environment cannot be divided into territories. At the same time, every state has the right to exploit its territorial natural resources as well as a moral (or even, to some extent, legal) obligation to protect the environment that belongs to the whole world, that which is not restricted to a particular territorial space. Therefore, the states’ sovereignty “allows them to use, but not to abuse, pollute, exploit or otherwise overuse the environment.”⁵ Environmental governance and territorial sovereignty

5. Klaus Bosselmann, “The Earth Charter and Global Environmental Governance,” in R. K Gupta, Klaus Bosselmann and Prasenjit Maiti, eds, *Global Environment: Problems and Policies* (New Delhi: Atlantic Publishers & Distributors (P) Ltd., 2008), Vol. 2, p. 78.

are interlinked. That is why, to date, the developed and the developing countries have not been able to reach a consensus on the issue of 'climate justice.' On the one hand, the developed countries insist that every country, including the ones belonging to the developing world, should take up the burden of fixed emission cuts. On the other, the developing countries continue to raise the issue of their rights to achieve development which the developed countries have already achieved in the process of which they contributed most to the GHG emissions.

The developed countries insist that every country, including the ones belonging to the developing world, should take up the burden of fixed emission cuts.

Science Matters

A clear understanding of the theories associated with climate change should be backed by scientific and experiential facts. It is a well-known fact by now that the root cause of climate change is 'greenhouse effect.' This is the primary factor that contributes to the sustenance of life on earth as it keeps the temperature of the earth sufficiently high. But the same effect could prove disastrous if it is intensified by carbon emissions due to burning of fossil fuels and deforestation. Methane emissions caused by agricultural activities are also said to be significant contributors although this has become a major bone of contention between the developed and the developing countries. The primary greenhouse gases include carbon dioxide (CO₂), methane (CH₄), nitrous oxide and halocarbons, out of which CO₂ is the biggest contributor. Human activities as a source of climate change have been highlighted by the IPCC in their Assessment Reports, and in the Fourth Assessment Report (2007) they reiterated that "Global GHG emissions due to human activities have grown since pre-industrial times, with an increase of 70 percent between 1970 and 2004." They went one step ahead to increase the probability to more than 90 percent, that reinforces the chief cause of the increased greenhouse effect to be human

activities.⁶ The natural process by which the carbon is released into the atmosphere is accelerated by the activities of human beings. This causes global warming, which, in turn, sets off radical variations in the weather including precipitation, winds, temperature, and so on. For example, an increased concentration of CO₂ in the atmosphere is known to affect the cloud cover. Over the years, the sceptics have discarded the findings of the scientists sporadically and come up with their own conclusions that consider climate change a natural phenomenon or attribute it to other sources such as cosmic rays that affect the formation of clouds. A case in point is the reduction in solar activity, which is regarded by a majority of climate scientists as the cause of the Little Ice Age during 1650-1850. One of the National and Aeronautics Space Administration (NASA) studies has refuted this claim by stressing on the facts that the average amount of energy emitted by the sun has not reduced or increased drastically since 1750 and that only the lower parts of the atmosphere have become warmer while the upper atmosphere is cool as the GHGs trap heat in the former.⁷ Since the politics of climate change revolves around the assumption that human activities are the dominant contributor, climate scepticism loses relevance in this context to a certain extent.

IMPACT OF CLIMATE CHANGE: AN INDIAN PERSPECTIVE

Facts and Figures as Seen Through the Indian Eyes

Climate change could have unprecedented environmental, social and economic consequences, which, in turn, hold the potential to create a shift in the relations between different nation-states, eventually to culminate in an environmental or political semi-apocalypse. Bill Clinton very famously said, "First, I worry about climate change. It's the only thing that I believe

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6. IPCC Fourth Assessment Report, Summary for Policymakers, in *Climate Change 2007: Synthesis Report*, approved in detail at IPCC Plenary XXVII (Valencia, Spain, November 12-17, 2007), p. 5, see http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_spm.pdf, accessed on June 13, 2011.
 7. "Causes: A Blanket Around the Sun," *Global Climate Change: Vital Signs of the Planet*, National Aeronautics and Space Administration, see <http://climate.nasa.gov/causes8/>, accessed on June 12, 2011.

has the power to fundamentally end the march of civilization as we know it, and make a lot of the other efforts that we're making irrelevant and impossible."⁸ The real signs of a changing climate are manifested by sea level rise, global temperature rise, shrinking ice sheets, glacial retreat, extreme weather events, and so on. Some of the figures released by NASA are grim reminders of what is in store for humankind if immediate measures are not taken to mitigate climate change. For instance, the CO₂ concentrations are at their highest in 650,000 years. The global average sea level has risen by 4-8 inches over the past century and it is increasing at the rate of 3.27 mm per year. There has been an average increase of 1.5°F in the global temperature since 1880. Besides the doubling of the loss of Greenland Ice between 1996 and 2005, January 2000 to December 2009 was recorded as the warmest decade.⁹ The Indian scientists have also added more credence to these findings as evidenced by the reports of the Indian Space Research Organisation (ISRO) that concluded that the Himalayan glaciers have retreated by nearly 16 percent in the last five decades. Their study on the impact of climate change on agricultural yield and hydrology also revealed disturbing results. In the case of the former, it is in the form of reduction in the output of wheat, rice, maize and pearl millet, while in the case of the latter, it is in the form of increase of runoff in almost all the major river basins of India in the month of June. The 2009-10 report of the ISRO also said that the Indian livestock is a major source of CH₄ emissions.¹⁰ A rise in temperature in the Tibetan plateau could reshape the subcontinental river systems, especially that of the Brahmaputra and the Indus and convert them into monsoon-fed rivers

The real signs of a changing climate are manifested by sea level rise, global temperature rise, shrinking ice sheets, glacial retreat, extreme weather events, and so on.

8. See, Dan Perry, "Clinton: Climate Change is the World's Biggest Worry," <http://www.newsday.com/news/local/wire/newyork/ny-bc-ny--worldforum-clinto0128jan28,0,379601.story?coll=ny-region-apnewyork>, accessed on February 24, 2011.

9. "Global Climate Change: Vital Signs of the Planet," National Aeronautics and Space Administration, see <http://climate.nasa.gov/>, accessed on June 12, 2011.

10. "Himalayan Glaciers Retreated by 16% in Nearly Five Decades: ISRO," *Daily News & Analysis* (Bangalore), March 27, 2010, see http://www.dnaindia.com/india/report_himalayan-glaciers-retreated-by-16pct-in-nearly-5-decades-isro_1364163, accessed on June 16, 2011.

that could annihilate a significant proportion of the population in South Asia, including India.

Indications: India and the World

Scientific evidence shows that climate change leads to higher frequency of extreme weather events such as heat waves, heavy precipitation events, floods, droughts, fires, severe cyclonic storms, which, in turn, result in a surge in deaths, injuries, toxic contamination, infectious diseases, social disruption, environmentally forced migration, and the list goes on. A simple illustration would be the implications of higher temperatures; they could heighten both flood and drought risks, the former due to a sustained increase in the precipitation and the latter due to increase in evaporation. There are countless indications which cannot be thwarted by the sceptics. Some of these are the unusual heat waves in North America, Russia and Europe; the unpredictable precipitation episodes in Latin America and South Asia; hurricanes in the US; cyclones in the Indian Ocean region; droughts and desertification in Africa, West Asia and North Asia. As far as India is concerned, the Global Climate Risk Index 2010 released in Copenhagen revealed that the country has witnessed 325 extreme weather events in the last 18 years in which 3,255 people have died annually.¹¹ One could easily conclude that although sceptics have raised doubts over the cause of intense and more frequent El Nino and La Nina events, they could easily be considered the signs of a larger catastrophe that climate change could unleash in the future. Moreover, the IPCC states, "Taken as a whole, the range of published evidence indicates that the net damage costs of climate change are likely to be significant and to increase over time."¹²

11. Sven Harmeling, "Global Climate Risk Index 2010: Who is Most Vulnerable? Weather-Related Loss Events Since 1990 And How Copenhagen Needs to Respond," *Germanwatch* (Berlin), December 2009, p. 11, see <http://www.germanwatch.org/klima/crri2010.pdf>, accessed on June 16, 2011.

12. IPCC Fourth Assessment Report, Summary for Policymakers, in *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* (Cambridge, UK: Cambridge University Press, 2007), p. 17, see http://www.ipcc.ch/publications_and_data/publications_ipcc_fourth_assessment_report_wg2_report_impacts_adaptation_and_vulnerability.htm, accessed on June 15, 2011.

The rise in global sea levels caused by the melting of polar ice caps and glaciers is expected to result in the submergence of low-lying areas, including river deltas, coastlines and small islands. To mention a few examples, the IPCC has predicted that if the sea level rise exceeds 2 metres, nearly 50 percent of Maldives would be inundated and in the case of Bangladesh, a 1.5 metre rise would submerge 15 percent of all the land area and about 20 percent of the farmland, with 20 percent less agricultural production, and would displace about 20 percent of the nation's total population.¹³

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It is expected to have an adverse impact along 7,000 sq km of the Indian coastline. A one metre sea level rise would lead to the displacement of nearly 40 million people in India.¹⁴ Interestingly, the rising sea water has ended the dispute between India and Bangladesh over the New Moore Island by engulfing it in 2010. Massive displacements were caused by the sinking of two other islands in the Sunderbans – Lohachara and Ghoramara. The changing patterns of salinity caused by climate change have affected not only the mangroves but also fishing, leading to the disappearance of one of the mangrove species called Sundari trees, and economic enslavement of the fisherfolk. Besides, an increase in the global temperature could affect the ecosystem, which would disrupt habitats such as coral reefs and alpine meadows, which, in turn, would lead to the extinction of several plant and animal species. The dwindling number of Bengal tigers has been attributed to the rising sea levels as their migration to the higher ground would be prevented by human habitation in the adjoining lands. The effects of climate change on the society and the economy are, therefore, expected to be severe. If one takes into account "the cost to agriculture, forestry,

13. R. K. Gupta, "Global Warming and its Effects," in Gupta, et al, eds., n. 5, Vol 5, pp. 56-60.

14. Alex de Sherbinin, Koko Warner and Charles Ehrhart, "Casualties of Climate Change: Sea-Level Rises Could Displace Tens of Millions," *Scientific American*, January 10, 2011, see <http://www.scientificamerican.com/article.cfm?id=casualties-of-climate-change>, accessed on June 18, 2011.

The development versus environment debate has ensured that India's policies towards achieving a low-carbon economy and sustainable development remain in limbo.

water supply, fisheries, infrastructure, energy, hurricane damage, drought damage, land loss, loss of wetlands, loss of forest, loss of human life, loss of species as well as pollution and migration, the total annual cost of all the aforesaid global warming effects is estimated to average 1.5-2% of the current global GDP, that is, between 480 and 640 billion dollars.”¹⁵

Climate Change and National Security: Indian Viewpoint

The interconnectedness between climate change and national security has been a source of debate for the policy-makers across the globe. It is preposterous to dissociate national security from human security. If the population of a nation-state is not socially, economically, politically and psychologically secure, national security of that particular nation-state would remain incomplete. National security encompasses not only military strength but also social security, environmental security, energy security, economic security and a wide range of aspects that impinge on human security in general. After all, the nation-state is just a conglomerate of its inhabitants at the atomic level. Yet the policy-makers have been trying to downplay the threat that climate change poses to national security especially in a country like India. This is the reason why attempts have been made by the research community to link up the two so that the issue of climate change is taken as seriously as the menace of terrorism. In India's context, there are various issues that imperil our national security but very often they are straight-jacketed into our neighbours on the west and the north.

Besides, the pulls and pushes in the country that emanate from the different entities, including the government, industry, judiciary and environmentalists, have also led to myriad contradictions at the policy-making level. The development versus environment debate has ensured that India's policies towards achieving a low-carbon economy and sustainable

15. Gupta, n. 13, p. 63.

development remain in limbo. This debate dates back to the days of Indira Gandhi's reign; when India was asked by Ronald Reagan in the early 1980s to "pull up its boots," Mrs. Gandhi retorted that India was not in a position to pull up its boots as Indians did not have boots.¹⁶ As a case in point, nearly 400 million Indians are reported to be without electricity.¹⁷ The unpredictability of costs and trade-offs when it comes to transition to a 'green economy' in the light of the growing population and its energy needs, along with the teeming poverty, needs to be settled. The international pressure to adopt binding emission cuts, on the one hand, and the domestic requirement of energy, on the other, have led to sharp divisions within the country. Securitisation of the debate is more or less a taboo as evinced by one of the premier environment journalists in the country, according to whom 'playing the waiting game' is going to be the strategy of a majority of the nation-states, including India. Similar indications have been made by the country's policy-makers too, according to whom, the connection between climate change and national security is not direct and the question of sacrificing the present for the future is unthinkable as far as sustainable development is concerned. The National Action Plan on Climate Change, approved by the Prime Minister on June 30, 2008, is the core of India's climate change policy. Under its umbrella, the Government of India has undertaken a series of actions to mainstream climate change in sustainable development. Yet the debate continues as the Minister of Environment and Forests, Jairam Ramesh confessed in public that he was under pressure to be more flexible with granting environmental clearances to different projects that have been found to be violating environmental norms.¹⁸ This could be the perfect explanation for the Indian polity's reluctance to invest in renewable technology in a full-fledged manner as compared to other countries in the

16. Discussion with Air Cmde Jasjit Singh AVSM VrC VM (Retd), Centre for Air Power Studies, on July 6, 2011.

17. See Jeremy Page, "India Looks to the Sun for Ambitious Surge in Green Power," *The Times* August 3, 2009, <http://www.timesonline.co.uk/tol/news/world/asia/article6736726.ece>, accessed on June 15, 2011.

18. See Sangeeth Sebastian, "I Have Been Under Pressure to Overlook Environment Violations: Jairam Ramesh," *India Today*, May 7, 2011), <http://indiatoday.intoday.in/site/story/jairam-ramesh-violated-environment-rules-under-pressure/1/137396.html>, accessed on June 19, 2011.

Climate change has the potential to add a whole new dimension to India's disputes with its neighbours.

West and even China. The international community has so far not shown the keenness to go beyond the ambit of 'short-term solutions' and 'low-hanging fruits.'

Climate change has the potential to add a whole new dimension to India's disputes with its neighbours. The first and foremost issue that comes to the mind of every Indian in this context is the Kashmir dispute.

The world's highest battlefield, the Siachen glacier, is said to have receded by nearly 800 metres in the past 20 years due to climate change. It has been found that the military presence in the region has resulted not only in the deterioration of the ecosystems but also the pollution of the Indus river. Interestingly, Pervez Musharraf, former President of Pakistan, claimed in his dissertation that the Kashmir dispute was primarily based on the distribution of the Indus river waters between India and Pakistan. Stressing on the fair distribution of waters, he asserts, "If one were resolved, the other would not exist."¹⁹ It is highly possible that if the Indus river dries up due to global warming, a water-deficient Pakistan might resort to a full-fledged war with India over the distribution of its waters. Pakistan has already made it clear that it would not hesitate to use its nuclear weapons against India if the latter chokes the water supply to its territory, as confirmed by a report prepared by nuclear physicists Paolo Cotta-Ramusino and Maurizio Martellini of Landau Network, Italy, on Pakistan's nuclear policy in which they quote Lt Gen Khalid Kidwai (Retd), the Director-General of the Strategic Plans Division of Pakistan.²⁰

The threats of water wars or a World War III due to water scarcity are palpable for not only India and Pakistan, but the entire world. Water wars in the Middle East/West Asia due to scarcity of water, particularly between Israel and Palestine, are quite well-known. If the trends of drought, famine

19. Nitin Pai, "Climate Change and National Security: Preparing India for New Conflict Scenarios," *Pragati - The Indian National Interest Review* (New Delhi) April 2008, n. 1, p. 2, see <http://nationalinterest.in/wp-content/uploads/2008/04/inipolicybrief-no1-climatechangeandnationalsecurity-nitinpai-april2008.pdf>, accessed on February 10, 2011

20. See. Nadeem Iqbal, "Economic Threat may Push Pakistan to go Nuclear," *Asia Times* (February 6, 2002, <http://www.atimes.com/ind-pak/DB06Df02.html>, accessed on June 13, 2011.

and disease continue, the chances of population shifts and political turmoil would increase further in this region. Since economic, energy and climate challenges are closely interlinked, the security implications are graver. Countries with fragile governments could become failed states. Some of the countries in Africa are deeply vulnerable to this threat since they are already plagued by internal conflicts such as civil wars. For example, an 18-month study of Sudan by the UN Environment Programme reveals that depreciation in the amount of rainfall, decrease in crop yields and increased desertification have resulted in the exacerbation of the conflict between north and south Sudan.²¹ The conflict has culminated in a permanent split between the two with the separation of southern Sudan based on a referendum in 2011. Climate change could take away the livelihoods of millions of people, especially those dependent on agriculture and fisheries, who might find an alternative in anti-social activities. Another example of the geo-political consequence of climate change is the ongoing tussle over the Arctic region. The shrinking of the ice cap has resulted in the possibility of exploration of natural resources as well as opening up of new shipping lanes in the region which could give rise to conflicting claims and tensions with regard to maritime territories and exclusive economic zones, as reiterated by the United Nations Security Council statement released on July 20, 2011.²² Countries, including Canada, Russia, the US and Denmark, have already started to lay claims in the region. The whole concept of maritime boundaries will have to be redefined in case of submergence of coastal areas and islands, especially if they are of strategic significance.

Coming to India, migration is the single biggest threat to its national security. The rising sea levels and glacial recession are already leading to inter-regional migration. If the effects of climate change intensify, the coastal areas of Sri Lanka in the north and east that are Tamil dominated

21. See Julian Borger, "Darfur Conflict Heralds Era of Wars Triggered by Climate Change, UN Report Warns," *The Guardian*, June 23, 2007, <http://www.guardian.co.uk/environment/2007/jun/23/sudan.climatechange>, accessed on June 17, 2011.

22. See for more information, "Security Council, in Statement, Says 'Contextual Information' on Possible Security Implications of Climate Change Important when Climate Impacts Drive Conflict," SC/10332 (20 Jul, 2011), <http://www.un.org/News/Press/docs/2011/sc10332.doc.htm>, accessed on July 20, 2011.

The most affected would be the Joint Forces Command at Andaman and Nicobar Islands and the Car Nicobar Air Force Base.

would be affected, leading to migrations to India. Although the civil war has come to an end in Nepal, the glacial recession and extreme weather patterns in Nepal could also result in mass migrations to India. India might have to make its transit laws stringent in order to curb an influx of migrants. However, migrations from Maldives and Bangladesh would be the biggest challenges

for the countries in the region. The northeastern states and some of the metropolitan cities like Mumbai are already flooded with Bangladeshi immigrants owing to different reasons — cyclones, frequent flooding and the civil war of 1971, among others. The disappearance of Maldives could force its people to seek shelter in countries across the world, especially India. However, the linkage between climate change and migration has not been appreciated by many analysts as according to them, migration is caused by poverty and unemployment, induced or exacerbated by climate change.

Strategic Implications

One could also evaluate the impact of climate change on the strategic interests of the major powers to interlink climate change with national interest. The most appropriate case study would be the Indian Ocean strategies of the US, India and China. The US has its largest base at Diego Garcia (Camp Justice) — an Indian Ocean island — which is only a few feet above sea level. The sea level rise could lead to the submergence of this island, taking away a critical US military staging area. Moreover, the US believes that climate change could lead to conflicts that would entail more American involvement. A recent report by the American Security Project, an advisory group of high-powered Republicans and Democrats, called global warming “not simply about saving polar bears or preserving beautiful mountain glaciers ... (but) a threat to our security.”²³ As far as India is concerned, all

23 See H. Josef Hebert, “Turmoil From Climate Change Poses Security Risks,” http://www.usnews.com/science/articles/2009/10/28/turmoil-from-climate-change-poses-security-risks?s_cid=rss:turmoil-from-climate-change-poses-security-risks, accessed on June 25, 2011.

its naval bases situated along the Indian Ocean rim — Cochin, Mumbai, Karwar, Visakhapatnam and others — would be afflicted marginally by the sea level rise. However, the most affected would be the Joint Forces Command at Andaman and Nicobar Islands and the Car Nicobar Air Force Base since the islands are also susceptible to tropical cyclones and tsunamis (though the former is considered safer). Thus, India's coastal security would be jeopardised even in terms of terrorist attacks and the overall defence structure of the country would be adversely affected, further aggravating the national security. The security implications of climate change will also hamper China's growing assertiveness in the region. Its deep water ports and refuelling stations in Gwadar, Hambantota, Chittagong, Sittwe and Kyaukphyu are situated along the most vulnerable coastlines. However, these conjectures do not have the potential to alter the overall geo-political rivalries between those nations. At the same time, the efforts to protect these coastal installations through various ways, including raising them even further above the current sea level so that they are not affected by the sea level rise would prove to be expensive and short-term solutions.

LOOSE ENDS TIED TOGETHER

The divisions and sub-divisions, the causes and consequences, the perceptions and misperceptions, the solutions and resolutions are inherent in the global climate change debate. For the emerging countries, climate change is an economic issue of developmental concerns; for the industrialised countries, it has more or less become a political-cum-ethical issue concerning *raison d'état* and developmental supremacy; for the least developed countries, it is a human rights issue that endangers their survival. For the theorists — modernists and ecoradicals — it is a solvable issue through distinct approaches but they have been largely inadequate in terms of being put into practice. Climate change, whether caused by human activities or natural processes, is an issue of concern and, thus, needs to be one of the top priorities for the policy-makers. Climate scepticism is a regressive movement that would only lead to the false belief that exploitation of the environment is the birthright of human beings. There are innumerable indications and

studies that should clear the doubts in the minds of the sceptics. India is definitely one of the biggest victims of these signals and the future does not look bright. Not only does climate change affect its socio-economic sectors, it clearly has an adverse impact on its national security that is closely linked to the society and the economy as well as its strategic interests.

There is a section of thinkers according to whom human beings must go back to their roots and believe in deep green ideology. Instead of shifting the responsibility to the nation-states, steps have to be taken at the individual level to tackle this issue. While individual actions could certainly make a lot of difference, it has to be kept in mind that large-scale environmental degradation and climate change can be addressed only if initiatives are undertaken by nation-states. In a world divided by sovereignty and national interests, climate change is one phenomenon that is common for all countries; the only difference being that some countries could face the wrath of nature way before others. Therefore, the onus lies on all nations, especially those who have been responsible for it in the past and those who are adding to the problem in the present, to not only have extensive 'green' policies at home but also assist those countries that are at higher risk than others.

World leaders across the globe are trying different means to articulate their stands on climate change: for example, a Cabinet meeting held under water by Maldives in 2009, a meeting held by Nepal at the altitude of 17,192 ft at the base of Mount Everest and a Cabinet meeting held in the middle of the Gobi desert by the Mongolian Ministers wearing "Save the Planet" baseball hats in 2010. India is also doing its bit to not only galvanise the international community towards a collective arrangement but also carrying out programmes within the confines of its boundaries. The widening gap between 'what has to be done' and 'what is done' in reality is the biggest hindrance in reorganising the global climate change architecture in favour of a brighter future.

WEST ASIA: ONGOING CONFLICTS AND INDIA

SHARAD SRIVASTAVA

The Persian Gulf region has been, and will remain the epicentre of global security dynamics in the foreseeable future, due to various reasons. It is the heart of West Asia, which has been a strategic sub-system of the world for more than two centuries, stretching from the Eastern Mediterranean to Afghanistan; its significance in the global power politics evolves from the complexities of its geo-political, geo-economic and geo-strategic importance as a strategic choke-point on some of the most important trade routes, besides being home to some of the world's richest oil and gas reserves.

The definition of what constitutes 'West Asia', or the 'Middle East' (as the British and Western countries call the larger area) has varied historically, and been much debated — at one time, it was seen to comprise everything from the Crimean Sea to the eastern borders of colonial India. It was only after World War II, the partition of the subcontinent and the serious exploitation of the region's oil assets that the 'Persian Gulf region' started being treated as a separate entity. For the purposes of this paper, I have restricted myself to the countries touching the Persian Gulf and their immediate neighbours — in what is now commonly known as 'West Asia'. Occasional references to Egypt have been made necessary

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The seeds of conflict in the West Asian region were sown long before most of the nations in the region became independent.

by the role played by Egypt in West Asian affairs. The virtues or otherwise of calling this region 'West Asia' are less important than the idea that it comprises one strategically coherent region. It is the *themes and issues* that link the nation-states of this region — energy security, terrorism, the rise of new power equations, proliferation, Islam, democratisation (or the lack of it), the role of the United States and certain other powers, etc — that make the Persian Gulf region and the larger 'West Asia' an important part of India's landscape for the foreseeable future.

The seeds of conflict in the West Asian region were sown long before most of the nations in the region became independent (or post-World War II, assumed independence) and took on the names and forms by which we know them today. The growing global dependence on Gulf energy, South Asian transit routes for that energy, terrorism, proliferation, political uncertainty, rise of local non-state militia, etc. make it likely that this region will remain a significant part of the overall strategic picture for any country that has regional or global aspirations. Social unrest, water-related problems, fundamentalism, instability and conflicts render the region on the short fuse, leading to a potentially dangerous threat to regional and international stability. The rise of local militant groups, some of them funded and assisted by rival nations, has only added to the problem. There are good reasons why the strategic significance of the Gulf region will outlive specific US and coalition force commitments that we see today. India's vital interests are, thus, inextricably linked to stability, peace and security in the Gulf region.

TREND LINES OF CONFLICT

There are several trend lines of conflict in the region running simultaneously that have the potential to converge and precipitate a situation that we need to be prepared for — politically, diplomatically, and if need be, militarily (to be discussed separately). These trend lines could be grouped as:

- External Conflict:
 - Oil and gas — energy security issues.
 - Intervention by the US and other powers.
 - Nuclear energy vs. nuclear arms proliferation.
 - Economic issues.
 - The US and allies vs. increasing Chinese influence and Russian interests, especially in adjacent Central Asia.
- Internal Conflict:
 - Power struggles within the nation-states — ‘intra-state’.
 - Monarchy vs. religious leaders (Saudi Arabia).
 - Rulers vs. the people (Iran).
 - Sheikhly families vs. the urban educated youth (UAE, Kuwait).
 - Sunni vs. Shia (Iraq, Iran, Saudi Arabia).
 - The Kurdish claims for an independent state in Northern Iraq.
 - Reformism vs. religious extremism (Iran, Saudi Arabia).
 - Power struggles between nation-states — ‘inter-state’.
 - Arab vs. Jew (Israel vs. Syria+Iran+Saudi Arabia.....).
 - Sunni Arab vs. Shia (predominantly from Iran/Iraq).
 - Various unresolved boundary disputes.
 - Water and food security (entire Levant, Iraq, Turkey, Saudi Arabia).
 - Issues pertaining to sharing of water resources, ownership of oil-wells, etc. (Syria, Iraq, Turkey).
 - Support to non-state actors by other regional states (Iran-Hezbollah, Saudi Arabia-Hamas, Iran-Hamas).
 - Large number of refugees/internally displaced persons (Arabs, Jews, Palestinians, Afghans).
 - The rise of non-state actors:
 - Palestinian/Lebanese groups — Hamas, Hezbollah.
 - Al Qaeda, Taliban, Muslim Brotherhood, Mahdi Army, etc.

Some of these issues are discussed in the subsequent paragraphs. While it would be proper to discuss each issue separately, the manner in which

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some of them are intertwined makes it imperative that the overall interaction between different forces takes precedence over individual treatment.

A Region of Power Struggle

Within a century since 1900 AD, three different powers changed hands in West Asia. The large Turkish Ottoman Empire was replaced after World War I by the British Empire. The British broke up the monolithic structure into a number of monarchical states and dominated the region till World War II. After World War II, Britain gradually retreated from the region — largely due to a resource crunch, while America emerged as the new superpower and took over strategic, political and economic control of West Asia. During the Cold War, the Soviet Union as the other superpower contested the American dominance, resulting in the emergence of military governments with socialistic overtones and ideologies in major states like Egypt, Iraq and Syria.

West Asia is predominantly Arab and Sunni Muslim — with the exception of Turkey (Islamic but secular), Iraq (mix of Shia, Sunni and Kurds) and Iran (Islamic Shias). Smaller Kurdish settlements also exist in Syria and Iran, besides Eastern Turkey. As a region, West Asia has generated more conflicts in the 20th century, and even today, than any other region of the world. The emergence of Israel as an independent nation in 1948 was never accepted by the Arab and Muslim world that still views it as an Anglo-American imposition. Anti-Americanism has, therefore, been a consistent feature of West Asia ever since. Only certain monarchical regimes allied politically with the United States, to ensure their personal political survival.¹

The Arab-Israel Conflict on Palestine

The several Arab-Israel conflicts from 1948 till 1973 have been well recorded and studied by most of us in the uniformed community. Equally important is the

1. Dr Subhash Kapila, "West Asia's Changing Strategic Dynamics," South Asia Analysis Group.

evolution of the Arab psyche from the days of Pan-Arabism (post World War I) through Arab nationalism, Arabism, Arab union/unity, Arab state patriotism, etc. till the final acceptance of a national identity without the shackles of an 'Arab' tag. This has come about primarily due to economic considerations — and the several nation-states realise that their younger generations, born after the age of 'Pan-Arabism' have no great belief in such alignments.

Pan-Arabism...for long was a sacrosanct ideological principle in all the Arab countries, some of which even incorporated it in their Constitutions. But as the various Arab states established themselves more firmly and defined and pursued their various national interests with growing clarity, their commitment to pan-Arabism became more and more perfunctory. At the present time, after a series of bitter inter-Arab conflicts, even the customary lip-service is often lacking.²

Water and Food Security

In recent times, the water issue has been a great concern of the Israelis, Palestinians, and Arab nations in the region. Mikhail Gorbachev (former Premier of the Soviet Union) and Shimon Peres (former Prime Minister of Israel) noted years ago,

More than anywhere else, the Middle East exemplifies the perils and possibilities created by the water crisis...the various states in the Middle East have spent billions to acquire arms instead of building water pipelines or finding ways to conserve, clean and use water more efficiently on a shared, regional basis...We all know that deserts create poverty, and that poverty often leads to war — especially when everyone is armed to the teeth. But missiles in an armed desert can't carry water — any more than minefields can stop pollution from crossing borders.³

2. Bernard Lewis, *The Multiple Identities of the Middle East* (Berlin: Schocken, 2001), p. 140.

3. R. Jerry Adams, Ph.D, "Middle East Conflict", available at <http://www.awesomeLibrary.org/MiddleEastConflict-part2.html>, as accessed on June 30, 2010. Dr. Adams is Owner & Head of Evaluation and Development Institute, Denver and has spent 12 years as an Environmental Strategist, compiling environmental research and its impact through his work with his website www.AwesomeLibrary.org. Awesome Library is rated #11 (out of about 60 million Web sites) for "current events" on Google.

The Iraqi challenge to the West Asian status quo was posing a serious threat to US' overriding strategic concern in West Asia, i.e. the security of Israel.

In the contemporary era, river waters remain a potential source of friction in the region. The Jordan river lies on the borders of Israel, the Kingdom of Jordan and the areas administered by the Palestinian Authority. Turkey and Syria each control about a quarter of the river Euphrates, on whose lower reaches Iraq is heavily dependent. Water is one of the likely causes of future conflicts in the region.

US ROLE SINCE 2003

Why did the US spend billions of dollars to engage Iraq in 1991? It was under a UN mandate to 'liberate Kuwait' from Iraqi occupation, after Saddam Hussein forcefully staked the historical Iraqi claim over Kuwait (which had been carved out of Iraq by Britain as a 'protectorate' through an 1899 agreement with Sheikh Mubarak Al-Sabah, whose family, led by Emir Abdullah Al Salem Al Sabah, was itself installed by Britain as the 'caretaker' in the oil-rich region, way back in 1880; Britain regularised the status of Kuwait by subsequently granting it 'independence' in 1961, when then Iraqi Premier Hassan Abdul Kassem raised the issue, with reference to the Lausanne Conference⁴ of 1923).

Why did the US again spend billions of dollars to engage Iraq in 2003? Because Iraq — as a relatively modernised and secular Arab Islamic state

4. The real reason for the 1923 Lausanne Conference (held under the League of Nations) was the discovery of the Mosul oilfields in Kurdish Northern Iraq. Turkey suddenly decided it had a claim to the vast oilfield that lay beneath the land occupied by the Kurds. By now, America was also interested. The American observer (sent at the insistence of US oil major John D. Rockefeller) went along with the existing illegal situation in Kuwait. Rockefeller had no intentions of rocking the British boat just as long as he could get his share of the new oil find. Iraq lost its rights under the old Turkish Petroleum Company agreement, and the status of Kuwait remained unchanged. The question of Mosul oil was left deliberately vague at the insistence of the British delegate, who stated that these questions would be settled "by future negotiations". On June 25, 1961, Iraqi Premier Abdul Kareem Kassem raised the issue, pointing out that the promised "negotiations" had not yet taken place. Instead, Britain granted independence to Kuwait, ignoring the fact that the land was not theirs to give, but was a historical part of Iraq that had been hived off by Britain for exploitation of its oil. Kuwait continued under the Al-Sabah family, which ruled with an iron hand, with British military protection. Abdul Kareem Kassem was assassinated in a 1963 coup, allegedly by a collusion of the CIA, Britain and the Ba'ath Party activists.

with its vast oil revenues — was building up a military capability to challenge the existing status quo in West Asia, primarily directed at US dominance and the Gulf Sheikhdoms which provided the pillar for the American dominance. More importantly, this Iraqi challenge to the West Asian status quo was posing a serious threat to the US' overriding strategic concern in West Asia, i.e. the security of Israel. It was also to regain the US foothold in the region — by dislodging Saddam Hussein, installing a sympathetic regime, and as a prelude to establishing itself as a military force in the region, and exercising coercive diplomacy over Iran by encircling it from both sides, i.e. Iraq and Afghanistan.

The US labelled the Gulf War 2003 as one of “liberation”, because the Saddam Hussein regime had been overthrown. Prior to this, the US had staged a year-long propaganda show — to convince American taxpayers and the world at large, that the world's only superpower had no choice but to attack a sovereign and crippled country — that had *not attacked* the United States, that had *not threatened to attack* the United States, and one that knew it would mean instant mass suicide for it if it attacked the United States. The US thesis was odd, *not simply because Iraq was not a threat* — as the war's easy military victory demonstrated — but because *the US knew that Iraq was not a threat, at all*. They'd been telling the world one story after another about why Iraq was a threat, an imminent threat, a threat increasing in danger with each passing day, a nuclear threat, a chemical threat, a biological threat, that Iraq was a terrorist state, that Iraq was tied to Al Qaeda...only to have each story amount to nothing. What they did not mention *officially* was that *this was a great opportunity to amass troops in Saudi Arabia and enforce an era of coercive diplomacy* in the region — an attempt to regain lost ground post the Iranian Islamic Revolution. They insisted repeatedly that Iraq must agree to have the UN weapons inspectors back in, and when Iraq agreed to this, the US declared that it wasn't good enough — and proceeded to disparage the effort.

Due to the unilateral decision by the US to go to war against Iraq in 2003 to effect a 'regime change', the UN was relegated to irrelevance on the most important question that it can face — being an institution which

declared in the very first sentence of its Charter, the determination “to save succeeding generations from the scourge of war, which twice in our lifetime has brought untold sorrow to mankind.”

Whatever the excuse, or whatever the means of dividing Iraq, it is very likely part of the Anglo-American strategy for Iraq to Balkanise the country. Insisting that what is being proposed is not Balkanisation, but *federalism*, is a moot point. This is because reverting to a more federal system where provinces have greater autonomy would naturally separate the country along ethno-religious boundaries. The Kurds would be in the north with the Kirkuk oilfields; the Sunnis in the centre and west, with nothing much in terms of resources; and the Shias in the south, with most of the oil. The disproportionate provincial resources would create animosity between provinces, and the long-manipulated ethnic differences would spill from the streets into the political sphere. As tensions grew — as they undoubtedly would — between the provinces, there would be a natural slide to eventual separation. Disagreements over power sharing in the federal government would lead to its eventual collapse, and the strategy of Balkanisation would have been achieved with the appearance of no outside involvement.

We now have a situation where there are large concentrations of US troops in Saudi Arabia, Iraq and Afghanistan, and in Central Asia. It also needs to be noted that in both the Gulf War and Iraq War, Israel was prevailed upon by the United States to keep out of the wars so as not to enlarge the scope of military operations. In terms of strategic dynamics, it is significant that United States military offensives (in 1991 and 2003) took place in West Asia when the erstwhile Soviet Union as a countervailing power had disintegrated by 1991, and in 2003, Russia as the successor state was not yet resurgent to challenge the United States head-on. In other words, the United States did not face any serious military challenge in both wars. The United States’ military offensive in both the Gulf War and Iraq War took place in what can best be called a ‘strategic vacuum’ against an overwhelming asymmetric opponent, i.e. Iraq.

The Aftermath of the Gulf War

In the aftermath of the Gulf War, West Asian political stability and peace stood further undermined. West Asia did not produce any new democratic states or changes for the better in terms of human rights. US supported monarchies continued to rule autocratically. Islamic *jihadi* terrorism appeared as a menacing and potent force against American policies and the presence of US troops and bases in the region. Israel stood continuously endangered, not by Iraq, but by Islamic *jihadi* suicide bombers for whose martyrdom the most loyal American ally, Saudi Arabia, provided finances. Iran continued to be 'demonised' by the United States when it should have been won over diplomatically to serve US strategic interests in the Gulf. Missile proliferation in West Asia continued with Chinese and North Korean assistance as a result of American permissiveness towards China and tolerating Chinese Intermediate Range Ballistic Missiles (IRBM) deployment in Saudi Arabia – the first ever such deployment in West Asia. Iraq was subjected to unending economic sanctions, chiefly sponsored by the United States, for more than a decade. This further outraged the local community against US policies. The United States had thus totally missed the political logic and dynamics in Iraq.

Post Iraq War

After the second military invasion of Iraq, the United States has not been able to produce any evidence of Iraqi Weapons of Mass Destruction (WMDs) despite their military occupation. The picture today is that Iraq lies devastated by US military bombardments and is in civil chaos and turmoil. Baghdad today, is more unsafe than ever before, with the gradual increase in Shia dominated territory around the city. The US has been unable to restore law and order in Iraq. Anti-Americanism is in the forefront, falsifying US hopes that they would be welcomed as 'liberators'. Major European countries like France and Germany (and even Turkey) are unlikely to underwrite Iraqi reconstruction for some time. The US roadmap of democracy for West Asia can be expected to gather dust, as contemporary developments in Iraq will force the US once again to temporise on tactical gains rather than strategic

vision. The US has publicly declared Syria and Iran as the next targets after Iraq. This will create greater strategic problems for the US. Islamic *jihadi* terrorism of the Al Qaeda networks has reared its head in Saudi Arabia and extended to Morocco — a stone's throw from Europe. US targets could be next on the list. Saudi Arabia stands sidelined by the US. Turkey is no longer an obliging entity in West Asia for US military adventures. The US has been unable to strategically pacify Iraq or West Asia. The emerging domestic scene in Iraq foretells that it may be heading towards "Islamic fundamentalism" and a Khomeini-type Shia revolution. Any US attempt to redraw state boundaries in West Asia may rebound on it.

LOCAL MILITANT GROUPS AND THEIR AFFILIATIONS

Hezbollah or the Party of God

Hezbollah was founded in 1982 in response to the Israeli invasion of Lebanon, and subsumed members of the 1980s coalition of groups known as Islamic Jihad. It has close links to Iran and Syria. Sheikh Mohammed Hussein Fadlallah is considered the group's spiritual leader. Hassan Nasrallah is Hezbollah's senior political leader. Nasrallah was originally a military commander, but his military and religious credentials — he studied in centres of Shiite theology in Iran and Iraq — quickly elevated him to leadership within the group. Experts say he took advantage of rivalries within Hezbollah and the favour of the head of Iran's theocratic government, Ayatollah Ruhollah Musavi Khomeini, to become the group's Secretary General in 1992, a position he still holds. Its base is in Lebanon's Shia-dominated areas, including parts of Beirut, southern Lebanon, and the Bekaa Valley. In addition, US intelligence reports say that Hezbollah cells operate in Europe, Africa, South America, and even North America.⁵ The organisation operates against Israel in four main ways:

- Bringing terrorists and collaborators through the border crossings using foreign documents.

5. "Hezbollah, The Party of God," accessed at http://www.cfr.org/publication/9155/hezbollah_aka_hizbollah_hizbullah.html, on June 30, 2010.

- Setting up a terrorist organisation inside Israel and in Judea, Samaria and the Gaza Strip.
- Cross-border operations — smuggling weapons and terrorists.
- Financial support for Palestinian organisations and groups.

Hezbollah was initially established by the Iranian Revolutionary Guards who came to Lebanon during the 1982 “Peace for Galilee” War, as part of the policy of exporting the Islamic revolution.

Hezbollah sources assert that the organisation has about 5,000-10,000 fighters. Other sources report that Hezbollah’s militia consists of a core of about 300-400 fighters, which can be expanded to up to 3,000 within a few hours if a battle with Israel develops. These reserves presumably are called in from Hezbollah strongholds in Lebanon, including the Bekaa Valley and Beirut’s southern suburbs. The number of members involved in combat activity in southern Lebanon is under 1,000. But it has many activists and moral supporters. After the Israeli withdrawal, Hezbollah reduced the number of full time fighters to about 500, though estimates range from 300 to 1,200. There are also several thousand reserves, but these lack training or experience. Hezbollah operates in the Al Biqa’ (Bekaa Valley), the southern suburbs of Beirut, and southern Lebanon. It has established cells in Europe, Africa, South America, North America, and elsewhere. Its training bases are mostly in the previously Syrian-controlled Bekaa Valley, and its headquarters and offices are in southern Beirut and in Ba’albek. Hezbollah’s militia is a light force, equipped with small arms, such as automatic rifles, mortars, rocket-propelled grenades, and Katyusha rockets, which it has occasionally fired on towns in northern Israel. Hezbollah forces are shown on television conducting military parades in Beirut, which often include tanks and armoured personnel carriers that may have been captured from the Lebanese Army or purchased from Palestinian guerrillas or other sources.

Hezbollah was initially established by the Iranian Revolutionary Guards who came to Lebanon during the 1982 “Peace for Galilee” War, as part of the policy of exporting the Islamic revolution. It receives substantial

Hamas grew out of the Muslim Brotherhood, a religious and political organisation founded in Egypt with branches throughout the Arab world.

amounts of financial, training, weapons, explosives, political, diplomatic, and organisational aid from Iran and Syria. Iran probably provides financial assistance and military assistance worth about US \$25-50 million. Hezbollah is closely allied with, and often directed by, Iran, but has the capability and willingness to act independently. It may have conducted operations that were not approved by Tehran. Though Hezbollah does not share the Syrian regime's secular orientation, the group has been a strong ally in helping Syria advance its political objectives in the region. Besides operating a worldwide network of fund raisers, money is also raised through so-called 'charity funds'. Some of these are extremist Islamic institutions that, while not directly connected to Hezbollah, support it, albeit marginally, in view of their radical Islamic orientation. While some of these funds undoubtedly pay for Hezbollah's military and terrorist operations, other funds enable the group to provide its members with day jobs, to drape itself in a veil of legitimacy, and to build grassroots support among not only Shia, but also Sunni and Christian Lebanese. In March 2005, Hezbollah organised a large demonstration to protest American and other international pressure on Syria to completely withdraw from Lebanon. Syria did subsequently withdraw its military and intelligence forces. The Syrian withdrawal left a vacuum for Iran to expand its influence in Lebanon and on Hezbollah.

Hamas

Hamas grew out of the Muslim Brotherhood, a religious and political organisation founded in Egypt with branches throughout the Arab world. Beginning in the late 1960s, Hamas' founder and spiritual leader, Sheikh Ahmed Yassin, preached and did charitable work in the West Bank and Gaza Strip, both of which were occupied by Israel following the 1967 Six-Day War. In 1973, Yassin established al-Mujamma' al-Islami (the Islamic Centre) to coordinate the Muslim Brotherhood's political activities in Gaza.

Yassin founded Hamas as the Muslim Brotherhood's local political arm in December 1987, following the eruption of the *first intifada*, a Palestinian uprising against Israeli control of the West Bank and Gaza. Hamas published its official charter in 1988, moving decidedly away from the Muslim Brotherhood's ethos of non-violence.

Historically, Hamas has operated as an opposition group in Gaza, the West Bank, and inside Israel. Most of the population of Gaza and the West Bank is officially ruled by the Palestinian Authority government, so Hamas' new role as the legislature's controlling party has forced the group to reconsider the function and scope of its operations. For instance, since taking power in 2006, Hamas leaders have embarked on several diplomatic visits throughout the region. Early on, some observers hoped that political legitimacy — and the accountability that comes with it — could wean Hamas away from violence. But to date, the group has refused to eschew violence and remains adamant about reversing the decision by its rival faction, the more secular Fatah movement, to recognise Israel's right to exist. In the summer of 2007, Hamas' tensions with the Palestinian President Mahmoud Abbas, a Fatah man, came to a head and Hamas routed Fatah supporters, killing many and sending others fleeing to the West Bank. The result was a *de facto* geographic division of Palestinian-held territory, with Hamas holding sway in Gaza and Fatah maintaining the internationally recognised Palestinian Authority government in the West Bank town of Ramallah. Egyptian efforts to reconcile the two factions came to nothing. Since coming to power in Gaza, rockets fired from the Hamas enclave have consistently landed on Israeli cities near the border, sometimes producing casualties. Israel has consistently alleged that Iranian and other weapons were being smuggled into Gaza through a series of tunnels, and with Egypt, maintained tight control on the enclave's borders. International aid agencies say this led to severe shortages. A six-month ceasefire calmed things somewhat in 2008, but toward the end of the year, Hamas called off the truce and resumed firing rockets into Israel. The response was an air assault in late December and, in the first week of 2009, a full blown Israeli invasion of the territory.

Hamas combines Palestinian nationalism with Islamic fundamentalism. Its founding charter commits the group to the destruction of Israel, the replacement of the Palestine Authority with an Islamist state on the West Bank and Gaza, and to raising “the banner of Allah over every inch of Palestine.” Its leaders have called suicide attacks the “F-16” of the Palestinian people. In July 2009, Khaled Meshaal said Hamas was willing to cooperate with the United States on promoting a resolution to the Arab-Israeli conflict. Hamas, he said, would accept a Palestinian state based on the 1967 borders provided Palestinian refugees are allowed to return to Israel and East Jerusalem is recognised as the Palestinian capital. The proposal fell short of recognising the state of Israel, a necessary step for Hamas to be included in the peace talks.

In addition to its military wing, the so-called Izz al-Din al-Qassam Brigade, Hamas devotes much of its estimated \$70-million annual budget to an extensive social services network. The extensive social and political work done by Hamas — and its reputation among Palestinians as averse to corruption — partly explain its defeat of the Fatah old guard in the 2006 legislative vote. Hamas funds schools, orphanages, mosques, and healthcare clinics, soup kitchens, and sports leagues. “Approximately 90 percent of its work is in social, welfare, cultural, and educational activities,” writes the Israeli scholar Reuven Paz.⁶ The Palestine Authority often fails to provide such services, and Hamas’ efforts in this area — as well as a reputation for honesty, in contrast to the many Fatah officials accused of corruption — help to explain the broad popularity it summoned to defeat Fatah in the Palestine Authority’s recent elections.

Hamas’ military wing is believed to have more than 1,000 active members and thousands of supporters and sympathisers. Since its electoral victory to lead the Palestine Authority, Hamas has had public funds at its disposal, though it does not have access to the foreign-aid dollars traditionally

6. Reuven Paz (born on November 14, 1950) is an Israeli scholar specialising in Islam and Islamic movements in the Arab and Muslim world, the Arab minority in Israel and Islamic fundamentalism. He has previously been head of the research department for the Israeli General Security Service. He has also previously lectured at the University of Haifa, and is the Academic Director for the International Policy Institute for Counter-Terrorism.

provided by the United States and European Union to the Palestine Authority. Historically, much of Hamas' funding came from Palestinian expatriates and private donors in Saudi Arabia and other oil-rich Persian Gulf states. Iran also provides significant support, which some diplomats say could amount to US \$20 million to \$30 million per year. In addition, some Muslim charities in the United States, Canada, and Western Europe funnel money into Hamas-backed social service groups. In December 2001, the Bush Administration seized the assets of the Holy Land Foundation, the largest Muslim charity in the United States, on suspicions it was funding Hamas.

According to Palestinian Khalil Shikaki,⁷ in late 2006, Hamas still enjoyed public backing, though most Palestinians also wanted to see a negotiated settlement with Israel. According to Lt Gen Keith Dayton, the US security coordinator for Israel and the Palestinian Territories, brutal internal clashes in Gaza have caused Hamas to lose some goodwill among the Palestinians. In fact, the group has a history of fluctuating approval: following the collapse of the peace process in the late 1990s, Hamas' popularity rose as Arafat's fell. In the spring of 2002, during a period of intensified armed conflict between Israeli security forces and Hamas militants, polls showed that Arafat's Fatah faction of the Palestine Liberation Organisation (PLO) and the Islamists each commanded support from roughly 30 percent of Palestinians in the West Bank and Gaza (the remaining Palestinians were either independent, undecided, or supported other factions). But trust in Hamas reportedly dropped in 2004. In a poll conducted by the Jerusalem Media and Communication Centre (JMCC) after Arafat's death, 18.6 percent of Palestinians named Hamas as the Palestinian faction they most trusted, down from 23 percent a year earlier. Hamas experienced a short-lived spike in popularity after the Israeli withdrawal from Gaza in August 2005; after a rocket explosion at a Hamas rally on September 23, 2005, that killed 15 people, Hamas blamed Israel and launched rocket attacks against it. Israel retaliated with punitive air strikes, which the Palestinians blamed Hamas

7 Dr Khalil Shikaki is an Associate Professor of Political Science, and Director of the Palestinian Centre for Policy and Survey Research (Ramallah).

for provoking. The explosion was revealed to be an accident. In late 2008 and early 2009, during another violent flare-up which resulted in Israeli land raids into the Gaza Strip, several news agencies reported that Hamas' popularity had stayed constant or even increased.

Jaish al Mahdi or the Mahdi Army

Following the collapse of the Ba'athist regime led by Saddam, Iraq's major cities erupted in a wave of looting that was directed mostly at government offices and other public institutions, and there were severe outbreaks of violence — both common criminal violence and acts of reprisal against the former ruling clique. The sectarian violence that engulfed the country caused enormous chaos, with brutal killings by rival Shia and Sunni militias. One such Shia militia group, the Mahdi Army, formed by cleric Muqtada al-Sadr in the summer of 2003, has been particularly deadly in its battle against the Sunnis and US and Iraqi forces.⁸ Muqtada al-Sadr has been on everybody's radar, especially after emerging victorious in the elections in Baghdad, winning 40 of the 70 seats taken by the Iraqi National Alliance. His victory was testimony that those who preach political Islam are not yet completely defeated in Iraq, although politicians with similar programmes, like the Iran-backed Ammar al-Hakim of the Supreme Iraqi Islamic Council (SIIC) have suffered a severe reversal of fortunes, losing approximately 70 seats in Parliament, and eight out of 11 provinces.

The Mahdi Army, which led an uprising against the Americans in April-June 2004, was frozen for two years after having been implicated in a sectarian civil war in 2006-07. When Maliki first came to power in May 2006, it helped polish his image in the slums of Baghdad and within strongholds like Mosul, Basra and Karbala. Mahdi Army affiliates were given influential government posts like the Ministries of Health, Education and Commerce, along with 30 seats in Parliament, and a gentleman's agreement to be excluded from any persecution by government authorities for their public carrying of light

8. "Mahdi Army, 2010," *Encyclopædia Britannica*, accessed at <http://www.britannica.com/EBchecked/topic/1293112/Mahdi-Army>, on June 30, 2010.

arms. In exchange, they pledged to uphold Maliki, legitimising him among young Shias who saw him as a political nobody at the time, drumming up support for him in rallies and at public demonstrations against his enemies. The honeymoon between Maliki and the Mahdi Army came to an end in the summer of 2007 over the Prime Minister's refusal to call for a timetable for withdrawal of US troops from Iraq. Since then, although persecuted periodically by government authorities, the Mahdi Army has kept a low profile, invisible on the streets in places other than Sadr City, for example. Muqtada then came out to call on them to freeze all paramilitary activity for a renewable six-month period, hinting at a truce with the central government. Many predicted that Muqtada had unwillingly called on his men to give up their arms, so he could better assimilate with the post-Saddam Hussein order, realising that arms alone, with no diplomatic conduct, would never liberate Iraq from occupation. Muqtada's approval will ultimately make or break any incoming Prime Minister, just as it did with Ibrahim al-Jaafari and Nuri al-Maliki in 2005-06. Coinciding with his recent political victories, Muqtada has announced that his Mahdi Army, which had been frozen for nearly two years, is back in full operation. The Mahdi Army is estimated at anywhere between 10,000-20,000 men. Muqtada has been working hard to transform the Mahdi Army into another Hezbollah, personally inspired by Hassan Nasrallah. He froze all activities of the Mahdi Army, so he could take a long hard look at membership and filter out the indisciplined, the reckless and the corrupt (of whom there were plenty in 2003-07). He went back to the seminary, so he could elevate his academic credentials and rise from the rank of Sayyed to that of Ayatollah (which enables him to issue *fatwas* and grants him greater authority within the Shia community at large). And that explains why, against all odds, he has insisted on refraining from any sectarian rhetoric, copying the Nasrallah model in Lebanon, who always speaks of Lebanon, not of Shias. Muqtada has also copied Hezbollah's massive charity network, monopolising education, hospitals and fund-raising within the Shia districts of Iraq to make sure that no family goes to bed hungry and all receive a monthly stipend from the Mahdi Army. Much like a modern Robin Hood, Muqtada is arming and

The region has myriad combinations of religious, ethnic, ideological, political, economic and even criminal alliances/allegiances between the various groups.

training himself to become spokesmen, defender and leader for the poor of Iraq.⁹

**THE COMPLICATED ALLIANCES/
EQUATIONS BETWEEN DIFFERENT GROUPS**

The region has myriad combinations of religious, ethnic, ideological, political, economic and even criminal alliances/allegiances between the various groups that play a role or *strive* to play

a role in the regional power struggle that goes beyond traditional national boundaries. Some of them are enumerated in the following paragraphs:

- **Religious/ Ethnic Distribution:** Turkey, Syria, Jordan, Egypt and Saudi Arabia form the Sunni majority states, accompanied by the smaller Kuwait, Qatar and Gaza, while Iran and Iraq have a Shia majority, along with Bahrain, and smaller but significant numbers in Eastern Saudi Arabia and parts of Syria and Kuwait. Lebanon has an almost equal number of Sunnis, Shias and a mix of other ethnic groups. The recent rise of Shia power in Iraq and the growing Iranian inclination to exercise influence over them has only complicated the situation, leading to Saudi fears of a Shia dominated Iraq, which would not only assume control over the Sunni regions but also wield greater influence over the sizeable Shia population in the Persian Gulf rim states. This also has implications in the way the different militant groups interact with each other.
- **Inter-State Rivalries:** The various inter-state rivalries have taken a more covert shape of late. Saudi Arabia looks at Iran as a rival for regional leadership; Iranian Shias are hated by the Iraqi Sunnis, who, in turn, are engaged in violent struggles against the Iraqi Shias and the Kurds; the Kurds are at loggerheads with Turkey for its opposition to a Kurdish state; the Kurds hope to maintain their autonomy in oil-rich Northern Iraq, much against the wishes of the Iraqi Sunnis — who dominate central Iraq — but with hardly any natural resources, as the rest of the oil is under

9. Sami Moubayed, Syrian political analyst with Asia Times Online (Holdings) Ltd., accessed at http://www.atimes.com/atimes/Middle_East, on June 30, 2010.

Shia control in the south; the Iraqis are furious with the Syrians for allowing foreign insurgents to cross the borders into Iraq; Israel, on its part, is a sworn enemy of Syria, Iran and Iraq, and faces hostility from Saudi Arabia. The plot only gets thicker when one considers the secondary conflicts between Lebanon, Jordan, Syria, Iraq, Saudi Arabia, Egypt and Iran, combined with the presence of US and Allied troops in the region — in Saudi Arabia and Iraq, which indicates the presence of US intelligence agencies, along with their British, German, French and Israeli counterparts. It would be extremely difficult to monitor on a daily basis who is talking to whom, how and where the funds, arms and drugs are flowing and what is likely to happen the next day.

- **Non-State Militia and Insurgents:** Saudi Arabia has been known to be funding and aiding the Muslim Brotherhood against Egypt, and Hamas in Gaza to wage war against Israel and Jordan. Iran helps Hezbollah in Lebanon fight the Israelis from the north; Hamas and Hezbollah, though belonging to rival Sunni and Shia factions, seem to cooperate in their attacks on Israel. The Saudis have been critical of Iranian support to Hezbollah, as the Saudi reconstruction effort in Lebanon has been bombed by the Israelis in retaliation to attacks by Hezbollah. Egypt has been critical of both Hamas and Hezbollah — Hamas, because it is the Palestinian branch of the Muslim Brotherhood, and Hezbollah, because Hamas has been supporting Hezbollah's attacks which led to military escalation by Israel.

The role of militant groups like Hezbollah, Hamas, or Mahdi Army remains significant.

The Future Scenario

The role of militant groups like Hezbollah, Hamas, or Mahdi Army remains significant. While Hezbollah and Hamas are a thorn in the flesh of Israel, the Mahdi Army remains influential in Iraq, both militarily and politically. The US Army controls only certain urban pockets in Iraq, whereas the Mahdis have access to most rural areas too. The US is not

likely to leave Iraq or Afghanistan in the near future. We will most likely see permanent American bases here even if the US withdraws in 2011 as planned. Looking at the map, one can visualise US Central Command (CENTCOM) headquartered in Qatar, with bases in Afghanistan, Iraq and Pakistan and also in Azerbaijan and other Central Asian countries, with an eye on Russia, China and other important countries. China and Russia are emerging powers competing with the US, and Iran's natural resources are nearby, too. The world's second largest oil and gas reserves are present in Central Asia, and keeping 'peak oil' in mind, the race is on for oil reserves. According to some senior analysts, US bases at Bagram and elsewhere will remain, even if the US and North Atlantic Treaty Organisation (NATO) withdraw, because these bases will be a US check on regional powers. China has invested millions of dollars in Central Asian oil and gas reserves. It sees the American presence in Afghanistan as a direct threat. Anything which happens in the region affects China and its economy. Russia had to fight US proxies in Georgia over the Ceyhan-Baku pipeline to safeguard its interests. Hence, US presence in its area of influence is not welcomed by the Russians either. France and Germany both have been reluctant to send more troops to Afghanistan. The European Union (EU) is emerging as a major economy and has its own strategic perceptions and approaches. India, in the meanwhile, for all its pragmatism in dealing with the US, on the one hand, and the West Asian nations, on the other, has its task quite cut out in striking a balance between its geo-political pragmatism, national interests, role as an emerging power and contender for a permanent seat at the United Nations Security Council (UNSC), its energy security and the lingering Nehruvian legacy image as the erstwhile outspoken leader of the Non-Aligned Movement (NAM) and the Third World countries (an image that is still live in the memory of a lot of developing countries that look up to India for leadership and solidarity).

INDIAN DIASPORA IN THE REGION

Indians in West Asia

There is a huge population of Indians in West Asia, especially in the oil rich monarchies neighbouring the Persian Gulf. Most of them moved to the Gulf after the oil boom to work as labourers and in clerical jobs. However, a significant minority are also employed in the highest echelons of major banks and corporations or have prospered greatly through conducting business in the region. Indians in the Gulf do not normally become citizens. They retain their Indian passports since most of the countries in the Gulf do not provide citizenship or permanent residency. However, the United Arab Emirates and Saudi Arabia now allow limited forms of naturalisation to persons who have stayed in the country for 20 years. One of the major reasons Indians still like to work in the Gulf is because of the tax-free income it provides and its proximity to India.

Migration to the Gulf Countries

The oil boom in the Gulf countries that began in the early 1970s created an explosion in the global labour market. The unprecedented developmental activities that took place in the oil rich countries of the region called for large-scale recruitment of migrant labourers. Iraq, Iran, Yemen and Gulf Cooperation Council (GCC) countries (Saudi Arabia, Kuwait, Qatar, Bahrain, Sultanate of Oman and United Arab Emirates) started recruiting large numbers of skilled, semi-skilled and unskilled labourers and a range of professionals to build their cities and to develop the infrastructure for the developing oil economies.

The general pattern of the migration to Gulf countries was that while most of the top positions in the economy in almost all sectors went to the migrant professionals from the Western nations, the remaining jobs had to be shared by migrants from the rest of the world, mainly from South and Southeast Asia, Egypt, Sudan, Palestine, Lebanon and Syria. With the exception of Iraq and Iran where educated professionals for the top positions were available locally, most other nations in West Asia followed

this pattern. Even within this non-white employment sector, most of the unskilled or semi-skilled jobs were reserved for migrants from South and Southeast Asia. By the late 1980s, nearly 80 percent of the total migrant population in the GCC countries, *which was substantially higher than the native Arab population*, were migrant labourers from India, Pakistan, Bangladesh, Nepal, Sri Lanka, Philippines, Thailand and Indonesia. According to the Report of the High Level Committee on the Indian diaspora by the Ministry of External Affairs in 2003, there are nearly three million migrant labourers working and living in these six GCC countries. Nearly 70 percent of this migrant community hails from the state of Kerala. Nearly 70 percent of these migrants in the GCC are semi-skilled or unskilled labourers. After three and half decades of labour export, the state of Kerala continues to be the leader in this trade.

This emigration is voluntary in nature, but its trends and conditions are determined by labour market vagaries. It is a predominantly male migration, characterised by uninterrupted ties with the families and communities back in India. This cannot be otherwise as in most of the West Asian countries, the immigrant labourers cannot settle down, and have neither property rights nor the freedom to practise their own religion (other than Islam).

Gulf Indians and their Condition

There is a huge population of Indians in West Asia, most coming from Kerala and other South Indian states, especially in the oil rich countries neighbouring the Persian Gulf. One of the major reasons why Indians like to work in the Gulf is because it provides incomes many times over for the same type of job back in India and for its geographical proximity to India. The Indian diaspora makes up a good proportion of the working class in the GCC. In 2005, about 40 percent of the population in the United Arab Emirates was of Indian descent. The GCC states include Saudi Arabia, Kuwait, Bahrain, Qatar, United Arab Emirates (UAE) and Oman. The Non-Resident Indian (NRI) population in these countries is estimated to be around 6,000,000 (2006-07), of whom over 1,500,000 stay in the UAE. A majority of them originate from Kerala, Andhra Pradesh, Karnataka and

Tamil Nadu. The NRI population tends to save and remit a considerable amount to their dependents in India. It is estimated that such remittances may be over US \$40 billion per annum (including remittances by formal and informal channels).

A generation ago, George Lamming wrote that Indian hands had humanised the landscapes of much of the Caribbean and put food on dinner tables. 'Coolie' labour, as it was once called, built Trinidad, Guyana, and Surinam — and, of course, places far beyond the Caribbean. The system of indentured labour officially came to a close in 1917, but the sorry state of Indians, Pakistanis, and Bangladeshis in the Gulf today suggests that its modern-day incarnations are very much alive; if anything, amidst the hullabaloo over globalisation, human rights, and 'India Shining', the contract labourers of today have less visibility and fewer people advocating their rights.

The newspapers reported a few years ago that 4,000 South Asian workers in Dubai faced deportation. Dubai is the international face of the UAE, a federation of seven autonomous states. Flush with oil money over the last few decades, the UAE has spared no expense to transform the desert kingdoms into contemporary hubs of leisure, travel, and business. Millions of Indians, Bangladeshis, and Pakistanis have turned Dubai into a glittering metropolis, home to the world's tallest building, super luxury homes and hotels, and artificial islands for water sports. Despite the recent meltdown, Dubai appears to be a city dedicated to bringing cheer to those who are desirous of nothing more lofty than giving truth to the expression: 'shop till you drop dead'. Models, movie stars, media moguls, and others of the high social set increasingly frequent Dubai and the Gulf states. However, the 'native' and foreign elites are vastly outnumbered by, and parasitic on, an immense labour force that is largely of South Asian origin. The UAE presently has about 1.5 million South Asians employed as contract labourers, the bulk of them engaged in construction work. Human Rights Watch has described their working conditions in a report as "less than human" and has called upon the governments of the UAE to end abusive labour practices. The 4,000 South Asians who faced deportation were charged with acts of

vandalism, but their real offence was to have struck work over poor wages and exploitative working conditions. The UAE does not recognise the right to strike and unions are illegal. Salaries in the UAE for contract labourers range from about 500 to 1000 dirhams (\$136-270) a month.

The term NRI purports to be neutral, and India has lately (for instance, through the device of the annual gatherings called the Pravasi Bharatiya Divas) claimed all its children overseas as its own, but the truth of the matter is that the Indian government, has seldom been attentive to the plight of Indians in countries where they were brought over as indentured labourers. Apologists will point to the Memorandum of Understanding signed between the Government of India and the United Arab Emirates in December 2006 that obligates the two governments to ensure the welfare and protection of Indian workers. This area needs careful and progressive effort – as even if there are military solutions to some contingencies like large scale evacuation, both Indian defence forces and the political leadership are not prepared either in terms of physical resources or political will. Both the evacuation during the Gulf War, 1991, and the Male operation were carried out under very different circumstances and would be an incorrect precedence in today's context. At the same time, India needs to be more assertive diplomatically in dealing with issues pertaining to Indian citizens/ Persons of Indian Origin (PIOs) residing abroad, else incidents like the ones in Australia and the UAE will keep recurring. In other words, greater coercive use of Indian diplomatic and economic leverages is required to support the Indian community abroad, while maintaining 'cordial relations' with the nation concerned.

The Future of Indians in the Diaspora

Though Indians lived under conditions of appalling poverty in many places of the world where they were first taken as indentured labour, a number of remarkable transformations were effected over two or three generations. Through sheer perseverance, labour, and thrift, and most significantly by a calculated withdrawal into their culture in which they found forces of sustenance, these Indians successfully laboured to give their children and

grandchildren better economic futures, and they in time came to capture the trade and commerce of their new homelands. This was just as true in South Africa, Kenya, and Uganda as it was in Trinidad, Mauritius, and Burma. In Trinidad, though the minuscule population of whites continues today to control the banks and financial services, the Indians dominate in industry and entrepreneurial enterprises. Their affluence in such countries as the United States is even more pronounced, as is their presence within the professions. Indians account for well over 5 percent of the scientists, engineers, and software specialists; and no group, except whites, Japanese, and Jewish people, has a higher per capita income than Indians. However, in Africa, wherever Indians were able to establish themselves, they became indispensable as the principal arteries of trade, shopkeepers to the nation, and so opened themselves to the charge that they had done so by illicit activities, by marginalising the local population, and with no other thought than of enhancing their own interests and prosperity. These charges were, more often than not, preposterous and, in any case, could scarcely have justified the cruel and brutal treatment meted out to Indians in such places as Uganda, from where Idi Amin effected their wholesale and immediate removal, or Kenya, from where their eviction was only slightly less callous.

Thus, the position of Indians overseas has always been precarious, and this problem was underlined soon after Burma attained independence in 1948. Indians were prominent property owners, and significant in business and trading circles; their property was appropriated by the state, their possessions confiscated, and many Indians were exiled. When the Indian community appealed to Nehru for assistance, he took the position that this was a matter between them and the Burmese state, and India was unable to intervene in the internal affairs of a foreign state; moreover, Indians who had been settled overseas were to reconcile themselves to the fact that, having abjured Indian citizenship, they had no substantial claims on India. This has, in effect, been the position of successive Indian governments to this day, though, as India acquires more muscle power, or certainly imagines itself to be a major player on the world scene, there is no gainsaying that

The question of what must be the relationship between overseas Indians, whether citizens of India or of another nation, and the Indian government is one that knows of no easy solution.

the Indian government might not attempt to use its influence to protect the lives and interests of those who, though they may not be Indian citizens, are Indians in ancestry.

Where Indians have gone as labourers on short-term work permits, as is the case with Indian migration to the Middle East, the Indian government is duty bound to lodge, whenever necessary, protests over their ill-treatment, or to otherwise act to protect their lives and property.

In the days subsequent to Kuwait's invasion of Iraq in 1990, and before the beginning of the war between Iraq and the US in 1991, the Indian government took upon itself the mammoth task of evacuating the greater part of the Middle East's Indian population, and it did so at the request of a panic-stricken people who could claim their Indian citizenship as a passport to safety. That most of these Indians have returned to the Gulf is another story, but the question of what must be the relationship between overseas Indians, whether citizens of India or of another nation, and the Indian government is one that knows of no easy solution. The dissolution of a democratically-elected government, as in Fiji, for no other reason than that it was headed by an Indian, even in a country where they predominate, points to the fragile position of Indians, and the discriminatory and blatantly racist mechanisms deployed to keep them subjugated.

However tempting it might be for the Indian government to intervene to protect the interests of Indians who are foreign nationals, the brute fact remains that India can do little more than indicate its displeasure with the allegedly offending party. It is for Indians in the diaspora to forge links between themselves, to enter into coalitions with other minorities and marginalised people, and more significantly, to formulate for themselves moral, sensitive, and democratic politics.

INDIA'S WEST-ASIA POLICY

India has traditionally pursued a pro-Arab policy regarding the Arab-Israeli conflict in order to counteract Pakistani influence in the region and to secure access to Middle East petroleum resources. In the 1950s and early 1960s, this pro-Arab stance may not have helped India in establishing good relations with all the Arab countries but it served to keep peace with its own Muslim minority. India concentrated on developing a close relationship with Egypt on the strength of Nehru's ties with Egyptian President Gamal Abdul Nasser. But the New Delhi-Cairo friendship was insufficient to counteract Arab sympathy for Pakistan in its dispute with India. Furthermore, Indian-Egyptian ties came at the expense of cultivating relations with such countries as Saudi Arabia and Jordan and, thus, limited India's influence in the region.

In the late 1960s and in the 1970s, India successfully improved bilateral relations by developing mutually beneficial economic exchanges with a number of Islamic countries, particularly Iran, Iraq, Saudi Arabia, and the other Persian Gulf states. The strength of India's economic ties enabled it to build strong relationships with Iran and Iraq, which helped India weather the displeasure of the Islamic countries stemming from India's war with Pakistan in 1971. Indian-Middle Eastern relations were further strengthened by New Delhi's anti-Israeli stance in the Arab-Israeli Wars of 1967 and 1973 and its support for the four-fold oil price rise in 1973 by the Organisation of Petroleum Exporting Countries (OPEC). Closer ties with the Middle Eastern countries were dictated by India's dependency on petroleum imports. Oil represented 8 percent of India's total imports in 1971; 42 percent in 1981; and 28 percent in 1991. India purchased oil from Iran, Iraq, Saudi Arabia, the United Arab Emirates, and Kuwait and, in return, provided engineering services, manufactured goods, and labour. The 1980-88 Iran-Iraq War forced India to shift its oil purchases from Iran and Iraq to Saudi Arabia and the Persian Gulf states. Saudi Arabia and the Gulf states also have received large numbers of Indian workers and manufacturers and have become the regional base for Indian business operations.

New Delhi took a position of neutrality in the Iran-Iraq War, maintained warm ties with Baghdad, and built workable political and economic relations with Tehran despite misgivings about the foreign policy goals of the Khomeini regime.

Two events in 1978 and 1979 — the installation of the Islamic regime under Ayatollah Ruhollah Khomeini in Iran and the Soviet invasion of Afghanistan in support of the pro-Soviet Marxist regime in Kabul — complicated India's relations with the Middle East countries. From the Indian perspective, these two events and the Iran-Iraq War changed the balance of power in West Asia by weakening Iran as a regional power and a potential supporter of Pakistan, a situation favourable to India. At the same time, proxy superpower competition in Afghanistan strengthened the hand of India's adversary Pakistan by virtue of the military support Pakistan received from the United States, China, and the Arab states led by Saudi Arabia. In the 1980s, India performed a delicate diplomatic balancing act. New Delhi took a position of neutrality in the Iran-Iraq War, maintained warm ties with Baghdad, and built workable political and economic relations with Tehran despite misgivings about the foreign policy goals of the Khomeini regime. India managed to improve relations with the Middle Eastern countries that provided support to the Afghan Mujahideen and Pakistan by redirecting Indian petroleum purchases to Saudi Arabia and the Persian Gulf countries. New Delhi, which had traditionally had close relations with Kabul, condemned the Soviet invasion only in the most perfunctory manner and provided diplomatic, economic, and logistic support for the Marxist regime.

In the early 1990s, India stepped back from its staunch anti-Israeli stance and support for the Palestinian cause. Besides practical economic and security considerations in the post-Cold War world, domestic politics played a role in this reversal. In December 1991, India voted with the UN majority to repeal the UN resolution equating Zionism with racism. In 1992, following the example of the Soviet Union and China, India established diplomatic relations with Israel.

During the 1990-91 Persian Gulf War, Indian policy-makers were torn between adopting a traditional non-aligned policy sympathetic to Iraq or favouring the coalition of moderate Arab and Western countries that could benefit Indian security and economic interests. India initially adopted an ambivalent approach, condemning both the Iraqi invasion of Kuwait and the intrusion of external forces into the region. Under a minority government in November 1990, the Indian response changed. Wary of incurring the displeasure of the United States and other Western nations on whom India depended to obtain assistance from the International Monetary Fund, India voted for the UN resolution authorising the use of force to expel Iraqi troops from Kuwait and rejected Iraq's linkage of the Kuwaiti and Palestinian problems. In January 1991, India also permitted United States military aircraft to refuel in Bombay. The refuelling decision stirred such domestic controversy that the government withdrew the refuelling privileges in February 1991 to deflect the criticism of the Congress, which argued that India's nominal pro-United States tilt had betrayed the country's non-aligned principles. Today, under the same Congress, we are probably closer than ever before to the US. Hence, Indian strategic alignments can be said to have been pragmatic and evolving with time, despite domestic vote-bank politics.¹⁰

CONCLUSION

India, soon after attaining independence in 1947, became the voice of the underdeveloped Third World under Pandit Jawaharlal Nehru and remained so under the banner of NAM. The Nehruvian policies were probably apt for the 1950s and 1960s, but the legacy continued till much later. Due to this political posture, India sacrificed an offer to become a part of the Security Council in favour of China (which paid back the goodwill gesture in its own way — in 1962); India continued holding the Third World/NAM banner at its own cost through to the 1980s, suffered post 1974 and 1998 sanctions on its own, and once again stood alone and isolated (except by the

10. Dr Subhash Kapila, "India's Foreign Policy Challenges 2005: A Perspective Analysis", available at: <http://www.southasiaanalysis.org/papers13/paper1223.html>, as accessed on July 1, 2010

The dynamics of instability and conflict in West Asia remain volatile as ever. US Army presence in the region, bracketing Iran from both West and East has complicated the scenario further.

USSR) after the 1971 liberation of Bangladesh. In 1991, India had just over US \$1 billion worth of forex reserves, resulting in a paradigm shift in not only India's economic policy, but also its foreign policy and posture towards the US and the West in general. The pro-Arab and anti-West stance thus stood modified, and since then, India's foreign policy has trod a pragmatic path, dictated by its economic policy as well as an awakening that the times had changed and India could (and should) start thinking in terms

of becoming a regional power, with global impact, if not aspirations.

The dynamics of instability and conflict in West Asia remain as volatile as ever. US Army presence in the region, bracketing Iran from both West and East, has complicated the scenario further. Iran's stand with respect to its nuclear programme has put India in a tricky situation diplomatically, as it clashes with Indian aspirations to become a nuclear fuel supplier, and its stand on non-proliferation. In recent times, there has been an increased effort by the Indian diplomacy to engage both Shia and Sunni Arab Gulf nations through bilateral talks on trade, oil exploration, infrastructure building and related issues. India has been engaged with Saudi Arabia and UAE despite knowledge of their ties with the Taliban. India's Foreign Minister and Ministry officials have visited a few countries in the region in an effort to improve bilateral understanding on various issues, including India's stand on nuclear proliferation. There has been increased cooperation with the region on the issues of extradition, sharing data on crime, etc. However, the dynamics of the region are such that alignments and power equations change without much warning, and require a constant focus to achieve a semblance of continuity and balance in the ever-changing game.

India's growing diaspora in the West Asian countries — especially the Persian Gulf nations — poses a problem in terms of support (both diplomatic as well as emotional) to the large expatriate population there. The dollar remittances notwithstanding, in today's well-connected world,

any untoward incident involving the Indian population abroad has the potential to become a media story, and perceived inaction on the part of the Indian government could have serious repercussions back home — disturbing both the political and law and order situations. India's foreign policy planners for West Asia also face a big challenge in keeping alive its good relations with Iran in the face of stiff opposition from the United States. The United States — till such time it militarily intervenes in Iran (prevented by its military overstretch and public opinion back home) — has embarked on international isolation of Iran. India should not be a part of any such effort. Both India and Iran must continue to pursue vigorously the thrust enshrined in the Tehran and Delhi Declarations. For different reasons, Israel and Iran assist India's natural security interests and these two should be the focus of India's foreign policy. The old adage in foreign affairs stipulates that *a nation does not have permanent friends or foes; only permanent national interests*.

Thus, India's policy options would be governed by the need to create an atmosphere of confidence amongst the West Asian nations regarding India's stand on various issues, be proactive in dealing with the problems of its large expatriate population in the region, ensure its trade and energy security, while, at the same time, be pragmatic enough to stay clear of alliances with a potential for international dispute. The real test of India as a future regional and economic power would lie in its deft handling of the issues that plague the West Asian region, while maintaining its own national objectives and interests, both medium and long-term.

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