



# ***AIR POWER***

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## **AIR POWER**

CENTRE FOR AIR POWER STUDIES

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# CONTENTS

Vol. 5 No. 2, Summer 2010 (April-June)

## Editor's Note

VII

### 1. ON AIR POWER

1

Recorded speech by Wing Commander **K.K. "Jumbo Majumdar**, DFC and Bar, delivered in February 1945. Jumbo died a few days later in a crash while demonstrating low level aerobatics at Walton airfield near Lahore. One of great pioneers of the Indian Air Force, he had earned his DFC both on the Burma front as well as in Europe. In the brief speech directed at the youth of India, Jumbo argues for the importance of air power and the young men to join the (then Royal) Indian Air Force.

### 2. AIR DOMINANCE AND THE FUTURE OF AIR POWER

5

In this essay, Air Commodore **Jasjit Singh** (Retd) argues that the concept of air superiority was given up by most air forces after World War II and the atomic bombing of Hiroshima and Nagasaki, except some like air forces like the US Air Force and the Israeli Air Force. Most other countries, including India, adopted the more limited concept of "favourable air situation", thus, diluting the concept of air superiority. The Indian Air Force has embraced air superiority only recently and, in fact, has gone over to the term air dominance. But air dominance today goes beyond air-to-air dominance and can be most effective in air-to-surface dominance, provided technology and organisation (especially for air intelligence) are planned for, and possessed, during peace-time.

### 3. INTEGRATION OF MoD AND DEFENCE PLANNING

25

The Indian defence organisation has moved quite a distance away from what was established soon after independence, which was similar to that

of the UK (also parliamentary democracy) and, with minor differences, that of the United States. Central to the higher defence organisation of other democracies is the integrated Ministry of Defence (Department of Defence in the US) which is manned jointly by civil and military professionals. Wing Commander **R. Venkataraman** examines the role and effect of an integrated Ministry of Defence on defence planning, budgeting and procurement, the key responsibilities of the higher defence organisation of a state.

**4. ASIA IN THE DEBATE ON AMERICAN GRAND STRATEGY 53**

Dr. **Michael J. Green** examines the place and role of Asia in the debate on American grand strategy. Although he, like many Americans and East Asians, perceives Asia as the region of the continent east of India, American strategy in this limited framework is naturally of great importance to India since it includes China and Japan, where the former has been pursuing policies to undermine US global and regional strategies.

**5. DEFENCE COOPERATION: A CASE STUDY OF INDIA AND SINGAPORE 73**

Cooperation between Singapore and India has been growing in diverse ways and is being strengthened in diverse fields. **Pankaj Jha** and **Rahul Mishra** have jointly examined the extent and areas of cooperation between the two countries in the field of defence. This itself indicates the depth of political convergence of interests reached between them. More important, perhaps, is the indication of the great potential that lies ahead to strengthen the bilateral political-strategic partnership through defence cooperation, besides other measures.

**6. AFGHANISTAN AND THE AMERICAN STRATEGIC PERSPECTIVE 97**

Afghanistan has often been termed as the “graveyard of empires” for a variety of reasons not the least being the fierce pride and sense of

independence of the country built on the bricks of tribal loyalties which may be in conflict among themselves but would come together to oppose the intruder. The Cold War goal of hitting at the Soviet “soft underbelly” in Central Asia and exploiting its energy resources, and its linkage with the agenda of the Pakistani leadership seeking to control the country through an unexplained “strategic depth” to bolster its own strength against India, has resulted in a war that has actually gone on since the 1970s and shows little signs of winding down. In this sensitive piece, Dr. **Sanjeev Bhaduria** searches for the geo-political dynamics of the American strategic perspective of this troubled land where great games have become as common as Buzkashi.

#### **7. CHALLENGE FOR THE INDIAN MILITARY:**

##### **MANAGING OZONE DEPLETING SUBSTANCES** 117

The Montreal Convention had concluded that eliminating Ozone Depleting Substances (ODS) would be a necessary measure to protect the ozone layer so crucial to human and plant life on earth but endangered by numerous substances that deplete it. Wing Commander **Manoj Kumar**, in his landmark study, charts out the challenge posed by the extensive use of ODS in the legacy systems of the armed forces and, at the same time, the challenges posed by the appropriate responses as they concern the Indian armed forces. His work forms part of the project on “Environmental Security and the Armed Forces” at this Centre.

#### **8. GEO-POLITICS OF THE GULF 1971-1991** 151

The British Empire, the sole superpower, even though it was declining, in the early decades of the 20<sup>th</sup> century, had arbitrarily rearranged the traditional regimes and national boundaries when oil was being discovered in the desert regions on either side of the Gulf. In due course, this was to lead to a major impact on the geo-politics and security of the Gulf when the United States replaced Britain as the Anglo-Saxon superpower. The West became even more worried about the rival superpower, the Soviet Union, whose borders impinged on the littoral

of the Gulf from the north. Commodore **M.R. Khan**, IN, examines the evolving geo-politics of the region consequent to the withdrawal of the British from East of Suez and the rise of American strategy as oil became a weapon after the 1973 Yom Kippur War.

#### ERRATA

The Editor of *Air Power Journal* noted the following errors in Vol.5, No.1, Spring 2010 (January – March) issue

1. On the front cover one of the contributors instead Wing Commander M K Sharma it is wrongly mentioned as Wing Commander S K Sharma.
2. On the contents page no. iv the contributor for the article *Cyber Space Vulnerabilities and Challenges: Threats to National Security Dynamics* is Wg Cdr M K Sharma and not Wing Commander S K Sharma.
3. The article *Cyber Space Vulnerabilities and Challenges: Threats to National Security Dynamics* was contributed by Wg Cdr M K Sharma and not Col S K Sharma. Wg Cdr M K Sharma is a Research Fellow at the Centre for Air Power Studies, New Delhi

Errors are regretted.



## EDITOR'S NOTE

Looking back at the history of the Indian Air Force (IAF) one would come across two significant, even if small, events. One was the evolution of close air support which evolved in 1936 while No1 Squadron, the only one at that time constituting the Air Force, operated against the tribal rebellion. This was to set the thinking and pace of the concept of support to the ground forces and was refined with the passage of decades of advances in technology and growth of the Air Force. The second was the first operational sortie in World War II when then Squadron Leader K.K. "Jumbo" Majumdar commanding No 1 Squadron, took off from Tongou (in Eastern Burma) in an obsolete Lysander reconnaissance aircraft locally modified by the Indian airmen to carry two 250 lb bombs and bombed the Japanese Air Force base at Mae-Haungsaun on February 2, 1942, causing extensive damage, without any loss of life. This first bombing sortie became the first counter-air mission in a regular war against the powerful Japanese Air Force. This, in turn, generated the belief in counter-air power and the concept of air superiority although the IAF aircraft were ill suited for this role in those days.

By a curious set of circumstances, last year the Centre organised an international seminar titled "Air Dominance" on February 2-3, to commemorate the day Jumbo bombed the Japanese in 1942. This year, we held the second of this series on February 2-3, under the title "Future of Air Power." We were fortunate that Shri Nanda of Avi Oil provided us with

a speech of Jumbo Majumdar recorded a few days before his fatal crash in 1945. This is reproduced as the opening article in this volume. We are glad that late Wing Commander Majumdar's son, "Bemby" flew down from the UK to attend the seminar. Jumbo's historic bombing of the Japanese air base was a long time ago and would appear to be a small step. But as the Chinese proverb says, "A journey of a thousand miles starts with a single step." Jumbo's single step has now led the IAF to adopt the doctrine of air dominance.

Air dominance, both air-to-air and air-to-surface, points to the direction aerospace power would take in the coming years because of technological advances in a variety of areas that can be synergised to produce effect-based, long-range precision strikes, altering the very way war would be fought in the future. The air force that can synergise its weapons and equipment to this doctrine would inevitably have a strategic superiority not only against the opposing air force but also the adversary's ground forces and naval power.

# ON AIR POWER

**K.K. MAJUMDAR**

May I begin by saying, I am very glad to talk to you this evening. The Indian Air Force is travelling across India to meet young Indians and students, and spread the doctrine of the air. The first question that comes to mind is: why are so many officers and pilots doing this instead of fighting against the enemy? The reason is, all the officers and pilots have recently spent many months in operations against the enemy and are now having a rest. They are utilising the rest period to go around and meet the young men of India and tell them something about the Indian Air Force. If you remember the spate of war more than five years ago, if you recall the events that had taken place and the general course of the war, you will find that the strategy of war had been controlled by balance of air power. It was air power which enabled the Germans to destroy the Polish state and the Polish Army. It was air power which enabled them to fight a very successful campaign in Norway in the face of various powers. It was air power which led to the German victory in Western Europe and the destruction of the Allied Army on the mainland of Europe. Then came a bitter struggle for air power between the League air power and the Royal Air Force in the skies of Britain. The outcome was the defeat of Germany in the air over England and the Channel. The loss of air superiority by the Germans resulted in their inability to carry out the invasion of Britain. Similarly, in the Pacific, it was an overwhelming, unexpected concentration of Japanese air power,

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\* Recorded Speech by the Late Wing Commander **K.K. "JUMBO" Majumdar**, DFC & Bar, in February 1945.

**If you remember the spate of war more than five years ago, if you recall the events that had taken place and the general course of the war, you will find that the strategy of war had been controlled by balance of air power.**

which led to the destruction of large parts of the American Fleet, at Pearl Harbour; it was air power which enabled the Japanese to take on the British Fleet in the Eastern waters. That proved the air superiority, and the Japanese were able to gather up in the areas of Indo-China, Malaya, the Philippines, Burma, which fell into their hands like dry fruits. On the Eastern front, it was air power which enabled the German Army to drive relentlessly on to part of Russia.

Then came a period when the Allies rebuilt and regrouped their air forces and put the crème of their engineering skill into them. After bitter fighting in the air, the Allies gradually built up air superiority over the enemy, and from air superiority, they developed air supremacy. The Allied air efforts gradually equalled and then outstripped enemy air efforts — outstripped them 5, 10, 20 times. That is why the Japanese never entered India. That is why the Germans could be driven out of Africa. That is why the Allied Army was able to land successfully on the continent of Europe and drive the Germans out of the front. That is why the Americans drew back in Miranda and that is why the Russian Army was free to walk into Germany.

The lesson from this is: **if India has ever to become a great nation, we must have air power.** Air power must include a good Air Force, good airfields, systematic aviation, and a large aircraft industry; above all, we must have good airmen and good leaders in the air. It takes weeks to build an airfield, months to build aeroplanes, but it takes years to build leaders. That is why we are travelling around India and meeting the students. It is our hope to find among you some of those men India will need in the future to lead and direct our air power. Every service benefits from good leaders, but for a fighting service, they are essential. The Indian Air Force has expanded much since the war and our squadrons have done well against the enemy. But the limiting factor in our ability to expand and develop is the lack of young Indians and par excellence leadership.

Leadership requires the qualities of initiative, character, energy, determination. We have to find some among you with these qualities. We do not expect all of you to join the Air Force here and now. But if we have framed the steel of air-mindedness in your hearts and minds, and if we find a few of those who have the urge, we should be satisfied. Flying is a strange and novel idea to many people. For those who wish to take it up as a career must face a great deal of opposition and prejudice in their homes. This and some other qualities form squadron leaders. For those of you who are interested, a special officer has been deputed to offer you information and advice. He is known as the IAF General Duty Recruiting Officer and you can always get in touch with him at 22, Harrison Road. The Indian Air Force offers a happy life and a good career in a new field of human activity. If any of you should come forward for those motives alone, I would not advise you to go further. You would be fundamentally unsuitable to yourself. **Those alone who seek to serve the nation out of a spirit of patriotism and adventure will find fulfilment in the air.**

Finally, I would like you to meet the officers of the Indian Air Force in a place like this when they come to your town. They were all in combat against the Japanese. Some of them are dead; they have been killed by the Japanese. On the other hand, a great many Japanese are also dead; they have been killed by these young Indians. You will see these officers are just like your parents. They have the same rig and the same background. It is very encouraging to see that young Indians can do these things as well as any other young men in the world. What they have done, you can do. I hope, some day, I have the pleasure of seeing some of you in the Air Force.



# AIR DOMINANCE AND THE FUTURE OF AIR POWER

JASJIT SINGH

An air campaign must consist of three phases, corresponding to the three priorities:

*First Priority:* To gain the necessary degree of air superiority. This will be accomplished by attacks against aircraft in the air and on the ground, and against those enemy installations which he requires for the application of air power.

*Second Priority:* To prevent the movement of hostile troops and supplies into the theatre of operations or within the theatre.

*Third Priority:* To participate in a combined effort of the air and ground forces, in the battle area, to gain objectives on the immediate front of the ground forces.

— US Army Air Force FM 100-20, 1943<sup>1</sup>

The doctrine that was spelt out by the US War Department was born out of the extensive experience during World War II by army officers and would not undergo any substantive change over the following decades even though some of the details and vocabulary got modified, especially in respect of the

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1. US War Department, Field Manual FM 100-20, *Command and Employment of Air Power*, (Washington DC, July 1943), pp. 10-11.

third priority after the experience of providing close air support during the Korean War. It was also well understood that the prioritisation, as indicated above, was for guidance and not rigidly linear. For example, the Israeli Air Force, whose doctrine closely followed the tenets of FM 100-20, threw in most of its air force for attacking the Arab Armies which had managed to launch a surprise land offensive, especially with Egyptian armour having crossed the Suez Canal in the 1973 Yom Kipper War. The Indian Air Force, which did not have a written doctrine at that stage, opened its account in a world war with counter-air missions by attacking Japanese air bases across the Burma border in Thailand in early February 1942 with slow reconnaissance aircraft. But it had no hesitation to send in the available force of lower technology with a setting sun to stem the Pakistani “Grand Slam” [covered by F-86s and F-104 Combat Air Patrols (CAPs)] heavy armour-artillery surprise thrust across the border and bringing it to a halt on September 1, 1965, losing four aircraft (1/7<sup>th</sup> of the attacking force) in the process.

We do not wish to enter into a discussion of the relative merits or demerits of air superiority and offensive air support (through interdiction and or close support) in this study, but will try to make an assessment of the technological and operational changes taking place that would make it possible in future to gain air dominance, not only in aerial warfare but also in air-to-surface warfare.

### **SEMANTICS AND SUBSTANCE**

The continuously changing nature of war in history has been mostly driven by changes in technology and our understanding of the changes it brings into war-fighting. Hence, the terminologies in the military forces of the world also change, often more than war itself, mostly even introducing esoteric vocabulary. The term “air dominance” in this context is of comparatively recent origin. In some respects, people are correlating it to the terminology of the early decades of air power in the early 20<sup>th</sup> century when overly optimistic assumptions about air power, the new weapon in the henceforth unconquered medium of the band of air above the earth’s surface, that had

not ever before been fully exploited, led to the use of the term “command of the air” which would allow direct attacks on the enemy’s centres of population and industry, forcing it to collapse, instead of having to defeat its armies (and/or naval forces) mile upon mile while marching up to the capital to change the regime. The concept of command of the air also assumed that air power could overwhelm the enemy completely, and there may even be no need for a ground war. To a large extent, this actually represented not so much the realities of air power at that time, but the hopes and perhaps even aspirational thinking of nations and their strategic thinkers who had watched the horrors of bloody massacre of the then modern weapons like machine-guns, etc, during the land battles of World War I in Europe, where casualties were counted in each battle in tens of thousands per day.

However, by the time World War II broke out, the concept had been watered down somewhat to a more realistic “air superiority” and attacks on the enemy homeland and surface targets were brought under the label of strategic bombing offensive which was to subdue the enemy and its economic-industrial assets. All air warfare was not similar; different technology, tactics and training produced results which seemed to justify the concept of air superiority. It is worth recalling in this context that the German offensive in 1941 had led to the Soviet Air Force losing 40,000 aircraft in one week to the Luftwaffe. By the time World War II ended, the term command of the air had completely disappeared, being perceived as unachievable (due to the shrinking of air forces), unnecessary (in view of nuclear weapons achieving far more with much less to subdue the enemy), and unaffordable (due to the rising costs of air power systems).

The dawn of the nuclear age since Hiroshima and Nagasaki brought about another change in the doctrine of air power. Strategic bombing was now seen to be co-terminus with nuclear strike (initially with aircraft and later joined by ballistic missiles, both land-based and sea-based) and nations came to believe that in the nuclear age, there would not be enough time or capability to even fight the battles for air superiority, leave alone achieve it. Advances in technology and the concurrent higher costs of aircraft and their weapons had begun to reduce the size of air forces down from tens of thousands in the

most powerful countries to a few thousands though far more capable aircraft. The inventory of a few hundred combat aircraft in the air forces of the middle powers, along with improvements in radar, etc., reduced the potential for aerial engagements. The demands on air forces for support of land forces, if anything, increased if for no other reason than technological advances which had also increased the firepower and mobility of ground forces, in a way making them more vulnerable to attack from the air.

The war in Korea took place during the twilight period when nuclear weapons had not begun to completely dominate strategic thinking across the world. For the US/UN Command, eliminating the North Korean Air Force was a necessary starting point for its own air campaign, but in itself, it was insufficient to ensure air supremacy. Ground-based air defence systems remained a constant danger and ultimately accounted for 816 of the 1,041 UN Command aircraft lost to enemy action.<sup>2</sup> Of the remaining 225, as many as 147 were shot down in air-to-air combat and 78 lost to other enemy action. US fighters also made a seminal contribution to the war on the ground. The US Air Force (USAF) alone flew seven close support and interdiction missions for every counter-air (including air-to-air) mission.<sup>3</sup> But this ratio must be seen against the reality that the US/UN Command possessed air dominance rapidly after the war started because the North Korean Air Force had been destroyed completely very early in the war and the Chinese Air Force intervention, relying on bases inside China, had remained geographically limited to what came to be known as the “MiG Alley” extending to a maximum of around 150 km from the Chinese border. By that time, the ground war had settled down to the 33<sup>rd</sup> Parallel, the original ceasefire line between the two Koreas. In view of a negligible air threat, except for the MiG-15 farther north, this also allowed the US/UN Command to concentrate heavily on offensive air support and interdiction to the land forces even with daylight bomber attacks on targets in North Korea. According to Futrell, “The Chinese recognised that they had failed

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2. Robert F. Futrell, *The United States Air Force in Korea 1950-1953* (Washington DC: Office of Air Force History, Revised Edition, 1983) p. 692.

3. This is generally similar to what the Indian Air Force flew in 1971.

on the ground in January 1951 because they had failed in the air.”<sup>4</sup> But the same could be said for the US/UN Command at that stage.

The reality was that the ground war was stalemated, and for the next two years, the two sides were left with no option but to engage each other in a classical battle for command of the air. And even here, the exchange ratio was almost even. The Chinese could not provide direct support to their ground forces because the battle front was beyond the radius of action of the MiG-15s, nor

could they establish airfields in northern Korea because of the US/UN Command bombing and strike missions. And the US/UN Command could not cross the Yalu River due to political-strategic constraints (especially after Gen MacArthur was removed from command), thus, making the Korean War in reality a limited war since the primary players on either side, the US and USSR, were both nuclear armed. The final outcome of the air war in Korea was then narrowed down to calculations of the exchange ratio where the US/UN Command did not necessarily and unambiguously come out on top even after deploying the latest F-86s against the Russian/Chinese MiG-15.

Since then, with nuclear weapons ready to be launched to even destroy the world, based on various factors for one reason or the other, the term air superiority appeared to be an idle luxury in spite of the fundamental realities having remained unchanged. The Western strategic thought and literature started to believe that nations that did not possess nuclear weapons were not expected to prosecute what was believed to be a prolonged conflict if air superiority was to be achieved. Overall, the lack of time to wage a long struggle in the air, the air space having been made more transparent by radar, and lack of such capacity in war-torn nations was believed to have made the battle for air superiority ephemeral. The concepts accordingly got altered and the best outcome in employment of air power in air warfare was seen as creating a “favourable air situation.” This is what the staff colleges started to teach

**The reality was that the ground war was stalemated, and for the next two years, the two sides were left with no option but to engage each other in a classical battle for command of the air.**

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4. Futrell, n. 2, p. 285.

**The Battle of Britain has been seen as, written about, and honestly believed to be, the epitome of air superiority.**

and air forces started to believe in. Of course, it could never be clearly defined what this term “favourable” implied; and in what time and space paradigm this could work. If it meant that the hostile air force would be forced on the defensive, thus, providing favourable advantage to own air force, then it was no different from the concept of air superiority. In that case, the issue was merely one of scale rather than concept.

But semantics have a strong influence on actions and the substance of war. A combat campaign aim circumscribed by semantics instead of concepts would be very likely to limit the scope and the ways and means of the desired end, in turn, affecting the achievement of the substantive aim which, in this case, would be dominance over the other air force, especially its offensive power.

Air superiority was not necessarily meant to be achieved as a full force-to-force or /and country-wide equation, though ideally it was meant to be aimed at as a campaign to achieve it in those terms. For example, the Battle of Britain has been seen as, written about, and honestly believed to be, the epitome of air superiority. But it was limited to German bomber attacks on British airfields and later the aircraft factories as the focus of operations. In spite of the battle being fought by the Royal Air Force (RAF) with great courage and élan, the trend was clear: the sheer weight of persistent attacks by the Luftwaffe would finally push the RAF to a tipping point when the output of fighters from the factories would become less than the losses during the battle. The German Air Force was not defeated in the Battle of Britain: it switched its attacks to British cities, allowing just that margin that the RAF needed to recuperate and rebuild its strength and go on the offensive. One could argue that the Battle of Britain was a battle for a favourable situation. But the fact is that if the RAF had lost the battle, with the Germans continuing their attacks on aircraft factories and fighter bases, the RAF would have been debilitated, unable to ward off Luftwaffe offensives, and the resulting advantage would have rested with the Germans, making it possible for them to launch an invasion of the island state.

The essence of air superiority was the hostile air force being pushed back on the defensive as far and deep as possible, and not necessarily destroyed, though that would come in the case of total success. Incidentally, the same principle is a prerequisite in the case of land forces on the surface of the earth. But being pushed back does not necessarily imply a simple falling back or failing to lose its fighting capability because the attacking force is likely to press home the attack and pursue the enemy to the final point of a “decisive victory.” Air forces losing air superiority could hunker down in hardened shelters and try and recoup under the cover of air defence weaponry, or, as the Iraq Air Force did in the 1991 Gulf War, simply fly off to another country to escape the persistent offensive for air dominance by the US-led coalition forces.

One effect was that the relative importance of air power missions after the end of World War II started to get diffused and altered. For example, if air superiority, leave alone command of the air, was going to be time consuming and/or unachievable, then air (to air) warfare, as distinct from nuclear delivery by aerial platforms, by itself assumed lower importance than other missions. Strike packages reduced to as little as two aircraft missions even for deep strike and penetration of the hostile dense air defence environment. One effect was that close air support, always perceived to be an important mission, started to be seen as a far more critical mission than even air superiority. Most militaries in the developing countries simply adopted the dominant view in the developed countries that were protected by nuclear weapons, and narrowed their vision on the concept of air superiority. In turn, the view spread among land forces, especially in the developing countries, that air power, except when used with nuclear weapons, was primarily a supporting Service, and the land forces the supported force. On the other hand, Commanders of the North Atlantic Treaty Organisation (NATO) land forces during the Cold War (facing large size air forces of the Soviet bloc) did assert that their first priority was to keep the enemy air off their backs, essentially implying a doctrine of air superiority even though it was not formally included as such! To a large extent, this has been due to historical experiences embedded in professional circles and elite perceptions that armies fight and win wars. The fact that

armies have historically been perceived as the primary instrument of war and the military power of a nation, reinforced this perception. But the UK accorded its Navy the status of senior Service because of its dependence on the Royal Navy to keep any invader away from its shores through command of the seas, besides being the prime instrument to establish the vast empire that Britain set up and controlled till the mid-20<sup>th</sup> century.

### **AIR-TO-AIR DOMINANCE**

Thus, it transpired that by the time the Cold War ended two decades ago, the dominant doctrines of most air forces were based on seeking and achieving a favourable air situation. As noted above, the purist, of course, would argue that completely favourable air situation in time and space would naturally amount to air superiority. Hence, the more modest doctrine was satisfactory expression of the prevalent realities and practices. But this ignored that the US Air Force had never given up its faith in air superiority and equipped and trained itself to achieve it in the shortest possible time. In fact, the wars of the past quarter century clearly point to the assignment of the almost total air effort of US-led forces to support of the war on the ground and at sea. But the important point is that this could be grossly misleading: in these wars air superiority was *not contested* since the hostile air force was either too inferior or too small to make the requisite impact against the sole surviving superpower employing air power in an offensive role, supported by high-technology combat support air power and intelligence capabilities.

Here we must clarify that we are first addressing the issue of air-to-air dominance, that is more in tune with classical concepts of air superiority, although our study would include the new phenomenon, that of air-to-surface dominance, later on.

After World War II, the simple logic of air power was forgotten that dominance of hostile air power would intrinsically allow for greater freedom of action to the friendly ground and naval forces, and deny the same to the enemy. As air power becomes more potent in lethality and long-range strike capabilities in future, the importance of balance in the air becomes more crucial. In a different way, this has been the lesson of all the wars since

the end of the Cold War where air power enjoyed uncontested supremacy. This is the basic factor that allows air forces to provide a higher level of support to the land forces. And this is the critical factor why air dominance should be treated as the primary mission of air forces in the coming decades, except in extreme contingencies like an enemy breakthrough in our defences, like the situation in Chhamb on September 1, 1965.

**The United States Air Force has consistently placed its trust in the concept of air superiority.**

There is, of course another air force – Pakistan’s — which had claimed that it fought and won air superiority in the 1965 War and there are many in India and its air force, even at high levels, who have believed it. John Fricker gave it a degree of perceptive legitimacy by adopting “Battle for Pakistan” as the title for his book on the 1965 War, psychologically linking it with the Battle of Britain. But the facts speak exactly the opposite with the Pakistan Air Force (PAF) losing three aircraft to one of the Indian Air Force (IAF) in air combat in 1965, although the IAF till recently went by what our staff college taught: favourable air situation, often with the rider of its being “local.” The Indian Air Force, which clearly won air superiority in both 1965 and 1971, remained humble but ambivalent.

With the limited size of the combat force available in the western sector in 1965, the Indian Air Force strategy was mainly premised on air superiority in the war zone up to a depth of around 30 km, while providing interdiction and close air support to the Army. This resulted in forcing the Pakistan Air Force on the defensive since it started to lose fighters in a ratio of 3:1 compared to the Indian Air Force, in air combat, and went over to terminal defences of its airfields. Another example was that of the famous “Tikka Offensive” planned by Pakistan in the 1971 War for both the Army Reserves to launch a coordinated attack through the Hussainiwala and Suleimanki headworks with the complete support of virtually the whole of the Pakistan Air Force which expected to lose one-third of the force in the seven days required by the Tikka Offensive to occupy a large chunk of Indian territory south of Sutlej. Ultimately, the offensive never took off because two Mystere “tank buster” squadrons

**There is one other air force – that of Israel — which has consistently believed in the doctrine and strategy of air superiority.**

had seriously dented the Southern Army Reserves during the opening days without interference by the Pakistan Air Force.

The USAF has consistently placed its trust in the concept of air superiority. For an air force that seeks to operate outside its own territory, it could not be otherwise since it puts the potential adversary on the defensive to start with. As Gen Michael Carns, the USAF Vice Chief Staff in 1992 had stated in his Congressional testimony<sup>5</sup> “Our job is to stay one technology ahead of the potential adversary, and given that the former Soviet Union has now sold Su-27s and MiG-29s to 11 nations already and is looking for sales to others, we have situations developing even when in a regional contingency, the F-15 (USAF top of the line fighter at that time) might meet its match. That is not our policy. *Our policy is to have air supremacy and to make sure that the (US) Army is never attacked*” (emphasis added).

But there is one other air force – that of Israel — which has consistently believed in the doctrine and strategy of air superiority and in this process, also proved that gaining and maintaining air superiority is not necessarily dependent on prolonged air battles — nor is size the deciding factor. In fact, the Israeli Air Force was clearly the smaller force compared to the Arab Air Forces arraigned against it in every war. The reason why Israel pursued this doctrine is because its very survival depends upon it; and that is why it is perceived within the country as “Israel’s Best Defence” and enjoys a special status. And, hence, every time it had to fight a war, it won essentially because it won the battle for air superiority; and every time, the tactics and strategy were different. That it did so also in a very short time every time only adds to the logic of the doctrine by proving that the dominant view in the world about air superiority — and what we taught in our staff college —

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5. US Congress, Senate Committee on Armed Services, *Department of Defence Authorisation for Appropriations for Fiscal Year 1993 and the Future Years Defence Programme: Hearings before the Subcommittee on Conventional Forces and Alliance Defence*, 102<sup>nd</sup> Congress, 2<sup>nd</sup> Session, pt.4, 1992, p. 191.

was flawed. In fact, its dramatic success in the 1982 Beka'a Valley<sup>6</sup> War was the precursor of the 1991 Gulf War a decade later, with the difference that the latter was on a much bigger scale and, hence, attracted greater attention in spite of the fact that over Beka'a Valley, the Israeli Air Force achieved proportionately higher effect with a much smaller force in much shorter time than the US-led Coalition achieved even in the 2003 Iraq War. But the Israeli Air Force had already demonstrated its doctrine of air superiority in the Six-Day War in 1967; and again in the 1973 Yom Kipper War once it had access to Electronic Counter-Measures (ECM) pods from the United States after the first day's fighting when it lost over 100 aircraft in close air support in trying to stem the Egyptian surprise offensive across the Suez Canal.<sup>7</sup>

**China is planning for a local border but which will be won by "command of the air".**

On the other hand, there is one country that has gone back to the thinking of the early years of air power history. China had used its air force on an extensive scale in the Korean War in 1950-53; but the outcome was inconclusive. During its invasion of Tibet in 1950, in the 1962 Sino-Indian War and the 1969 Sino-Soviet War, it did not use its air force possibly because of its increasing obsolescence. During the 1979 Sino-Vietnam War also, it hardly attempted to engage (leave alone challenge) the Vietnamese Air Force although its 6,000-strong air force possessed a much larger number of MiG-21 fighters than its adversary. Curiously, it also did not really apply its air force for ground support either — a mission it appears to have shied away from in all the wars it has fought sought since the PRC (People's Republic of China) came into being.

**China**, which otherwise cannot be accused of transparency in its policies, spelt out its official policy in the *White Paper on National Defence 2004*, that it is planning for a local border but which will be won by "command of the air" (besides command of the sea and use of strategic forces).<sup>8</sup> It may be noted

6. For a more detailed account and assessment, see Jasjit Singh, "Air Superiority: The Struggle for Dominance" in Jasjit Singh ed., *Air Power in Modern Warfare* (New Delhi: Lancer International, 1985), pp. 1-33.

7. Ibid.

8. "Revolution in Military Affairs with Chinese Characteristics" in the *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 in *China Daily*, December 28, 2004, at [http://www.chinadaily.com.cn/english/doc/2004-12/28/content\\_403913.htm](http://www.chinadaily.com.cn/english/doc/2004-12/28/content_403913.htm).

that China is the only country in the world, after a gap of eight decades since the days of Douhet and Mitchell, to formally define “command of the air” as its stated strategy for winning future wars. This appears a far more aspirational than realistic doctrine in the modern world. But given China’s rise to power, and the massive modernisation of its air force during the past two decades, one needs to take note of the nature of this pronouncement regarding its defence policy and its future implications. This announcement did not come as a complete surprise since Chinese political and military leaders had been stating in earlier years that China would shift from the classical doctrine of “People’s War” to a more modern and offensive concept. The air force leadership had been pointing to a clear shift toward a larger air offensive role for dominance in and from the air. For example, in 1999, the Commander of the Chinese Air Force had publicly sought a greater role for the People’s Liberation Army (PLA) Air Force, 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 air offensive, gradually integrate offensive and defensive, and build up a crack, first-rate air strike force*”<sup>9</sup> (emphasis added).

It is against this historical background that we need to understand air dominance and its future. Most people who use this term actually refer to it in lieu of air superiority. But, in reality, this is only one of the aspects of air dominance. Air-to-air dominance of the adversary is certainly crucial for any future war even among nuclear weapons states if they do go to war; and may be the only way to apply coercive and punitive conventional military power in a nuclearised environment. Air-to-air warfare had moved out of the line of sight limitations long ago to become all-weather and day-night warfare. But air-to-ground warfare had remained limited to line of sight strikes and, hence, also fair weather essentially because of limitations of the available technology

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9. “Air Force Commander Liu Shunyao on Air Force Transformation”, FBIS-CHI-1999-1107, dated November 7, 1999.

to locate moving targets on the ground. In recent years, the envelope of air-to-air warfare has vastly expanded in height as well as in distance due to the increasing ranges of air interception radars and longer range air-to-air guided missiles. Availability of Airborne Warning and Control System (AWACS) and Airborne Early Warning and Control (AEW&C) capabilities had further contributed to this process, bringing these capabilities within the reach of even countries like Pakistan whose economies are disastrously fragile.<sup>10</sup> Beyond Visual Range (BVR) air-to-air guided missile ranges have increased substantively, even claimed beyond 100-km. Hence, the battle for air-to-air dominance would certainly exist as a follow-on to the struggle for air superiority.

**But the real change taking place, technologically, doctrinally and operationally, is in the increasing potential of air-to-surface dominance with long-range strikes with precision guided weapons.**

The above also raises the issue of what is the fundamental difference among the three components of military power. All three components of military power operate in three different mediums that have their own attributes imposing limits and enabling capabilities as a consequence of this factor. This differential character of air power had led Lord Trenchard, the “Father” of Royal Air Force to state:

A strategic force can be defined as a military force capable of assuming command of its own medium by its own resources. Until the advent of the airplane, the army and navy were valid expressions of the nation’s ultimate military power on land and sea, respectively. With the development of aircraft, however, that ceases to hold true.

#### **AIR-TO-SURFACE DOMINANCE**

But the real change taking place, technologically, doctrinally and operationally, is in the increasing potential of air-to-surface dominance with long-range strikes

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10. Pakistan has acquired six AEW&C Erieye aircraft from Sweden, is acquiring four AWACS from China, and had made a bid for six Hawkeye 2000 radars to be installed on US supplied P-3 aircraft.

with precision guided weapons. While few countries can possess capabilities of the US Joint Strategic Target Attack Radar System (J-STARS) type, it is clear that advances in sensor technologies and use of Unmanned Aerial Vehicles (UAVs), for example, create capabilities that are within the reach of even middle powers. Here it is useful to note that the ultimate importance of air power rests on its strategic role and capability, unmatched by the other two Services. This is due to the very nature of the medium it operates in. Air power can influence and even control the movements and actions of surface forces. But ground forces and naval forces cannot interfere with the movements and actions of air power except in a limited sense through terminal defence. And if aircraft can launch weapons with the requisite accuracy from beyond the range of such terminal air defence weapons, air power becomes completely independent of even that limited imposition by surface forces. It may be recalled that air-launched, sea-skimming anti-ship missiles used in the 1982 Falklands War, launched from 15,000 ft height and as much as 60 km away from the target ships, had imposed severe damage and limitations on the Royal Navy. Much worse would have been in store if the Argentineans had possessed even a few more Exocet anti-ship sea-skimming missiles and/or their aircraft had some additional range. This is the central factor that makes air forces intrinsically capable of achieving strategic effect.

The basic reason for air-to-surface dominance lies in the basic attributes of air power. Air (and space) power, exploiting the vertical dimension, is in a unique situation of being able to influence, and if properly configured and employed, to control the employment of land and sea forces below. The reverse is not possible, except in an extremely limited way by surface weapons employed for terminal defence to limited ranges. This unique attribute provides air forces with the quality of being a strategic force capable of achieving strategic effect. This is due to the combination of mobility, firepower, reach and flexibility that air power intrinsically possesses. The only serious challenge that air forces have to contend with in the air is that posed by the enemy air forces, which in principle could possess similar or better capabilities. And air dominance cannot be exploited to its intrinsic advantages unless the hostile air force is subdued or, ideally, eliminated

from being a factor in war. It needs to be noted here that many of the lessons of recent wars could be misread since the wars took place in an environment of near total dominance by the US (and its allies) in the air and space.

Logically, air dominance capabilities should be planned for in peace-time. Existential air dominance capabilities provide a powerful conventional deterrence capability. They would then confer a definitive competitive advantage in case of deterrence failure, enhancing the credibility of deterrence. Higher credibility of deterrence itself implies reduction of the risks of deterrence failure. But at this point in our history, while we

aim for building future capabilities, air dominance in our case would have to be contested, in all likelihood from a position of disadvantage (if we are unable to rapidly restore the air power balance vis-à-vis China). Given the ongoing military modernisation and the unambiguous priority that China and Pakistan (since 1999) are giving to rapidly build their air forces, the decline in the IAF force level would have to be arrested on the highest priority before we can seriously address the issue of optimising air force capabilities.

It is not clear how far the reality is recognised that it is the Indian Army that is likely to face the brunt of the effects of adverse air power balance far more than the Indian Air Force since the ability of the Army to fight the land battle would be severely constrained by hostile air forces, especially if they can muster sufficient air dominance capability. Those that may doubt this need to recall 1962, when for a variety of reasons (including the Army HQ placing higher priority on air-transported supplies than offensive air support), combat air power was not used in spite of being available, which would have made a seminal difference to the war on the ground. This is likely to be much more crucial in the Himalayan terrain which would severely restrict the Army's ground mobility since the friction is much higher than in the plains. This can be rectified to some extent by the use of helicopters

**Air (and space) power, exploiting the vertical dimension is in a unique situation of being able to influence, and if properly configured and employed, to control the employment of land and sea forces below.**

and light fixed wing aircraft (like the handful of Otter and Caribou aircraft which were used for this purpose to great advantage in 1962). At the same time, it is clear that artillery firepower would be most crucial in mountain warfare. But the handicap also must be recognised that in the Himalayan terrain, there would be few open spaces for siting the guns; and these could become lucrative targets for enemy air power. In turn, this enhances the premium of air dominance in the Himalayan environment. The abiding lesson of warfare is that advantages in mobility and firepower (individually and collectively) provide the key to war winning, and any disadvantage in this respect could be disastrous. And vulnerability in mobility as well as firepower would severely undermine the force employment options of the ground forces which could only be compensated by air power.

We need to recall that air-to-surface warfare had remained “line of sight” operations. The pilot of a strike aircraft had to essentially locate the target, acquire it visually, and aim his weapons while keeping the target in his sights. This obviously resulted in strike aircraft having to launch their weapons from as much as around 800 to 1,200 metres range and almost inevitably fly over the target area after weapon launch. This had led to making air defence as intense and dense as possible and, hence, the impact of air power was conditioned by the equation between the attacking aircraft and the air defences around the target system. Most weapons had remained unguided for the simple reason that technology, especially sensor technology, had not advanced sufficiently for precision guided weapons to be launched to hit the target any other way. All this has been changing due to access to new sensor and guidance technologies and almost all weapons launched during the 2001 Afghanistan War and the 2003 Iraq War were launched from 15,000 ft altitude (or more, even up to 25,000 ft, in the case of B-52s), well outside the air defence weapons of the adversary, from long distances, which also meant that the strike aircraft would not need to fly over the target area.

This capability of making air-to-ground strikes BVR and, hence, almost all-weather long-range precision guided accurate, reducing the number of weapons required to neutralise a target as well as reduce the losses of the strike force, has tremendously enhanced the capability of air forces (that

opt for the requisite technologies).<sup>11</sup> This process, which had started during the Vietnam War, reached its highest point so far in Afghanistan and Iraq. This ability of air dominance of ground forces and targets with long range precision strikes is now increasingly available to air forces that absorb the lessons of history and refine their doctrines and strategy accordingly. However, the corollary is that the strike force must also have accurate and timely target information. In other words, readily available air intelligence is critical for the success of such air dominance. One can only agree with Richard Hallion when he says in his seminal historical study of air-to-ground air strikes:<sup>12</sup> “Technology devoid of strategic thought and doctrinal underpinning is incapable of serving a nation’s defence needs.”

But these capabilities have not reduced the tensions between land forces and air forces. The US, which has extensive experience in joint operations, has again found that, “The (US) Army and the Air Force experience the greatest inter-Service tension over the relative roles of ground and air power in warfighting. This tension largely results from how joint doctrine designates areas of operation (AOs) and how the Army views deep operations...”

This is not the only area of tension between the US Army and USAF. In spite of enormous investment in “jointness”, the two Services have serious differences (Goldwater-Nichols Act notwithstanding), among other areas, with management and control of the air space in the battle zone. In recent times, this has erupted poignantly in Iraq where at least five collisions have recently taken place between UAVs and combat aircraft/helicopters within a small area of 30-odd sq km above Baghdad, where close to 100 aircraft (including UAVs) are operating on a typical day.<sup>13</sup> The disagreements are not about ownership, but actually about the “fundamental philosophies of command and control” of the two Services in spite of decades-old foundations of joint operations and unified joint command.

This, in turn, raises the conceptual issues regarding coordination of boundaries between the air and ground forces. Land forces have tended

11. We will examine the technologies for air dominance in a separate study.

12. Richard P. Hallion, *Strike from the Sky: The History of Battlefield Air Attack 1911-1945* (Washington DC: Smithsonian Institution Press, 1989), p. 270.

13. Gayle S. Putrich, “Unmanned and Dangerous: How UAV-Plane Collisions Are Changing US Air Control,” *Defense News*, June 11, 2007, pp. 7-8.

**The primary role of the Air Force in respect of the joint war-fighting would be to shape the battlespace at the operational and strategic levels, besides providing close air support and performing other roles like ISR, airlift, etc.**

to acquire weapons with increasing ranges and lethality and acquire a justifiable interest in what happens over the horizon and what has come to be known as the “deep battle” in hostile territory, well beyond the ground battle contact line. But by their very nature, ground forces are far less effective as a force to conduct military operations well beyond the contact battle as compared to air forces. An objective analysis of the potential, and employment, of the 150-km Prithvi and 300-km Brahmos with conventional warheads to achieve discernible effect on war-fighting and war-winning would indicate their limited utility while complicating coordination challenges, while markedly raising nuclear ambiguities which could hardly serve our interests. Air assets provide the

best, and mostly the only capability to effectively undertake operations in depth and beyond the immediate battle, especially when this is limited to the local-border war framework. This is exactly what strategic reach of the Air Force makes possible to enable strategic effect to be achieved.

As regards optimising single Service capabilities, war in the vertical dimension has to be fought and won by the Air Force by its own means, and air dominance would remain its preeminent role and mission to provide the environment for war-winning. But air dominance, in both air-to-air as well air-to-surface superiority roles, would provide enormous freedom of action for ground and naval forces to conduct operations they are best suited for while undertaking (strategic and operational level) air strikes and support missions contributing to the war-fighting capabilities of surface forces. The primary role of the Air Force in respect of joint war-fighting would be to shape the battlespace at the operational and strategic levels, besides providing close air support and performing other roles like Intelligence, Surveillance, Reconnaissance (ISR), airlift, etc.

Ground forces now possess overwhelming tactical dominance capabilities and the optimum role for their employment in a local border

war would be to force the enemy to react at the operational level by either concentrating forces or moving the reserves, thus, making them vulnerable to air attack with the air-to-surface dominance of the Air Force. Similar principles apply in respect of application of air power in the naval environment, possibly with greater effect since the protection provided by camouflage, dispersal and other survival strategies is not available at sea, making naval assets more vulnerable to air power. In the ultimate analysis, "Air power is a strategic force in that it offers the opportunity to *defeat the enemy's strategy* — sometimes (*sic*) directly but most often in concert with other forces"<sup>14</sup> (emphasis added). Optimising air power capabilities and force application provides seminal asymmetric advantages in war-winning strategies.

As noted earlier, the greatest inter-Service tension in modern militaries across the world has been found in the relative roles of ground and air power war-fighting. The crux of success of joint war-fighting is that both the land force Commander and the air force Commander must accept that the roles and effects created by each component lead to maximising war-fighting effects within the bounds of land and air power capabilities. A recent seminal study by RAND came to the conclusion that a clearer division of responsibility between the roles and missions of ground and air power would go a long way in enhancing joint war-fighting. Thus, it has concluded that the principal role of the land forces would be to employ its overwhelming tactical dominance to:<sup>15</sup>

- "Force enemy reaction at the operational and strategic levels by forcing concentration and/or movement, thus, making them vulnerable to air attack.
- "Close with, and finish, enemy tactical remnants, exploit success and seize and hold ground.
- "Deal with the post-conflict security environment until the desired strategic political end state is achieved."

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14. Ronald R. Fogleman (then USAF Chief of Staff), "Aerospace Doctrine: More Than Just a Theory," *Air Power Journal*, Summer 1996, p. 45.

15. David E. Johnson, *Learning Large Lessons: The Evolving Roles of Ground Power and Air Power in the Post-Cold War Era* (Santa Monica: RAND, 2007), pp. 193-194.

The role of air power, according to this study, argues the author, should be to:

- “Shape the theatre at the operational and strategic levels.
- “Provide close air support (CAS), intelligence, surveillance, and reconnaissance (ISR), and lift to support ground combat operations.
- “Provide CAS, ISR, and lift for ground-force operations to secure and stabilise the theatre.”

However, we must note a caveat here. The study and experience of the US military in war-fighting since the end of the Cold War (Gulf War 1991, Bosnia 1995, Kosovo 1999, Afghanistan 2001-, Iraq 2003- ) have been against enemies that did not possess air power, except for Iraq in 1991, which was rapidly neutralised by the far superior US air power. The clear lesson is that the above recommendations assume total command of the air. In our case, this is not likely to be the case, and that command would have to be contested. Hence, the role of seeking and achieving “air dominance” would be a pre-requisite to the ground and air power roles outlined above. It is useful to recall that NATO land force Commanders in the early 1980s used to specify that their highest priority was for the air forces to “keep the enemy air forces off their backs.”

Where would air-to-surface dominance provide the greatest payoffs? By any logic, this would come from neutralising the enemy’s army reserves, preferably before they can begin moving and at least when they try to reinforce the battle. In a way, this was one of the major achievements of the Israeli Air Force during the Beka’a Valley operations in 1982 when, having neutralised the bulk of the Syrian Air Force, it set about destroying the Syrian 3<sup>rd</sup> Armoured Division moving up to strengthen the ground battle. This logic was at the root of the US/NATO doctrine of “Follow-on-Force-Attack” (FOFA) in the early 1980s. The logical progression of the capabilities for air-to-surface dominance would lead to the major task of the ground forces to make the enemy move and for the air force now to destroy them. This is the way that air forces can best shape the future battlefield; and by the same logic, the air forces would accord a high priority to protection of our own army reserves from a potential attack by the enemy air force.

# INTEGRATION OF MoD AND DEFENCE PLANNING

R. VENKATARAMAN

After the initial euphoria over India's victory in the Indo-Pak War of 1971 had subsided, Defence Minister Babu Jagjivan Ram affirmed in the Lok Sabha on May 2, 1972, "It is not merely inter-Service cooperation in peace-time and in war which is needed for safeguarding our security. Coordination is equally essential, at *political* and *administrative* levels, with those responsible for foreign policy, for internal public order, and for numerous activities connected with transportation, communication, supplies and production"<sup>1</sup>. With his long experience in government at various levels, the minister realised the need for unfailing civil-military relations in the form of a defence policy integrated with foreign policy, internal security, intelligence and even local administration.

The official history of the 1971 War also stated that the Higher Defence Organisation (HDO) and the civil services equation in the government machinery had evoked an intense but muted controversy<sup>2</sup>. It argued that an integrated Ministry of Defence (MoD), with civilians and men in uniform intermixed at various levels, should cap the new pattern defence control organisation.<sup>3</sup> Ideally, the recommendations should have received sufficient impetus to achieve complete integration of the MoD and Service

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1. Prof Bimal Prasad, *As Defence Minister, Struggles and Achievements- Babu Jagjivan Ram*, (Kanpur: Alka Prakashan, 1973), p. 608.
2. *Official History of 1971 War*, Chapter XIX, "Review and Reflections", p. 793.
3. *Ibid.*, p. 794.

**The official history of the 1971 War argued that an integrated Ministry of Defence (MoD), with civilians and men in uniform intermixed at various levels, should cap the new pattern defence control organisation.**

Headquarters (HQ) but the euphoria of victory and the image of Gen Niazi's humiliating military surrender shadowed these concerns. While the Western nations, mainly the UK and USA, undertook continual exercises in defence reforms during the Seventies and Eighties, there were no serious attempts in India to integrate defence decision-making, improve civil-military relations, synergise intelligence efforts or strengthen the higher defence structure.

The aim of this paper is to study the aspects of civil-military integration that directly affect defence management, particularly the issues pertaining to integration of the MoD with Service HQ and integrated defence planning, from pre-budgeting to procurement.

#### **GOVERNMENTAL FRAMEWORK AND DEFENCE**

India has been unique among the democratic countries of the world in having the higher military organisation functioning outside the governmental framework and structure after the early years of independence. The Service HQ have been performing dual roles: one of the Operational Command (with its Operational Planning Staff) and the other of the Planning Staff (for long-term defence policy formulation) undertaking force employment in support of the former and perspective resource planning in support of the latter roles. Overlooking the fact that these are governmental responsibilities and cannot be undertaken effectively unless the Service HQ function from within the government, an innocuous government note, initiated on May 27, 1952, declared the Armed Forces Headquarters as "attached offices" of the Defence Ministry<sup>4</sup>. Since the Central Secretariat Manual of Office Procedures (CS-MOP) decrees that ministries are the policy-making bodies

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4. Dr Subhash Kapila, "India's Chief of Defence Staff: A Perspective Analysis," Paper no. 250, May 2001, South Asia Analysis Group, New Delhi.

while their “attached offices” merely implement it<sup>5</sup>, it was natural that the Armed Forces Headquarters were divested of the defence policy-making role. In order to fully comprehend the limitations in functioning as “attached offices”, it is necessary to appreciate the status and responsibilities of such offices vis-à-vis the departments of the government. Hence, a brief description of the government’s machinery and its transaction of business are given hereunder.

### **ROLE AND RESPONSIBILITY**

Two among the many rules issued by the President of India regarding transaction of government business under Article 77(3) of the Constitution, are<sup>6</sup>:

- **The Government of India (Allocation of Business) Rules.**
- **The Government of India (Transaction of Business) Rules.**

While the former deal with allocation of the government business among its different departments, each of which is headed by a minister, the latter seek to define the authority, responsibility and obligations of each department in the matter of disposal of business allotted to it.

### **DEPARTMENTS, ATTACHED OFFICES AND SUBORDINATE OFFICES**

The Government of India (Allocation of Business) Rules define the terms as follows:

- **Department:** means any of the ministries, departments, secretariats and offices mentioned in the First Schedule to the Government of India (Allocation of Business) Rules. ‘Secretariat offices’ are those which are responsible for formulation of the policies of the government and also for the execution and review of those policies. The first Schedule to the rules specifies the list of ministries, departments, secretariats and offices. A department is responsible for formulation of policies of the government in relation to business allocated to it and also for the execution and

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5. Manual of Official Procedures, Cabinet Secretariat, Chapter III –Machinery of Government, para 6

6. Ibid., Para 4.

review of those policies<sup>7</sup>. For the efficient disposal of business allotted to it, a department is divided into wings, divisions, branches and sections with a Special Secretary / Additional Secretary / Joint Secretary in charge of each wing.

- **Attached and Subordinate Offices:** Where the execution of the policies of the government requires decentralisation of executive action and/or direction, a department may have under it executive agencies called “attached” and “subordinate” offices. Attached offices are generally responsible for providing executive direction required in the implementation of the policies laid down by the department to which they are attached. They also serve as the repository of technical information and advise the department on technical aspects of questions dealt with by them. Subordinate offices generally function as field establishments or as agencies responsible for the detailed execution of the policies of the government. They function under the direction of an attached office, or where the volume of executive direction involved is not considerable, directly under a department. In the latter case, they assist the departments concerned in handling technical matters in their respective fields of specialisation.
- **Secretary:** A Secretary to the Government of India is the administrative head of the ministry or department. He is the *principal adviser* to the minister on all matters of policy and administration within his ministry/ department, and his responsibility is *complete and undivided*<sup>8</sup>.

By this definition, the Defence Secretary, is the Principal Adviser to the Defence Minister on all matters of defence policy and his responsibility is undivided. Where does this place the Chiefs of Staff? The said rules also state that the senior officers, including the head of a subordinate/ attached office under an administrative ministry/ department, will correspond, in respect of matters involving intervention/ approval of another ministry/ department, only with their parent ministry/ department which, if

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7. Ibid., Para 5.

8. Ibid., Para 5 (9) a.

required, will take up the matter with the relevant ministry. It is explicitly specified that an officer of a subordinate office/ attached office/ autonomous body will not correspond directly with the minister of another ministry except the head of a statutory body/ regulatory authority set up by an Act of Parliament<sup>9</sup>. This imposes a major restriction on senior officers of the Services, including the Chiefs of Staff to exchange views with officials in the Ministries of External Affairs, Home, or Finance even on significant strategic or financial issues, which is vital for developing a long-term vision and plans with a broader perspective in respect of their organisations.

It is understandable in respect of organisations dealing with agriculture, health or environment where the end service providers — the farmers, doctors, nurses or the conservancy contractors employed by local authorities — need not necessarily be government employees. But soldiers, who are service providers in respect of the MoD, are employees of the government, irrespective of rank and function. It is only logical then that the MoD is integrated with headquarters of the three armed forces and the forces themselves are intimately involved in all decisions that affect them. Whereas the other departments can be staffed by civil servants providing advice to the ministers, the MoD needs to be staffed with military personnel and civil professionals to provide professional and objective advice. However, this has never been the case in independent India though it was so during the British era. It would be interesting to study this transition and understand its implications.

**The Defence Secretary is the Principal Adviser to the Defence Minister on all matters of defence policy.**

## MINISTRY OF DEFENCE

### *Organisational Structure*

During the British rule, supreme authority over the Indian Army vested in the Governor General-in-Council, subject to the control of the Crown, which was exercised by the Secretary of State for India. Two members in the

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9. Ibid., Ch. VIII, para 52.

Council were responsible for military affairs, one of whom was the Military Member, who supervised all administrative and financial matters, while the other was the Commander-in-Chief (C-in-C) who was responsible for all operational matters. The Military Department was abolished in March 1906 and it was replaced by two separate departments, the Army Department and the Military Supply Department. In April 1909, the Military Supply Department was abolished and its functions were taken over by the Army Department. Until 1921, the Secretary of the Army Department was a military officer but, subsequently, civilian officers were appointed to this post and British Indian Civil Service (ICS) officers held all other senior posts in the Secretariat<sup>10</sup>. The Army Department was redesignated as the Defence Department in January 1938<sup>11</sup>.

It was only in 1938 that an Indian born civilian officer was appointed as Under Secretary in the Defence Department. In July 1942, an Indian ICS officer, Chandulal M. Trivedi, was appointed Secretary to the department and held the post till January 1946<sup>12</sup>. Until independence, the department had been referring all important proposals, which had been on most occasions cleared by the (C-in-C) in his capacity as the Defence Member of the Governor General's Council, to Whitehall for decision. Directions received from Whitehall were communicated to the Army HQ which served as a glorified post office. The rules and regulations that governed the armed forces at that time were framed with reference to British hierarchy and authority. Immediately after independence, there was a need to revise the codes of the armed forces. Suddenly, there was a change in role and responsibility after August 15, 1947, and the department was found lacking in experience to handle the problems of defence administration, particularly in the face of the post-partition mayhem.

After independence, all departments of the government came to be designated as ministries and the Defence Department was redesignated as the Ministry of Defence (MoD), headed by a Cabinet Minister accountable

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10. A.L.Venkateswaran, *Defence Organisation in India* (Ministry of Information and Broadcasting, GOI 1966), p. 115.

11. <http://mod.nic.in/aboutus/welcome.html> January 13, 2010.

12. Venkateswaran, n. 10, p. 116.

to the Prime Minister and Parliament for all its activities. During the British period, the C-in-C, as head of the three Services, coordinated the requirements of the Services, as no proposal which was unacceptable to him could reach the Defence Department. With the appointment of three independent Service Chiefs on August 15, 1947, the business of coordinating and integrating the requirements of the three Services devolved on the MoD. Prior to independence, all proposals were discussed between the Military Finance Department and the Defence Headquarters (DHQ)

**Prior to independence, all proposals were discussed between the Military Finance Department and the Defence Headquarters before the files reached the Defence Department.**

before the files reached the Defence Department. The old practice of the DHQ referring proposals directly to the Ministry of Finance (Defence) continued until 1949 when the procedure of scrutinising the proposals at the Defence Ministry before forwarding to the Finance Ministry was introduced. The procedure was changed on the pretext that some proposals which may be financially acceptable may not be administratively feasible or politically advisable. Hence, it became imperative that administrative approval be obtained before a proposal was examined for financial feasibility.

To date, the mechanism and working relationship between the MoD and the three DHQ has essentially remained the same though necessity driven internal rearrangements within the MoD and DHQ have been effected periodically. Currently, the MoD comprises four departments, each headed by civilian Secretary, as mentioned against Serial No.9 in the First Schedule to the Government of India (Allocation of Business) Rules, last amended in June 2009<sup>13</sup>. The MoD is responsible to ensure effective implementation of the government's policy directions and the execution of approved programmes within the allocated resources besides communicating the policy directions to the three DHQ, inter-Service organisations, production establishments and Research and Development (R&D) organisations. The Defence Secretary functions as head of the Department of Defence

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13. The Government of India (Allocation of Business) Rules 1961, Schedule 1.

and is additionally responsible for coordinating the activities of the four departments within the ministry.

The four departments in the MoD are:

- **Department of Defence:** As per the First Schedule to the Government of India (Allocation of Business) Rules, the armed forces of the Union, the Army, Navy and the Air Force, and their respective headquarters are listed under this department. This department deals with the DHQ and other inter-Service organisations besides being responsible for the defence budget, establishment matters, defence policy implementation, Parliamentary issues, defence cooperation with other countries and co-ordination of all defence related activities.
- **Department of Defence Production:** Headed by a Secretary, the department deals with matters pertaining to defence production, indigenisation of imported stores, equipment and spares, planning and control of departmental production units of the Ordnance Factory Board and Defence Public Sector Undertakings (DPSUs).
- **Department of Defence Research and Development:** Headed by a Secretary, who is also the Scientific Adviser to the Defence Minister, its function is to advise the government on scientific aspects of military equipment and logistics and the formulation of research, design and development plans for equipment required by the Services.
- **Department of Ex-Servicemen's Welfare:** Headed by a Secretary, this deals with all resettlement, welfare and pensionary matters of ex-Servicemen.

## FINANCIAL ADMINISTRATION

During the British period, defence expenditure was not voted<sup>14</sup>. Acting on the Esher Committee recommendations, in 1920, a Deputy Financial Adviser was attached to each of the major branches of the Army HQ. After August 15, 1947, defence expenditure came under the scrutiny of the legislature. To meet the requirement, Deputy Financial Advisers were attached to each branch of the Army HQ, Naval HQ and Air HQ, besides the Departments of Defence Production, Pension, Budget and even to Inter-

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14. Venkateswaran, n. 10, p. 118.

Service Committees such as the Principal Personnel Officers' Committee and Principal Supply Officers' Committee. Subsequently, the Ministry of Finance (MoF) (Defence) designated a Financial Adviser (FA) who headed a separate wing of the MoF but worked in close liaison with officials of the MoD on a year-round basis, serving both as an adviser and also a controlling authority for safeguarding economic efficiency and propriety in defence expenditure.

From August 1, 1983, the government brought the position of FA (Defence) at par with the FAs in other departments in order to establish an integrated financial advice system. Currently, the Finance Division, which is fully integrated with the MoD, is headed by an FA (Defence Services)/ Secretary Defence (Finance) who is responsible to the Defence Minister for internal audit and accounting of defence expenditure through the Controller General of Defence Accounts (CGDA). He is also tasked with preparing the Defence Estimates (Defence Budget) in consultation with officials from the Services and MoD.

**In the UK, the MoD is not just the Department of State but also the headquarters of the three armed Services.**

#### **INTEGRATION OF MoD AND SERVICE HQ**

After independence, the role, task, authority and post of C-in-C India were taken over by the Defence Minister and the post of C-in-C India was abolished. Officials in the MoD were expected to advise the minister on the administrative, diplomatic and political consequences of the military proposals. Regrettably, they had neither any exposure in defence administration during the British period nor any first-hand knowledge about the Service related problems, customs, traditions, rules and regulations. As a result, officials at the ministry requested detailed information on each proposal and reacted with undue caution, causing delays which could have been avoided if the staff at the ministry was reasonably informed on the subject. This routinely gave an impression that the system was slow, cumbersome and ineffective. The most obvious solution was to have the men in uniform serving at the MoD to provide a military perspective to the

Minister, as is the norm in other advanced countries. In the UK, the MoD is not just the Department of State but also the headquarters of the three armed Services. In the USA, the DoD is composed of the Office of the Secretary of Defence, Joint Chiefs of Staff (JCS), Joint Staff, Departments of the Army, Navy and the Air Force besides the Unified and Specified Combatant Commands. In India, this was not amenable to the politico-bureaucratic class then, nor is it acceptable now, thereby eluding the required level of functional integration.

The Group of Ministers (GoM) in its report “Reforming the National Security System” brought out in 2001, highlighted the need to restructure the MoD and the Service HQ in order to increase the interface between the two<sup>15</sup>. Earlier, the Kargil Review Committee, which examined the sequence of events that led to the Kargil conflict, recommended the establishment of a National Defence Headquarters, arguing that the location of Services’ HQ in the government would further enhance civilian supremacy and bring about constructive interaction between the civil government and the Services<sup>16</sup>. Given the apprehensions associated with such a complete integration, it was expected that there would be some initiative at least towards partial integration – say, at the functional level if not the policy level. The least that could have been tried was to appoint military officers from the armed forces at the mid to higher (Joint Secretary/ Deputy Secretary) level positions in the MoD so that they could provide professional advice to the bureaucrats placed above them while learning the nuances of managing the civilian staff serving them. Similarly, civilian officers of the rank of Director/Joint Secretary could have been appointed in the Service HQ in positions not directly involved with operations but overseeing specific responsibilities of administration, logistics, finance, procurements, etc. Unfortunately, nothing more than a cosmetic renaming of the Army and Naval Headquarters as Integrated Headquarters has been achieved after implementation of the GoM report.

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15. GOM report 2001, Para 6.4.

16. *From Surprise to Reckoning – The Kargil Review Committee Report* (New Delhi: Sage Publications, 1999), pp. 258-259.

Commenting adversely upon this, the Standing Committee on Defence in its thirty-sixth report (2008-09) strongly recommended the appointment of armed forces personnel of requisite expertise at the level of Joint Secretary and/or Additional Secretary so that the Armed Forces Headquarters may be intrinsically involved in the decision-making process. It was not the first time that the Standing Committee on Defence commented upon this issue. In its sixth report (published in 1996), the Committee questioned the view of the MoD that there is adequate continuous interaction between the ministry and the DHQ. The MoD claimed that the Defence Minister's weekly meeting with the Defence Chiefs helps them to be associated in policy formulation! It was further justified that the existing system provides an opportunity for an independent in-depth analysis and reevaluation of any proposed policy before it is approved, and emphasised that any integration beyond this point would tantamount to merger of the two organisations which would be neither desirable nor practicable.<sup>17</sup> Obviously, there has been an obdurate reluctance to bring about the desired level of integration and the most obvious casualty of this aberration has been integrated defence planning, budgeting and consequent defence modernisation. Commenting adversely on the mechanism of defence planning and procurements, the GoM report of 2001 noted, "The present system governing defence acquisitions suffers from lack of integrated planning; weaknesses in linkages between Plans and Budgets; cumbersome administrative, technical and financial evaluation procedures; and absence of a dedicated professionally equipped procurement structure within the MoD." This was a sum of all the identifiable evils that plagued the system. It would be interesting to examine each of these issues separately and analyse the weakness that continues to rot the system.

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17. Standing Committee on Defence (1995-96), Sixth report, para 2.39.

**A need has been felt for a review of the form and content of the Defence Services Estimates and the expansion of budgetary classification to promote programme-based budgeting**

### **DEFENCE PLANNING, BUDGETING AND PROCUREMENT**

Defence planning, budgeting and procurement are a progression of politico-bureaucratic-military functions. The resources allocated to the military are not available for other social needs of the nation. Therefore, defence allocation is a political decision aimed at balancing security with social concerns. The foreign policy and military policy are entwined because arms can either deter or provoke, depending upon the adversary's potential

and ideology. Thus, defence policy is a function of politico-diplomatic strategy. The choice of weapon systems, a function of the military planners, has to be based on a long-term and medium-term defence policy, thus, making the defence planning, budgeting and procurement an integrated exercise.

### **ROLE OF THE HIGHER DEFENCE ORGANISATION IN DEFENCE BUDGETING**

The GoM report of 2001 stated, "A need has been felt for a review of the form and content of the Defence Services Estimates and the expansion of budgetary classification to promote programme-based budgeting while ensuring compliance with security requirements."<sup>18</sup> Even prior to the GoM report, experts had often opined that defence planning and budgeting in India take place in two isolated compartments. Budget formulation was not based on any approved defence programme but on the basis of an in-house 15-year perspective plan (which had no government approval) prepared by each Service and the five-year defence plans which may or may not have been sanctioned<sup>19</sup>. The budget formulated by the FA(DS) was sent to the MoF which was the final decision-making authority on allocation of resources. Containing the fiscal deficit being the primary concern of the MoF, ceilings were imposed on the basis of what was considered affordable, keeping

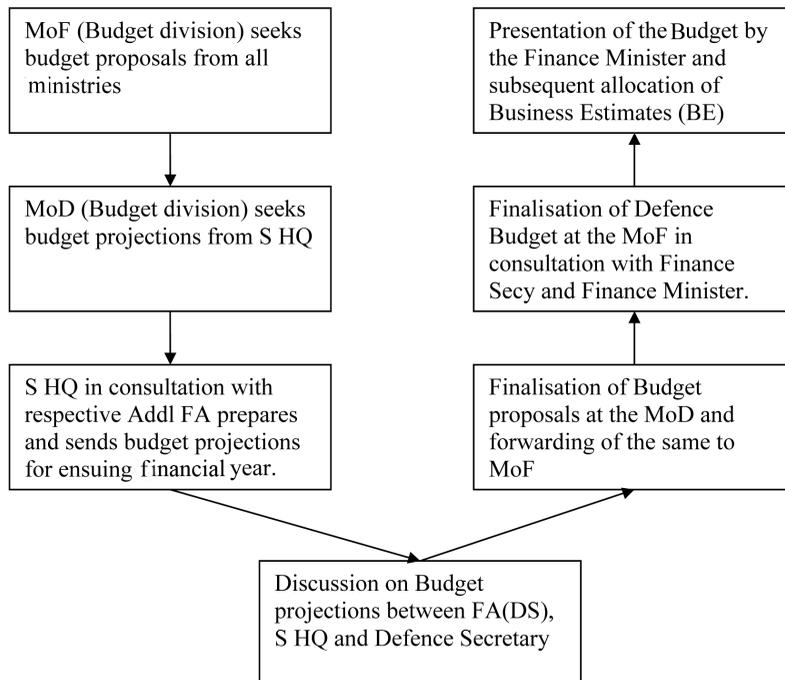
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18. GoM report on National Security 2001, p. 108 (para 6.52).

19. The Eighth Defence Plan (1990-95) and Tenth Plan (2202-07) failed to get government sanction.

in view the likely revenues and targeted deficits. The ‘ceiling’, which was imposed arbitrarily at the end of the budgetary process, without detailed scrutiny of priorities, hampered defence modernisation since it affected capital expenditure more than the revenue expenditure, which is normally in the nature of obligatory or pre-committed expenditure. The gap between the projected requirement of the Services and the allocations made by the MoF could be attributed to the complete lack of linkage between operational planning and financial decision-making. A former FA (DS) wrote, “The budgetary process in India is undertaken in an incremental and routine way without any specific regard for modernisation needs or operational preparedness”<sup>20</sup>. A schematic representation of the budgetary process that invited adverse comments from the GoM in 2001 is given in Fig 1.

**Fig 1: Budgetary Process Prior to GoM Report**



20. Amiya Kumar Ghosh, *Defence Budgeting and Planning in India: The Way Forward* (New Delhi: KW Publishers, 2008), p. 18.

**In the absence of an articulated defence policy framework, “policy directions” have little meaning.**

Fig 1 depicts defence planning and budgeting as two separate processes sans any lateral linkages. Though the two processes are depicted abreast, a closer look will reveal that in India, it is a linear process with FA(DS) serving as the link.

- Whereas the Finance Minister had a definitive role to play in defence allocation, the Defence Minister had no role to play either in formulation or processing of the defence budget. The planning and budgeting mechanism smacks of a civilian bureaucratic control rather than a civilian political control.
- The Chiefs of Staff Committee (COSC), the highest policy-making body in the Services, had no role to play in the budgetary process, denying an integrated approach to budget projections.
- Except for minimal interaction at the end of the budgetary process between the FA (DS) and the Additional FAs of the Services, the process lacked interaction between the Planning Staff at DHQ and the officials in the MoD (Finance).

The annual report of the MoD states that the principal task of the ministry is to frame policy directions on defence and security related matters.<sup>21</sup> In the absence of an articulated defence policy framework, “policy directions” have little meaning. The highest policy-making body on defence related matters, the Defence Committee of the Cabinet (DCC) was superseded by the Emergency Committee of the Cabinet during the Sino-Indian conflict of 1962 and never got revived. The Defence Minister’s Committee (DMC) which performed a key role in resource allocation and long-term planning for defence was put into disuse during Krishna Menon’s time. Defence Councils and Boards which were promised by Pandit Nehru to the Parliament on April 1, 1955, for efficient management of defence, were never established. Writing about the defence decision-making in resource allocation, Air Commodore Jasjit Singh questioned almost a decade ago,

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21. Annual Report of the MoD 2008-09, Chapter II – Organisation and Functions of the MoD, p. 12.

“What comprises the organisation and the responsibilities in respect of development of military capability for the future?”<sup>22</sup> Sadly, there is no such organisation established till date though the recently established Defence Acquisition Council (DAC) plays a limited role within the expansive process of defence planning and modernisation. In fact, the DAC is only a revised version of what was established in 1947, but apparently had gone into disuse in the 1950s.

It is often argued by many that integrated defence planning has suffered because the Chief of Defence Staff (CDS) has not been appointed. Viewing the issue of integrated planning through the prism of the CDS is fraught with the danger of leaving the core issues unaddressed. It needs to be appreciated why the COSC has not been able to facilitate integrated defence planning before we attempt to justify how the CDS would make a difference. To enable the COSC to assess the military challenges and provide professional advice to the government, availability of crucial intelligence inputs and a joint planning staff are essential. As per the HDO proposed by Lord Ismay in 1947, the Joint Intelligence Committee (JIC) and the Joint Planning Staff (JPS) were designated as sub-committees of the COSC with an aim to strengthen its strategic intelligence and planning. Unfortunately, the COSC never had the benefit of the JIC and JPC complementing each other in their work, as a full-time Defence Planning Staff (DPS) was never established until 1986, by which time the JIC was moved to the Cabinet Secretariat. The Committee for Defence Planning (CDP), which was formed in 1977 to undertake Defence Periodic National Security Assessment, failed to meet the desired objectives. Another attempt was made in the form of a “Planning and Coordination” cell created in the MoD to coordinate the various plans of the Services into a “Defence Plan”. However, this could at best compile the plans sans objective analysis and, thus, remained a non-starter. In 1986, a DPS comprising officers from the three Services, Defence Research and Development Organisation (DRDO), MoD and Ministry of External Affairs (MEA) were established under the COSC. Over a period of time, the civilian officers were withdrawn,

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22. Air Commodore Jasjit Singh, *India's Defence Spending: Assessing Future Needs* (New Delhi: KW Publishers, 2001), p. 72.

**The Planning-Programming and Budgeting System (PPBS) of the USA, introduced in 1961, brought the emphasis on planning before budgeting, to be made in terms of military objectives and force requirements rather than the resource allocation aspects.**

leaving the DPS as a vestigial tri-Service organisation, without the crucial inputs from the bureaucracy and the scientific community. In response to the Group of Ministers (GoM) report of 2001 when an Integrated Defence Staff (IDS) was established for coordinating the plans of three Services, the DPS was merged with it. In effect, the COSC had neither policy guidance from the top nor strategic inputs from below.

From 2002, the Capital Budget projections, after consideration by the FA (DS), were referred to the IDS to seek its integrated view. Understandably, the involvement of the IDS in the last stage of the budgetary process did not make much difference. In 2002, a Long-

Term Integrated Perspective Plan (LTIPP) for 2002–2017 was prepared by the IDS with the aim of providing an integrated perspective to planning and budgeting but was eventually discarded due to delay in finalisation of the draft! In its 16<sup>th</sup> report, tabled in the Lok Sabha on April 28, 2007, the Parliament's Standing Committee on Defence commented that the five-year plans of the military had lost their utility for resource planning due to delays in their approval even as the LTIPP was being conducted in a "lackadaisical" manner. Appearing before the Parliament's Standing Committee on Defence in April 2007, the MoD representative stated that LTIPP was being revised following a deliberate and integrated 'top down' approach by articulating National Security Strategy, National Military Strategy, and National Military Objectives. If fructified, as promised, the LTIPP would have been an extremely involved process with inputs from the Services, MoD, National Security Adviser (NSA) and various other agencies<sup>23</sup>. It is now clear that an LTIPP is in place covering the 11<sup>th</sup>, 12<sup>th</sup> and 13<sup>th</sup> Plan periods (2007-2022) though the Draft National Security Strategy

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23. Standing Committee on Defence (14<sup>th</sup> Lok Sabha), Sixteenth report, April 2007, pp. 46-48.

on which it was to have been based is still under evaluation.<sup>24</sup> National Military Strategy has never been heard of since then.

The Planning-Programming and Budgeting System (PPBS) of the USA, introduced in 1961, brought the emphasis on planning before budgeting, to be made in terms of military objectives and force requirements rather than the resource allocation aspects. The Goldwater-Nichols Department of Defence Reorganisation Act of 1986 mandates the Secretary of Defence, with the advice and assistance of the Chairman, Joint Chiefs of Staff, to provide written policy guidance for the preparation and review of the programme recommendations and budget proposals of their respective components<sup>25</sup>. As per the National Defence Authorisation Act of 2000<sup>26</sup>, the Secretary of Defence, in consultation with the Chairman, Chiefs of Staff, conducts a comprehensive examination of the national defence strategy of the USA and establishes a defence programme for the next 20 years. The budgetary process starts with a Five-Year Defence Plan (FYDP) which is the basis for subsequent stages of the budgetary process and ends after the budget is finalised by updating the FYDP projected one year forward. Thus, a linkage is continuously maintained between planning and budgeting. In the UK, the Secretary State for Defence is supported by five ministers, one of whom is the Minister of State for Strategic Defence Acquisition Reform. However, the Secretary of State for Defence is specifically responsible for Defence Policy, Planning and Budget issues and heads the Defence Council, besides the Defence Ministerial Committee. There is a 10-year Long-Term Costing (LTC) for defence which is supported by the Budget Management Plan produced annually, covering the estimates of two subsequent years. Here too, the role of the Defence Minister in planning and providing necessary guidance in programming provides the vital impetus.

The Chief of IDS (CISC), who now heads a tri-Service organisation, continues to be deprived of strategic intelligence inputs from the JIC which is placed under the Cabinet Secretariat. He reports to the Chairman, COSC

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24. Annual Reports of MoD -2007-08 and 2008-09.

25. 113 (g) (1) of Sec 102 (Powers and duties of the Secretary of Defence), Goldwater-Nichols Department of Defence Reorganisation Act of 1986.

26. Public Law 106-65, 106<sup>th</sup> Congress.

**Only 10 per cent of the defence budget is actually available for modernisation, which is much less in comparison to the 30-40 per cent made available in the advanced countries.**

which suffers from the same limitation. Even if a CDS was appointed, as recommended by the GoM report, he would have been heading the IDS today. The argument that a CDS would make a difference to defence planning seems unsustainable in the current scenario, where no credible efforts are undertaken to strengthen the functioning of the IDS and COSC. The body which has the benefit of combined military advice from the three Chiefs of Staff, Director, Intelligence Bureau (IB), Secretary, Research and Analysis Wing (R&AW), and

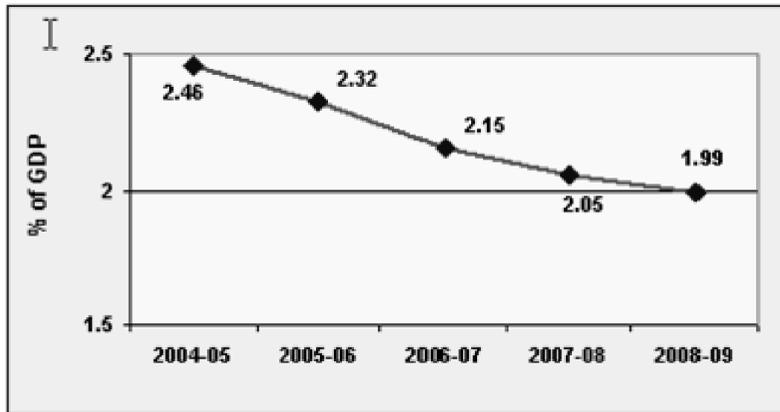
Chairman, JIC, is the Strategic Policy Group (SPG) of the National Security Council (NSC). Unfortunately, the SPG is neither involved in defence planning and budgeting nor there is any evidence to suggest that the Strategic Defence Review (SDR) prepared by the SPG is referred to when the LTIPP is prepared.

### **ECONOMICS OF DEFENCE BUDGETING**

In the last few years commencing 2004-05, the defence budget has been growing at the rate of 8 to 10 per cent per annum but continues to remain short of demands. Expressing concern over the steady decline in defence outlay as a percentage of Gross Domestic Product (GDP) (refer Fig 2) , the 16<sup>th</sup> report of the parliamentary Standing Committee “strongly recommended” a minimum 3 per cent of GDP every year, besides saying that the government “must allocate” the amounts projected by the defence Services so that the acquisition and modernisation programmes do not face “any resource crunch”. The merit of allocation as a percentage of GDP as against an open-ended approach linked to geo-political considerations is debatable but there are indications that the government would keep the annual increase in the defence budget at around 10 per cent which would result in a net increase of around 4-5 per cent after adjusting for inflation. Considering that two-thirds of the amount for capital acquisition is pledged for assured and received deliveries, only 10 per cent of the defence budget

is actually available for modernisation, which is much less in comparison to the 30-40 per cent made available in the advanced countries<sup>27</sup>.

**Fig 2: Defence Allocation on GDP Basis**



Source: Laxman Behera, "India's Defence Budget 2008-09", IDSA Strategic Comments, March 2008.

While the shortfall in resource allocation, particularly towards modernisation, is a cause for concern, the inability to spend the entire budget allocation and the rush to spend the capital budget as the financial year comes to end, is of greater concern. The MoD had projected Rs 4,18,101 crore as its requirement during the five annual budgets during the 10<sup>th</sup> Plan (2002-07) period but got only Rs 3,79,300 crore, of which it was unable to spend Rs 21,167 crore<sup>28</sup>. The underutilisation of capital expenditure which was less than 5 per cent of allocation in 2003-04 has steadily been on the rise, as a result of which more than 10 per cent of the budget allocation towards capital expenditure remained unutilised in 2007-08. To avoid underspending of the defence budget, there has been a demand from the industry to introduce the concept of rolling budgets, carrying forward the underspends from the previous years to the following years. In Financial Year (FY) 2004-05, the government had proposed to institute a non-lapsable

27. "Defence Budgeting and Procurement Process Need an Overhaul," *The Acorn*, March 25, 2008.

28. Defence Procurement Scene, April-June 2007, an IDC (India Defence Consultants) report, June 2007.

**Defence plans are five-year based and budgets are year-on-year basis. There is no integration between the plan and the budget.**

Defence Modernisation Fund of Rs.25, 000 crore to which unspent funds were to be added<sup>29</sup>. However, there was no progress on the issue as it was later clarified that there is no provision in the budgetary rules and regulations to carry forward unspent funds. The factors that contribute to the surrender of funds are many but the main reasons are:

- Non-integration of the MoD and DHQ which causes avoidable delays in communication.
- Bureaucratic delays within the MoD.
- Delay in conclusion of price negotiations.
- Holding up the release of stage payments to vendors for not meeting contractual obligations.

Defence plans are five-year based and budgets are year-on-year basis. Since there is no integration between the plan and the budget, on the one hand, ceilings imposed by the Finance Ministry at the end of the budgetary process hamper the defence procurements and, on the other, paradoxically, there is a rush to spend the annual capital budget by the end of the financial year for fear of inviting criticism if the unspent amount is surrendered. Experts have often opined that most of the problems associated with the surrender of funds can be resolved by introducing time-bound activities in the procurement procedures adopted at various levels in the DHQ and MoD<sup>30</sup>. The Defence Procurement Procedure (DPP) introduced in 2005, was a step in this direction.

## **DEFENCE PROCUREMENT PROCEDURE**

Approvals for capital expenditure have to be accorded by the MoD, whereas limited financial powers under the revenue head are delegated to the DHQ. A Defence Procurement Procedure (DPP) was introduced in February 1992, prior to which there was no formal mechanism in the MoD

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29. *Financial Express*, February 4, 2004.

30. V. N. Srinivas, *Budgeting for Indian Defence* (New Delhi: KW Publishers, 2008), p. 28.

to process defence procurements. However, as the procedure was found grossly inadequate, it was, adversely commented upon by the GoM report of 2001. As a consequence, a revised DPP was introduced in December 2002 which dealt with capital acquisitions involving “buy” decisions only. In 2005, a comprehensive DPP-2005 dealing with capital procurements and a Defence Procurement Manual (DPM) dealing with revenue procurements, were introduced. The DPM is a more detailed compendium of procedures covering revenue procurements as well as the provision of all other goods, services and support activities. The DPP-2005 was further modified in 2006 as DPP-2006 to include the “make” category, paving the way for indigenous development through research and design.

As a result of a continual evaluation based on the feedback from the Services and the industry, the DPP and DPM were further refined in 2008 and 2009 respectively. DPP-2008 provided more transparency and quality emphasis, as some of the provisions given hereunder would indicate:

- A Request for Information (RFI) would be displayed on the MoD website inviting inputs from prospective vendors before finalising the Service Qualitative Requirements (SQR). This would increase the lead time available to vendors and would broaden the vendor base.
- Qualitative Requirements (QRs), as laid down by the DHQ would be analysed right at the inception stage for the methods and agency responsible for its evaluation.
- A broad based multi-disciplinary trial team has been proposed for testing equipment being procured for use by more than one Service and the Technical Oversight Committee has been mandated to oversee whether the trials are conducted as per the methodology specified in the Request for Proposal (RFP).
- All verbal communications with the vendors during the course of trials would be confirmed in writing within a week.
- Results of technical/staff evaluation, along with the reasons for disqualification, would be intimated to vendors after acceptance of technical/staff evaluation reports.

**DEFENCE PROCUREMENT ORGANISATION**

**Defence Acquisition Council (DAC):** During FY 2002-03, a Defence Acquisition Council (DAC) headed by the Defence Minister was established as a consequence of the GoM report of 2001. With the Defence Minister as the Chairman, and Service Chiefs along with the CISC, Secretaries at the MoD, and Special Secretary (Acquisition) as members, the Council provides “in principle” approval for capital acquisitions projected in the LTIPP covering a 15-year span, at the beginning of the 5-year plan period<sup>31</sup>. It also gives Acceptance of Necessity (AON) for capital acquisitions in the forthcoming five-year plan, identifying them as “make”, “make and buy” or “buy” categories. Three Boards, namely the Defence Procurement Board (DPB), Defence Production Board and Defence R & D Board were established under the DAC to implement the DAC decisions.

**Defence Procurement Board:** The Defence Procurement Board, comprising the Defence Secretary (Chairman), Vice Chiefs of the three Services, CISC, Secretary Defence R&D and Secretary Defence Finance, oversees all activities related to acquisition on the capital account flowing out of the “buy” and “buy and make” decisions of the DAC. It is responsible for coordination, supervision and monitoring of the acquisition process besides setting out the Annual Acquisition Plan for the three Services (based on approval of the Five-Year Capital Acquisition Plan by the DAC) for incorporation in the ensuing annual budget. The Board can confirm or modify the *inter-se* and *intra-se* priorities of acquisition proposals by the Services and recommend modifications for approval by the Defence Minister in the pattern of resource sharing on the capital account related to acquisition of weapons, equipment and weapon systems among the Services. It is empowered to approve emergency purchases, when necessary, within the Defence Minister’s delegated powers.

**Defence Production Board:** Chaired by the Secretary, Defence Production and Supplies, the composition of the Defence Production Board is similar to the DPB but also includes the Chairman of the Ordnance Factories Board and the CMD of DPSUs as required. The Defence Production Board will oversee

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31. <http://www.mod.nic.in/> February 6, 2010.

all activities related to indigenous manufacture, under the Department of Defence Production, flowing from the “buy and make” and “make” decisions of the DAC concerning the import and Transfer of Technology (ToT). The Production Board monitors progress of all “make” projects and provides requisite details to the Defence Acquisition Council in the latter’s deliberations on licensed production, ToT, and *ab-initio* production/development, as required.

**Acquisition Wing:** The DPB is assisted by the Acquisition Wing headed by the Special Secretary (Acquisition) in the MoD and consists of four divisions, namely, Land, Maritime, Air Force and Systems Divisions. Each division has an Acquisition Manager of the rank of Joint Secretary in the MoD, a Technical Manager who is a Service Officer of 2-star rank and a Financial Manager (an additional FA from the MoD Finance Division). The respective division of the Acquisition Wing shall remain involved throughout the life-cycle of acquisition, right from the preparation of Qualitative Requirements (QRs) to obtaining approvals after price negotiations, which includes conduct of equipment evaluation trials and also establishment of equipment induction cells within the Services.

## THE ROAD AHEAD

As per the *SIPRI Yearbook* of 2008, India ranked 10<sup>th</sup> in global spending with an expenditure of \$24 billion. India is likely to reach an annual budget of \$40 billion by 2011-12 of which \$16-17 billion would be available for capital expenditure<sup>32</sup>. India aims at increasing the combat squadrons of the Indian Air Force (IAF) from 34 to 42, and acquire the most modern weaponry for the Army and Navy. Its Information Technology (IT) and space capabilities have expanded its military reach from the traditional battlefield into the space and cyber-space domains. Seventy per cent of India’s defence equipment is imported and DPP 2008 clarifies that we are in a free market economy in defence requirements. Should we not plan well so that we get the best value for our money?

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32. Lt Gen V.K. Chopra, “Indian Defence Industry Snapshot,” November 2008, [indiadefenceonline.com](http://indiadefenceonline.com)

**It is recommended that a Defence Planning Council (DPC), with the Defence Minister as its head and the Defence Chiefs along with the Secretaries in the MoD and MoF as members, be established.**

Thankfully, in the last few years, there have been many commendable initiatives to streamline the Defence Procurement Procedure. The same is not true with regard to defence planning and budgeting. Today, the defence procurement process in respect of capital acquisitions is centralised and corporative, right from the stage of according in-principle approval by the DAC (which is chaired by the Defence Minister) to the end of the acquisition process which is closely monitored by the Acquisition Wing. The Council, Boards, Acquisition Wing and the Service specific divisions are all corporate in character, with civilian and Service representation. On the other hand, the process of pre-budget planning and the budget allocation process have not changed much over the years, in which there is hardly any involvement of the Defence Minister or the policy-making bodies such as the CSS or COSC.

Decisions involving capital acquisitions for the Services must factor in the threat perception, force levels, and availability of resources in the mid to long term. Experts have been recommending a comprehensive document in the nature of a Defence Planning Guidance (DPG) which assesses the military threats, provides goals, objectives and priorities for defence missions, looks at the resource forecast and strategic technology forecast, and gives out a broad strategy for the development of military capabilities<sup>33</sup>. Yearly allocation of the defence budget in incremental terms or as a fixed percentage of GDP may compromise strategic decision-making.

Logically, the policy objectives dictated by the government should form the basis for preparing not a vague 15-year LTIPP or a rigid 5-year plan but a few alternative plans in a realistic time-frame of 10 years. The best option that suits the country in the medium and long terms, with a degree of flexibility to switch between alternates based on geo-political considerations,

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33. Vinod Anand, "Integrating the Indian Military: Retrospect and Prospect," *Journal of Defence Studies*, vol. 2, issue 2, Winter 2008.

should be decided by the Defence Minister after wider consultation with the politico-diplomatic-military trinity. To achieve this, it is recommended that a Defence Planning Council (DPC), with the Defence Minister as its head and the Defence Chiefs along with the Secretaries in the MoD and MoF as members, be established. The CISC, who currently heads the Planning Staff at IDS, should be invited to attend all the meetings. The Council should meet at least twice a year — once before the commencement of the budgetary process and once before the Revised Estimates are finalised. This would go a long way in ensuring rational allocation of resources since the Council will have the opportunity to evaluate the ongoing programmes and weigh one programme against the other in terms of its cost and military worth, as felt necessary by experts in defence economics<sup>34</sup>. Eventually, the DAC can be dissolved and the DPC can be entrusted the responsibilities of the DAC since both the roles (planning and acquisition) are essentially two sides of the same coin. If this happens, it would in effect be the revival of the erstwhile Defence Minister's Committee, a long-pending demand from defence experts advocating the revival of a corporate model of defence management<sup>35</sup>.

It is believed that the threat perception of each of the three Services is at variance and in its endeavour to lay the groundwork for an increased share of the budget, each Service tends to exercise its own priorities, favouring its own plans, to the detriment of joint plans<sup>36</sup>. Since most military exercises today demand participation by more than one Service, necessitating coordinated planning in modernisation and acquisition, Service specific planning needs to make way for integrated planning. Many aspects of Command, Control, Communication, Computers, Intelligence, Surveillance, Reconnaissance (C4ISR) involving surveillance, electronic warfare and network-centricity are common to all the Services. Communication and weapon systems comprising the guidance systems, missiles, radars, guns and ammunition

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34. Amiya Kumar Ghosh, "Economic and Resource Allocation in Defence," in Jasjit Singh, ed., *Asian Defence Review 2008-09* (New Delhi: KW Publishers, 2010), p. 243.

35. Singh, n. 22, p. 72.

36. Gen V. P. Malik, Brig Gurmeet Kanwal, "Defence Planning in India," *ORF Policy Brief*, February 2005.

**A gap between the envisioned capabilities and net deliverables can be avoided if the MoD and DHQ work in a unified atmosphere, as is the case in the US and UK.**

can be worked on common platforms. Hence, HQ IDS should be involved in the planning and budgetary process right from the early stage.

It is in the best interest of the Services that only well considered proposals are routed to the ministry with as much clarity as possible. A closer coordination not only amongst the armed forces but also between the forces and the MoD (Finance Division), on the one hand, and the MoD and MoF, on the other, at the pre-budget stage, is imperative. The role of the ministry should be confined to examine whether the proposals put forth by the Services are politically and administratively acceptable. Once the administrative approval is accorded, it should become the responsibility of the MoD, with the influence of the Defence Minister, to obtain financial sanction.

Presently, the Defence Procurement Board is empowered to make such amendments in the annual plan as deemed necessary on account of operational urgencies, budgetary provisions or any other exigencies, based on recommendations made by Integrated Services HQ/Defence Staff/DoD/Defence (Finance)<sup>37</sup>. However, more flexibility in terms of utilising unspent amount needs to be introduced. The long awaited reform in the defence-finance mechanism to prevent surrender of budgeted capital expenditure worth thousands of crores needs to be put in place at the earliest.

Most often, the ministry wastes time in seeking information and operational justification for proposals. Poor planning, deficiency in defining qualitative requirements, multiple approval agencies and dispersed centres of accountability result in a gap between the envisioned capabilities and net deliverables. These can be avoided if the MoD and DHQ work in a unified atmosphere, as is the case in the US and UK. Despite the repeated demands from the strategic community and critical observations made by successive Standing Committees on Defence, nothing more than a mere change in nomenclature has taken place as regards the integration of the MoD and

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37. <http://www.mod.nic.in/> February 6, 2010.

DHQ. Small but definitive steps towards integration of the MoD and DHQ over a period of time must be initiated at the earliest. Cross-posting of upper-middle level civilian officers to DHQ and vice-versa should be the starting point. Career diplomats can be employed in intelligence and strategic planning within the Services. Bureaucrats with an engineering background can be associated with maintenance planning and logistic management and even capital work planning within the Services. Similarly, qualified Service officers can be employed in various Departments of Defence, Defence Production, Defence R&D and Ex-Servicemen's Welfare. This cross-Service exposure would not only help in appreciating the work culture, strengths and limitations of each other but also provide a greater insight into the functional aspects of either Service, which would go a long way in helping the officers arrive at the right decisions when the officers revert to their parent departments to undertake higher assignments.

Further, it is important for the officials at the MoD to remain in the ministry for longer durations and associate closely with the branch of the Service with which they are concerned to appreciate the requirements of the armed forces better. Unfortunately, this does not happen as they come to work in the ministry from any department and remain there for short durations.

With regard to better coordination among the armed forces, HQ IDS has initiated a series of reforms in joint planning, training and procurements but this is just a beginning and a lot needs to be achieved in order to improve the system of defence planning and budgeting in India.



# ASIA IN THE DEBATE ON AMERICAN GRAND STRATEGY

MICHAEL J. GREEN

The United States faces multiple national security challenges, but in the longer sweep of history, it is our response to the rise of Chinese power that may have the greatest significance. Over the previous two centuries, the Anglo-American-led neoliberal order faced three rising powers. Great Britain managed the rise of American power at the end of the nineteenth century, through a deft strategy of accommodation and cooption. However, the United States and Britain failed to prevent the rise of Japanese and German power from leading to a calamitous global conflict. In those cases, both deterrence and accommodation failed. We, thus, face the prospect of rising Chinese power with a one-for-three record, and the one case of success was one in which the rising power shared the values of the preeminent power.

Americans do not seem disheartened by this prospect, however. The Chicago Council on Global Affairs found in a June 2008 survey that 64 percent of Americans favour a policy of engagement and cooperation with Beijing and that 67 percent oppose US efforts to contain Chinese power.<sup>1</sup> In the 2008 presidential election, Senators John McCain and Barack Obama

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1. Chicago Council on Global Affairs, "Aware of China's Rise, Worried Americans Still Prefer to Engage," *Global Views 2008*, [www.thechicagocouncil.org/](http://www.thechicagocouncil.org/)

**China's rapid military modernisation, mercantilist economic practices, lack of political freedom and close relations with regimes like Sudan and Burma undermine the international system on which its rise depends.**

largely reflected this cautious optimism about the future of US-China relations, despite significant disagreements they had with each other on Iraq and the war on terror. Obama emphasised distrust of China in terms of trade, even while reiterating the need for engagement:

US and Chinese cooperation in the Six-Party Talks on the North Korea nuclear issue makes clear that we can work together constructively bilaterally and with others to reduce tensions on even extraordinarily sensitive issues.... America and the world can benefit from trade with China but only if China agrees to play by the rules and act as a positive force for balanced world growth.

Meanwhile, McCain emphasised distrust of China on the security side, but he too stayed within the overall theme of expanding cooperation with China:

The US shares common interests with China that can form the basis of a strong partnership on issues of global concern, including climate change, trade, and proliferation. But China's rapid military modernisation, mercantilist economic practices, lack of political freedom and close relations with regimes like Sudan and Burma undermine the international system on which its rise depends.<sup>2</sup>

This broad consensus on China policy stands in contrast to the "Japan bashing" that characterised the American presidential elections of 1988

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2. Excerpted comments of Senators Obama and McCain in 2008 from "Presidential Candidate Views on Asia Pacific," *PacNet Newsletter* 56, October 28, 2008, [www.csis.org/pacfor/ccejournal.html](http://www.csis.org/pacfor/ccejournal.html); Centre for a New American Security, June 2008), available at [www.cnas.org/](http://www.cnas.org/); David Kang, *China Rising: Peace, Power, and Order in East Asia* (New York: Columbia University Press, October 2007); and Robert Sutter, *China's Rise in Asia* (Lanham, Md.: Rowman & Littlefield, 2005).

and 1992, as Japan was rapidly increasing in power. The differences with Japan are all the more striking when one considers that Japan is an ally and a democracy that poses no military threat to the United States. There are probably several reasons why China is not dominating the American political debate the way Japan did earlier, including the immediacy of the conflicts in Iraq and Afghanistan, the shared international challenge of the financial crisis, and reassuring examples of US-China cooperation on the North Korean nuclear problem.

**There is no doubt that relative power will continue to shift in China's direction over the coming decades. China's defence increases have surpassed its already impressive GDP growth for a decade.**

Yet the longer-term strategic challenge remains. Goldman Sachs predicts that China's Gross Domestic Product (GDP) will surpass that of the United States by 2027. Even allowing for China's demographic "speed bump" and a slowdown in the global economy, there is no doubt that relative power will continue to shift in China's direction over the coming decades.<sup>3</sup> China's defence increases have surpassed its already impressive GDP growth for a decade, and the People's Liberation Army (PLA) continues to build niche asymmetrical strengths in cyberspace, access denial, and anti-satellite capabilities. China has expanded cooperation with the United States on the North Korean nuclear programme but continues to undercut US efforts to bring pressure on Iran, Burma, Sudan, Zimbabwe, and other states that undermine international stability because of their proliferation or failure to protect human rights.

The United States and the West as a whole made a bet that integrating China into the world economy would change China for the better before China changed the international system for the worse. The odds for that bet do not look much better or worse today than they did a decade ago, but if the bet fails, the consequences for American interests and the international order will be no less dire. Given those stakes, one would expect America's

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3. *The N-II: More Than an Acronym*, Global Economics Paper 153 (New York: Goldman Sachs Economic Research, March 28, 2007), p. 8, available at [www.chicagosgb.edu/alumni/clubs/pakistanI docs/](http://www.chicagosgb.edu/alumni/clubs/pakistanI docs/).

**Some authors argue that the world has moved beyond traditional balance-of-power considerations altogether; others worry that rivalry in Asia means the United States must avoid provocative actions toward China; and yet others see the emergence of a new bipolar competition with China that requires more active balancing.**

great strategic thinkers to reflect fully on the future of China and Asia, even though the presidential candidates themselves focussed on more immediate foreign policy challenges in the 2008 election debate.

However, surveying the big “strategic” books on foreign policy that have come out this year to guide President-elect Obama, it is difficult to discern a clear consensus on strategy for managing order in East Asia. In fact, beneath a broad veneer of continuity and consensus on the US Asia policy during this election cycle, there are dramatically different assumptions about China’s rise that appear under the surface in major writings on overall American strategy. Some authors argue that the world has moved beyond traditional

balance-of-power considerations altogether; others worry that rivalry in Asia means the United States must avoid provocative actions toward China; and yet others see the emergence of a new bipolar competition with China that requires more active balancing.

Perhaps it is unfair to parse the writings of broad strategic thinkers on the specific question of Asia policy. Certainly, there is a vibrant debate among Asia scholars about the nature of China’s rising power and the proper strategies for securing a stable regional order.<sup>4</sup> But given the enormous pressures the next Administration will face, it matters whether the larger strategic context of American foreign policy fits with the realities in Asia. The William Clinton and George W. Bush Administrations both wavered in their Asia policies when other international pressures took precedence. For Clinton, economic priorities made Japan an adversary, then an ally to balance China, and then a secondary player in the pursuit of a new “strategic partnership” with Beijing.

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4. See, for example, Kurt M. Campbell, Nirav Patel, and Vikram J. Singh, *The Power of Balance: America in Asia* (Washington, DC.: Centre for a New American Security, June 2008), available at [www.cnas.org/](http://www.cnas.org/); Kang, and Sutter, n.2.

For Bush, Asia policy centred on Japan, and relations with both Tokyo and Beijing improved. But then the single-minded pursuit of an agreement with North Korea lost the confidence of the Japanese and led to drift in the overall American position in the region. The debate of Asia experts matters, but so does the big picture, and it matters to the US Navy in particular. But before addressing the implications for the navy, we will review how Asia fits in three broad and contrasting visions of American strategy reflected in Strobe Talbott's *The Great Experiment*, Madeleine Albright's *Memo to the President Elect*, and Robert Kagan's *The Return of History*.<sup>5</sup>

### THE UTOPIAN VISION

One of the most ambitious foreign-policy visions for the next Administration comes in *The Great Experiment*, written by Strobe Talbott, President Clinton's former Deputy Secretary of State and current president of the Brookings Institution. Most of *The Great Experiment* is a fascinating and elegantly written history of humankind's failed efforts to move beyond tribal instincts and state competition toward global governance. It is clear where this dialectical history is going from page 1, and that is an appeal for a new multilateral and United Nations-centred approach to US foreign policy. Talbott argues that the United States may finally be at the point where it has no choice but to work through global institutions, because the challenges we face today transcend borders:

These mega-threats can be held at bay in the crucial years immediately ahead only through multilateralism on a scale far beyond anything the world has achieved to date. That challenge puts a unique onus on the United States as the most heavily armed nuclear-weapons state and as the leading producer of greenhouse gases (p. 395).

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5. Page citations hereafter to these books refer to, respectively: Strobe Talbott, *The Great Experiment: The Story of Ancient Empires, Modern States, and the Quest for a Global Nation* (New York: Simon & Schuster, 2008); Madeleine Albright, *Memo to the President Elect: How We Can Restore America's Reputation and Leadership* (New York: HarperCollins, 2008); Dennis Ross, *Statecraft and How to Restore America's Standing in the World* (New York: Farrar, Straus, Giroux, 2007); Fareed Zakaria, *The Post-American World* (New York: W.W. Norton, 2008); and Robert Kagan, *The Return Of History and the End of Dreams* (New York: Knopf, 2008).

Ultimately, Talbott sees the mega-threats of climate change and proliferation trumping the dangers created by shifting distribution of power in the international system. In fact, he sees these threats as opportunities to build the kind of global governance that might have prevented war in the past as rising and falling powers collided.

The few areas where Talbott touches on Asia strategy reflect his broader Lockean assumptions about the intentions of states within the system and his focus on the United States as implicitly one of the greatest sources of instability in recent history. For example, his vision of a future order assumes that constraining American and allied military capabilities through multilateral treaties such as a Fissile Material Cut-off Treaty (FMCT) and the Anti-Ballistic Missile (ABM) Treaty, will reduce the dangers of confrontation with rising powers such as China. Thus, failure to negotiate a new ABM Treaty will likely mean that “Russia and China respond by building up their numbers of offensive missiles and taking a variety of countermeasures, including anti-satellite capabilities, in order to overwhelm, penetrate, and blind a US missile defense system” (p. 397). With North Korea, he assumes that a fair deal can be achieved, arguing that “the United States will need to establish diplomatic relations with the governments in Tehran and Pyongyang in exchange for their willingness to get rid of existing weapons in the North Korean case and stop a development program in the Iranian one” (p. 398).

For Talbott, the Hobbesian forces in international relations are fissile materials, greenhouse gases, and other impersonal elements, and the major obstacle to states’ working in concert at this critical moment of history is ideology — and particularly, as he sees it, the Bush Administration’s “unilateralism” and pursuit of preeminence. The implicit assumption in that charge is that self-constraint through adherence to multilateral treaties by the United States would lead to a decline in many of the threats we face, including China’s rapidly increasing conventional and nuclear weapons capabilities. However, the evidence is quite strong that China’s military build-up and strategic reach are proceeding apace with the growing resources and ambitions of a rising power that does not fully share the values of the prevailing neoliberal international order. Certainly, Beijing’s

January 2007 anti-satellite test, ten years of double-digit defence spending increases, and the discovery of a new PLA Navy base on Hainan Island all suggest that Chinese military capabilities are driven by requirements well beyond the Taiwan contingency. Similarly, while there is much evidence to suggest that North Korea seeks normalised relations with the United States, there is very little evidence to support the proposition that Pyongyang would give up nuclear weapons to do so. It does not fit the worldview of *The Great Experiment* that states like North Korea would see it as essential to their survival to exist

outside the international system while increasing their leverage on major powers through the possession of nuclear weapons, nor that multilateral agreements like the Non-Proliferation Treaty or institutions like the United Nations are ill equipped to stop proliferation by leaders like Kim Jong II.

Nevertheless, *The Great Experiment* does offer at least half of a successful menu for improving stability and American influence in Asia. Asia is a region that struggles to find patterns of multilateral security cooperation in order to tame the forces of rivalry and to reduce uncertainty. Talbott singles out for action precisely the kind of challenges that will help bring greater cohesion to Asia's burgeoning multilateralism. The big transnational challenges Asia faces, from potential pandemics to terrorism and proliferation, require improved international governance and cooperation. In many ways, these issues—particularly climate change — cannot be addressed on a global level without first finding a framework for cooperation with China. Working on these issues productively with Beijing may help to reduce the dangers of rivalry and competition inherent in China's rise.

However, missing almost entirely from the transnational threat focus and appeals for world governance of *The Great Experiment* is the Hobbesian side of Asian international relations today. Despite the 21<sup>st</sup> century agenda of

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**Despite the 21<sup>st</sup> century agenda of challenges that Talbott illuminates, Asia retains many characteristics of nineteenth-century great-power rivalry.**

challenges that Talbott illuminates, Asia retains many characteristics of nineteenth-century great-power rivalry. The United States must attend to balance-of-power considerations in the region, or Asian states will do so themselves—and perhaps to our detriment.

**DO NO HARM**

In *Memo to the President Elect*, former Secretary of State Madeleine Albright focusses on more traditional state-to-state relations in addition to the mega-threats addressed by Talbott. Her overarching agenda is more modest than Talbott's but in many ways no less daunting. She recommends that the new President give priority to five challenges:

- Developing a more productive working relationship with the Arab and Muslim worlds.
- Restoring an international consensus in opposition to the spread of nuclear weapons.
- Defending democratic values against a new generation of dictators and demagogues.
- Attacking poverty, ignorance, and disease.
- Addressing the intertwined global issues of energy supply and environmental health.

Albright also reminds the new President of the fact that he will be simultaneously inheriting three conflicts: Iraq, Afghanistan, and the struggle against Al Qaeda.

Albright is careful to devote a chapter to Asia, even in the face of this imposing list of pressures on the new President. She implicitly acknowledges the successes of the Bush Administration, recommending no major changes other than in the North Korea policy (where she advocates a less confrontational approach along the lines latterly pursued by the Bush White House). In fact, she levels an indirect criticism at her own Administration's decision in June 1998 to signal that China was more important than Japan, when President

Clinton refused to stop in Japan on his way to an eight-day tour around China. As she notes to the new President, "When you first visit East Asia, you are likely to have China uppermost in mind. Your initial destination, however, should be Tokyo. A loyal ally deserves precedence" (p. 178). Albright also acknowledges the centrality of the Taiwan issue in US relations with China and for broader stability in Asia, stressing that the new President must provide assurances to Chinese President Hu Jintao on America's "one China policy" but also recalling that the Chinese backed away from conflict over Taiwan in 1996 "because they didn't think they could prevail in a confrontation with the United States" (p. 195).

**For Albright, state-to-state relations still figure prominently in Asia, and US strategy for the region should focus on maintaining the right "balance," in which the "United States acts as a kind of friendly referee" among the many rivals.**

For Albright, state-to-state relations still figure prominently in Asia, and US strategy for the region should focus on maintaining the right "balance," in which the "United States acts as a kind of friendly referee" among the many rivals (p. 177). For much of the post-war period, this approach was sometimes also called "double containment", meaning that the goal of US policy was to keep Russia, China, *and* Japan from developing significant military capabilities. Albright writes critically of former Japanese Prime Minister Shinzo Abe's security pact with Australia and his symbolic upgrading of Japan's Defence Agency to a ministry, suggesting also that the Bush Administration pushed the limits of regional tolerance in cooperating on theatre missile defence and encouraging Japan to send "high-tech" destroyers to the Indian Ocean in support of Operation Enduring Freedom (p. 179). Lifting restrictions further on Japan's security role, she warns, would "likely spur China into an even more rapid buildup of its own, while pushing Korea into a closer relationship with Beijing."

This static view of Japan's role stands in contrast to Albright's warning that the United States alone will not be able to continue dissuading and deterring China from military action, as it did in 1996. As she cautions,

**We will need a strategy that builds regional cooperation and strengthens international governance while we attend at the same time to the fundamental nineteenth-century balance-of-power issues.**

“Although its military remains far inferior to that of the United States, China is modernizing with a single contingency uppermost in its mind, while our armed forces are stretched thin” (p.196). The reality is that the closer US-Japan alliance relationship begun in the mid-1990s has now virtually guaranteed that China has to consider not just US but also Japanese forces as obstacles to the use of force against Taiwan. That increases dissuasion, deterrence, and stability. Moreover, Japan’s defence budget remains below 1 percent of the GDP, and its defence spending is declining in real terms, in contrast to China’s major defence

spending increases. A dangerous arms race might result from internal balancing (significant unilateral Japanese offensive military capabilities), but as of now, that is not happening. Instead, Japan is pursuing external balancing through closer ties to the United States, as well as with India and Australia. That strategy minimises the danger of an arms race while complicating Chinese military planning and serving notice to Beijing of the broader strategic implications for Chinese interests of an unchecked PLA military build-up. Also, while Japan continues to have difficult relations with its neighbours over history, the Chicago Council on Global Affairs ranks Japan ahead of China (and behind only the United States) in terms of “soft power” in the region.<sup>6</sup>

Albright’s *Memo to the President Elect* gives good advice to the new President on Asia (including the recommendation that he bring a fork to Japan). It puts allies front and centre in US Asia strategy—at least symbolically—and acknowledges the complex and multifaceted strategy needed to manage the rise of Chinese power. It also eschews utopian visions of a new multilateral security framework in Asia, where she urges the President to take a “light

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6. Chicago Council on Global Affairs in Cooperation with the East Asia Institute, *Soft Power in Asia: Results of a 2008 Multinational Survey of Public Opinion*, June 17, 2008, available at [www.thechicagocouncil.org](http://www.thechicagocouncil.org).

hand" (p. 199). But Albright's strategy for Asia also asks the new President to work with one hand tied behind his back. Shaping China's strategic choices requires active engagement of Beijing, as well as the development of tighter and increasingly agile alliance relationships in the region, to ensure a balance of power that encourages China's strategic role to develop in a benign direction.

Albright is not alone in writing a grand strategy that puts the United States in the role of mediator in Asia. In *Statecraft and How to Restore America's Standing in the World*, veteran Middle East peace negotiator Dennis Ross also recommends that the next President work to prevent a security dilemma with China where hedging becomes a "self-fulfilling prophecy" (p. 322). Ross rightly recognises that the centre of gravity is shifting to the Pacific and stresses that the United States must demonstrate to China that when it plays by the rules, those rules will not be used against Beijing (p. 330). However, the entire thrust of the argument is that China's rise can be managed through the "elemental statecraft" of embedding an agenda for cooperation in bilateral and multilateral mechanisms that gradually reduces the "perceived need to hedge" (p. 331). Ross is absolutely right about the need to expand win-win cooperation with China in this way, but missing entirely from the strategy is any attention to maintaining the regional balance of power. Indeed, US alliances in Asia are mentioned in *Statecraft* only in terms of reducing the security dilemma with China, since Beijing will see the US-Japan alliance as having benefits for Beijing "insofar as that presence and those alliances limit the Japanese impulse to remilitarize its posture in Asia" (p. 330).

In *The Post-American World*, Fareed Zakaria also recognises the shift of power to China and Asia, and he notes that this trend should not be viewed as a simple story of American decline and Chinese rise but rather as "the rise of the rest." Precisely because India and other states in the system are growing in power and ambition at the same time as China, the United States can continue leading in international affairs if it learns to broker and mediate relations among these aspiring powers and to build coalitions around different challenges. Zakaria is exactly right when he argues that the United States must learn to share power, create coalitions, build legitimacy, and define the

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global agenda. His model for such statecraft is Bismarck. But unlike Bismarck, Zakaria recoils at the notion that part of American strategy must focus on balance of power. He acknowledges that lines must be drawn with China, “but [the United States must] also recognize that it cannot draw lines everywhere. Ultimately, *‘balancing’ against a rising power would be a dangerous, destabilizing, and potentially self-fulfilling policy.* Were Washington to balance against China, before Beijing had shown any serious inclination to disrupt the international order, it would find

itself isolated—and would pay heavy costs, economically and politically, for itself, being the disruptive force” (p. 236, emphasis supplied).

It is striking that Zakaria is not talking about “containment” (a strategy that would be both self-defeating and virtually impossible to implement vis-à-vis China) but “balancing”, a strategy that Japan, India, and increasingly South Korea are playing every day toward Beijing, even as their economic interdependence grows with China. It is a strategy that these nations look to the United States to continue playing even in the complex interwoven international system we live in today.

#### **A NEW CLASH OF IDEOLOGIES?**

Robert Kagan’s *The Return of History and the End of Dreams* goes in an entirely different direction from Talbott, Albright, Ross, and Zakaria. It offers a strategic worldview that is as sweeping as Talbott’s but focusses on the Hobbesian and not the Lockean world before us. Kagan’s whipping boy is Francis Fukuyama’s *The End of History and the Last Man* and the subsequent post-Cold War writings that anticipated a new peaceful international order, in which governments were expected increasingly to embrace liberal democracy after the collapse of Communism. For Kagan, the world has again returned to normalcy and nation-states remain as strong as ever, fuelled by ambitious nationalism. Now there is

a new collision of ideologies: between the democratic West and an authoritarian bloc centering on China and Russia.

Kagan's dissecting of the new ideational contest between East and West has far more nuances than his critics usually attribute to it. He acknowledges that the ideological contest between Western liberalism and Eastern autocracy has none of the neatness of the divisions of the Cold War. He points out that the huge economic interdependence of the West on China for commercial relations and on Russia for oil has blurred the lines between friends and adversaries. He also highlights the weaknesses within China's own political system and its unattractiveness to most major powers in the world.

At the same time, Kagan also hits on some central truths about the dynamics of East Asian security that are missing from most of the other books on American grand strategy. It is hard to refute his assertion, for example, that "today the Chinese believe that their nation's ancient centrality, appropriately adjusted for the times and circumstances, can, should and will be restored" or that they "consider the trend toward Chinese regional hegemony unstoppable" (p. 27). He is also right when he warns that concerted action on nuclear non-proliferation of the kind advocated by Talbott is being undermined by the clash of great powers with competing forms of government, as China and Russia run interference for Iran while the United States and Europe support India's nuclear ambitions (p. 77). This ideological divide also hampers international action on such humanitarian crises as Darfur, Burma, and Zimbabwe.

Kagan sees the authoritarian camp taking shape in the Shanghai Cooperation Organisation (SCO), which the Russians celebrate as an anti-North Atlantic Treaty Organisation (NATO) alliance and the Chinese as another vehicle to expand their influence in Asia. In contrast, he sees

**"Today the Chinese believe that their nation's ancient centrality, appropriately adjusted for the times and circumstances, can, should and will be restored" or that they "consider the trend toward Chinese regional hegemony unstoppable".**

democratic nations increasingly working together “beneath the radar” to counter the authoritarian principle of “non-interference in internal affairs” and encourage the embrace of universal values. Kagan may at this point be overstating the solidarity of the SCO, particularly in the wake of China’s refusal at the August 2008 SCO meeting to endorse Russia’s justification for the attack on Georgia. On the other hand, there may be more movement among like-minded democracies than he suggests. In addition to Indian Prime Minister Manmohan Singh’s declaration in 2005 that the “idea of India” is one of a democracy and that “all countries of the world will evolve in this direction as we move forward into the 21<sup>st</sup> century,” and Japanese Prime Minister Taro Aso’s concept of building an “arc of freedom and prosperity” in Asia, other nations in the region have begun branding their national identities in terms of universal values.<sup>7</sup> Indonesia championed the inclusion of democratic norms in the new charter for the Association of Southeast Asian Nations and held up its ratification because of weak enforcement mechanisms for the charter’s proposed human rights commission. The new conservative government of South Korea has hosted the first senior officials’ meeting of the Asia-Pacific Democracy Forum, echoing similar sentiments to Japan’s and India’s about the idea of Korea being a model of democratic development.

The difficulty in applying Kagan’s insights to policy lies in the question he himself asks: are the democracies ready to step up and take the lead in shaping the emerging international order? His proposal for a global concert or league of democracies became a political hot potato in this election year, but in the book it is a fairly modest proposition—convening “perhaps informally at first, but with the aim of holding regular meetings and consultations among democratic nations on the issues of the day. . . to signal a commitment to the democratic idea.” That much is already happening with the Asia-Pacific Democracy Forum, the US-Japan-Australia Trilateral Strategic Dialogue, and

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7. The transcript of Prime Minister Singh’s remarks at the India Today Conclave, New Delhi, February 25, 2005, is available at [www.pmindia.nic.in/speeches.htm](http://www.pmindia.nic.in/speeches.htm). The speech is cited in C. Raja Mohan, *Impossible Allies: Nuclear India, United States, and the Global Order* (Delhi: India Research Press, 2006), p. 93. See also Taro Aso, Minister for Foreign Affairs, remarks at the Japan Institute of International Affairs seminar, “Arc of Freedom and Prosperity: Japan’s Expanding Diplomatic Horizons,” November 30, 2006.

quiet meetings before meetings of the Asia-Pacific Economic Cooperation (APEC), among the “APEC Friendlies.” Building on those examples makes perfect sense.

The higher bar to cross is Kagan’s proposal that the concert, or league, of democracies might pool resources to address issues that cannot be addressed at the United Nations (pp. 97-98). The fact is that this is also happening, in the form of US- Japan- Republic of Korea trilateral strategy meetings on North Korea and in the G-7 agreements on financial sanctions toward Iran, for example. But an overt attempt to supplant the United Nations will be a difficult sell even among nations (like Indonesia, India, Korea, and Japan) that are already highlighting their unique roles in demonstrating the importance of democratic values to the region. The sell will be even more difficult if it is posed as a counter-bloc to the SCO, since none of China’s neighbours is eager to risk trade or political relations with Beijing by appearing to align with either of two adversarial camps. Kagan is right that the United States must strengthen coordination among democracies, but in Asia, that strategy will be more successful if it is regionally focussed (i.e., not a “global concert”) and if the lead is taken by Asian democracies wherever possible. The danger in pushing too hard for an American-led bloc is that the United States may end up being the only member.

Kagan’s *The Return of History* stands out among the big strategic books that have come out this presidential election cycle because it focusses on state-to-state relations, balance of power, and ideologies. Kagan also stands out in one other respect—unlike Albright, Ross, and Talbott, he was on the losing side of this presidential election.

## THE NEED FOR A COMPREHENSIVE ASIA STRATEGY

There is one thing that every author preparing a grand strategy for the new Administration does agree on, and that is the indispensable role that the United States plays in Asia. Yet few seem to come to terms with the

**In many ways, the big transnational challenges Asia faces cannot be addressed on a global level without first finding a framework for cooperation with China.**

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fundamental sources of American leadership in the region. Certainly, the United States has a standing as an “honest broker” in a region burdened with historical mistrust and nationalism, as Albright argues. But the United States is not really neutral when it comes to the rise of Chinese power. If it were, it would seek to accommodate China by allowing Beijing to shift the terms of the neoliberal order to benefit a more mercantilist view of the world and a more Sino-centric view of Asia. Instead, we have sought to shape Chinese behaviour over the past ten years to encourage Beijing to become what former Deputy Secretary of State Bob Zoellick calls a “responsible stakeholder.” We have done this by building a positive agenda for cooperation with China where we can—for example, on North Korea—but also by demonstrating the benefits to China of playing by the rules of the neoliberal order, as well as the downside risk for China of moving in a less responsible direction.

Shaping Chinese behaviour requires us to demonstrate not only that we are prepared to defend American interests (hedging) but also that other major powers in the region share our determination to avoid a more mercantilist international order or Sino-centric Asian order (shaping). Placing our hopes in the United Nations system as Talbott suggests will not sustain that proposition, though it may reinforce patterns of cooperation with China and help to bring China into international frameworks on challenges like climate change.

The reality is that we will need a strategy that builds regional cooperation based on 21<sup>st</sup> century concepts of globalisation and that strengthens international governance while we attend at the same time to the fundamental nineteenth century balance-of-power issues that Asia’s great powers watch with such intensity. The latter part of the strategy requires a disciplined focus on our allies and their interest so that we collectively reinforce a regional order that benefits China as Beijing reassures its neighbours that it is playing

by the right rules. As one bipartisan group of Asia experts (including this author) wrote in March 2007, "To get China right, we need to get Asia right."<sup>8</sup> We need to both engage and balance.

The steady erosion of balance-of-power logic in the big books on international strategy in recent years is an unmistakable trend. Richard Haass' "The Age of Nonpolarity," in *Foreign Affairs*, and

the "Phoenix Initiative" on the American role in the world, led by prominent advisers to Barack Obama during his campaign, both pick up on the theme that the international order is increasingly defined by transnational forces beyond the control of single states and that American exceptionalism is somehow outdated.<sup>9</sup> These themes probably reflect the foreign policy elite's rejection of some of the logic that led to the Iraq War. Taken from an Asian perspective, however, they do not create a compelling vision of America's role in the world for friends and allies who are forced to live with the reality of balance-of-power politics every day and who look to the United States to provide reassurance and leadership.

Asia is a maritime theatre, and the US Navy is poised at the cutting edge of each of most of that region's challenges and opportunities. In the 2004-2005 tsunami relief operations, the navy demonstrated that American preeminence rests in part on our ability to provide "public goods" but also that rising powers like Japan, India, and Australia could win influence and respect for doing the same in times of crisis. The 2007 Malabar exercise series in the Bay of Bengal (involving naval forces from India, the United States, Japan, Australia, and Singapore) sent a signal that the major maritime democracies had the capacity to work together to maintain open sea lanes of communication and welcomed others willing and able to do the same.

**The steady erosion of balance-of-power logic in the big books on international strategy in recent years is an unmistakable trend.**

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8. Richard L. Armitage and Joseph S. Nye, *The US-Japan Alliance: Getting Asia Right Through 2020* (Washington, DC: Centre for Strategic and International Studies, February 16, 2007), available at [www.csis.org/media/csis/](http://www.csis.org/media/csis/)

9. Richard Haass, "The Age of Nonpolarity," *Foreign Affairs* 87, no. 3, May/June 2008, available at [www.foreignaffairs.org](http://www.foreignaffairs.org). One notable exception is the Centre for New American Security's report on Asia; see Campbell, et. al., n.4.

**It is difficult to discern a clear consensus on strategy for managing order in East Asia.**

Through the Proliferation Security Initiative, the US Navy helped to create a new regional and international norm with respect to interdiction of transfers by dangerous states of materials related to weapons of mass destruction. The successful missile defence tests of Hawaii in December 2007 demonstrated that the United States and Japan are working toward increasing interoperability and virtual jointness in the face of new threats. The list could go on for pages, but in each instance, the navy has reinforced the American national objectives of reassurance, dissuasion, and deterrence in the region.

The US Navy, Marine Corps and Coast Guard October 2007 strategy document, *A Cooperative Strategy for 21st Century Seapower* captures all of these dimensions of Asian security, from managing the global commons to deterring the use of force by potential adversaries.<sup>10</sup> Importantly, the document highlights Asia as one of two key theatres for US maritime power. That should have been a highly reassuring signal to our Asian allies. Yet, I found surprising anxiety expressed in private about the new maritime strategy among strategic thinkers in Japan, Australia, and India. Where I shared other American experts' views that the new strategy offered a healthy mix of cooperation on transnational challenges, together with attention to traditional balance-of-power concerns, many of my interlocutors in maritime Asia thought they saw too much of a focus on cooperative engagement and not enough on defending their respective nations and maintaining a favourable balance of power. I suspect that this says less about the maritime strategy itself than about the larger context of American strategic discourse on Asia that some of our friends think they hear. We need to be certain that the search for new strategic "vision" does not blur the national security realities right before our eyes.

American strategic thinking has flirted with new security paradigms before. After World War I, the prevailing strategic view was that alliances

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10. Reprinted in *Naval War College Review* 61, no. 1, Winter 2008, pp. 7-19, and available at [www.navy.mil/maritime/MaritimeStrategy .pdf](http://www.navy.mil/maritime/MaritimeStrategy.pdf).

and balance-of-power logic were fundamentally dangerous and that new multilateral agreements, such as the Washington and London naval treaties, would better help to preserve the peace in Asia. That proved to be a fallacy, as Japan rearmed and drifted unchecked toward aggressive expansion. Post-war American strategy in Asia focussed solidly on alliance relations and balance of power, while reinforcing the

**New Administrations tend to import big strategic ideas that collide with reality before very long.**

peace through open markets and economic development. After the Cold War, the Clinton Administration came into office with a new paradigm that emphasised national economic security and devalued alliances and traditional balance-of-power logic. But by 1995, the region was questioning the staying power of American strategic leadership in Asia, as Chinese power grew and the Pentagon led a course correction with the “Nye Initiative” and the April 1996 joint security declaration between President Clinton and Prime Minister Ryutaro Hashimoto that expanded defence cooperation with Japan.

New Administrations tend to import big strategic ideas that collide with reality before very long. It is not clear how much influence the focus on megathreats and the growing resistance to balance-of-power logic will have on a President-elect who has already demonstrated a hardheaded pragmatism and will inherit two wars and a major financial crisis. Whatever the evolution in strategic thinking about Asia, the broader implications of this debate for the navy are significant. There is plenty to commend the new maritime strategy to senior officials focussed on megathreats, coalition building, and global governance. But do those missions require a surface combatant fleet as large as we now have in the Pacific? Also, if the danger of a security dilemma with China is deemed equal to, or greater than, the threat posed by the People’s Liberation Army’s (PLA’s) growing anti-carrier capabilities, how far should the US Navy go in terms of deploying new assets, strengthening interoperability with Japan, or updating planning for Taiwan contingencies in ways that might cause a reaction in Beijing? Similarly, if remaining questions about arms sales to Taiwan and Japan (for example, Taiwan’s request for F-16s or Japan’s interest in F-22s) are viewed as too provocative,

how else will we redress the growing delta between our allies and the PLA capabilities? Set against these strategic questions is the obvious backdrop of the financial crisis and growing budgetary requirements for the army in the Central Command theatre.

The navy may face a difficult “branding” issue in the years ahead. The new maritime strategy encompasses all of the tools a new President would want to have in order to face the complex array of challenges in Asia, from mega-threats to traditional power competition. But depending on where the larger strategic debate goes, and given the coming resource constraints, the navy may be forced into the position of having to trumpet the “dissuade, deter, defeat” part of its mission in the Pacific in order to ensure that those capabilities are not devalued. That may be uncomfortable for a Service that also sees itself, rightly, as the leading edge of military diplomacy in the region. But as an Asia strategist taking the long view of US interests in the region, I for one hope that the navy does not shy away from an effort to keep policy-makers focussed on the underlying strategic dynamics in this vital region.

# DEFENCE COOPERATION: A CASE STUDY OF INDIA AND SINGAPORE

PANKAJ JHA AND RAHUL MISHRA

With the possible exceptions of Russia and the US, all countries are dependent on imports of foreign weapon technology for indigenously developed weapons. Often, such dependency is extensive and deepening, and it is highly likely that the US will soon become the only country in the world with the capability to fund development of advanced weapons and technology on its own, creating the US monopoly of key technologies. While some countries might accept dependency, others may find it politically discomfiting, economically disadvantageous or militarily threatening. As a remedy to one-sided dependency, countries launch cooperative weapon development programmes, creating not only a larger market and pool of Research and Development (R&D) funds and technological resources, but also seeking interdependence. Such interdependence seems to work best when there is an existing cultural affinity, political engagement and economic interdependence. Alternatively, countries may develop niche technology that, while not included in cooperative programmes, still creates interdependence. The alternative option of self-sufficiency involves substituting imports for local development and production of weapons.<sup>1</sup> India has embarked on the self-sufficiency route but, due to certain external factors, has faced the technology denial regime. This has led to delays and incompleteness of certain projects.

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1. "Armaments, Disarmament and International Security," *Stockholm Peace Research Institute (SIPRI) Yearbook* (Stockholm: Oxford University Press, 2007), pp. 402-403.

**A strategic partnership with Singapore has developed to a large extent, with India giving training facilities on a lease basis to Singapore Air Force personnel.**

Nevertheless, India's joint ventures on defence with other countries are increasingly becoming successful. India's partnerships with Israel and Russia are cases in point. The trends indicate that India is not only cultivating strategic partnerships through military exercises, but also looking for partners in defence technology upgradation and pooling of resources. In fact, a strategic partnership with Singapore has developed to a large extent, with India giving training facilities on a lease basis to Singapore Air Force personnel for five years. After training its pilots at Kalaikunda air base and nearby firing ranges, India signed another agreement with Singapore on August 12, 2008, permitting it the use of the Babina and Deolali firing ranges for armour and artillery exercises. The agreement allows Singapore to train its ground forces in India for the next five years. Significantly, India has also allowed Singapore to station a small detachment of its army personnel and equipment (artillery guns and tanks) at the Babina and Deolali ranges for the duration of the agreement.<sup>2</sup> This arrangement is the first of its kind in India, which points towards increasing bonhomie in India-Singapore defence relations. It is to be seen whether there can be convergence in defence technology also.

The Defence Cooperation Agreement (DCA) signed in 2003<sup>3</sup> received a significant impetus with the signing of the Comprehensive Economic Cooperation Agreement (CECA) which followed in 2005.<sup>4</sup> Today, India and Singapore have emerged as strong trading partners. India's exports to Singapore amounted to US\$ 6,064 million in 2006-07 and US\$ 7,371.15 million in 2007-08.<sup>5</sup> On the other hand, imports accounted for US\$ 5,485.26

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2. See, "After Kalaikunda, Singapore to Train at Indian Army Firing Ranges", *The Indian Express*, August 13, 2008.
  3. Pankaj Jha, "India's Emerging Defence Cooperation with Southeast Asia", *India Strategic*, vol. 2, no. 9, September 2007, p.8.
  4. "Agreements, MoUs Signed by India and Singapore", <<http://meaindia.nic.in/treatiesagreement/2005/29ta2906200501.htm>> Accessed on December 17, 2009.
  5. Export Import Databank, Ministry of Commerce, Government of India, <<http://commerce.nic.in/eidb/ergnnt.as>> Accessed on January 2, 2010.

million in 2006-07 and US\$ 8,121.61 million in 2007-08.<sup>6</sup> It is widely believed that India's trade with Singapore will get a boost with the India-ASEAN (Association of Southeast Asian Nations) Free Trade Agreement coming into force from January 1, 2010. Additionally, Singapore has also emerged as one of the largest foreign direct investors in India, with cumulative investment flows since August 1991 amounting to more than US \$ 1.5 billion. As is evident from the huge volumes of trade, economic drivers have created the space for joint ventures in defence production. Convergence of interests in the political, economic and defence sectors, together, is paving the way to a new horizon in India-Singapore relations.

**Singapore has also emerged as one of the largest foreign direct investors in India.**

#### **DEFENCE CONVERGENCE: POST-COLD WAR INITIATIVES**

Since the birth of Singapore in 1965 until the end of the Cold War, India-Singapore relations comprised mostly a case of missed opportunities. The compulsions of Cold War politics and the resultant perceptions allowed little space for cooperation between the two countries. However, the collapse of the Soviet Union, the end of regional conflicts in Cambodia and Afghanistan, and India's own strategic reorientation helped thaw the frozen relationship. Defence cooperation has been a natural corollary to the newfound warmth in the bilateral relations. India's "Look East Policy" and the opening up of the economy in the early Nineties attracted Singapore to initiate wide-ranging and long-standing defence cooperation and policy dialogue. India reciprocated with the initiation of the anti-submarine warfare exercises in 1994. The upswing in defence ties is a result of a two-pronged strategy of economic and military cooperation – the Defence Cooperation Agreement in 2003 and the Comprehensive Economic Cooperation Agreement in 2005. In 2004, India granted the Singapore Army and Air Force training facilities on its soil — a significant departure from its traditional position of not allowing any foreign military presence. In October 2004, Singapore and India held their

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6. Ibid.

bilateral air exercise codenamed SINDE X 04 in Gwalior in central India<sup>7</sup>, and again in January 2006, at Kalaikunda, near Kolkata. On November 24, 2008, the sixth joint air exercise between the Air Forces of India and Singapore was held at the Kalaikunda air base in West Bengal. The Republic of Singapore Air Force (RSAF) brought its F-16C/D fighter aircraft and the Indian Air Force (IAF) its MiG-27 ground attack fighters in the twenty-day war-games.<sup>8</sup> Naval ships from Singapore, as part of the exercise codenamed “Milan”, have been visiting Port Blair in the Andamans biennially since 1991<sup>9</sup> and, from 1996, have called on Vishakhapatnam for Anti-Submarine Warfare (ASW) exercises. In return, Indian naval ships have also been regularly visiting Singapore. Interestingly, from 1993 till date, the highest number of joint naval exercises has been with Singapore only. These have included missions for search and rescue operations, anti-piracy and ASW. The growing operational familiarity has led the navies of the two countries to venture into the South China Sea and conduct joint exercises as part of SIMBEX-05.<sup>10</sup> This was given an added thrust at the diplomatic level when in February 2006, Singapore posted its first ever defence adviser to New Delhi.<sup>11</sup> SIMBEX is an acronym for “Singapore India Maritime Bilateral Exercise”. It stands upon an enduring foundation of bilateral naval cooperation that was formalised a decade-and-a-half ago, when Republic of Singapore Navy (RSN) ships began training in ASW with the Indian Navy, in 1994. The 2009 edition of the SIMBEX series of annual bilateral naval exercises between the Indian Navy (IN) and the RSN, commenced in the Andaman Sea on March 24, 2009 and went on till April 2, 2009.<sup>12</sup> The RSN participated in the exercise with two missile corvettes, a

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7. Operation Ankush was the initial joint air exercise between India and Singapore held in Gwalior in 2004. Four F-16C s and Two F- 16Ds participated in it.

8. “India, Singapore Hold Joint Air Exercise-SINDE X 2008”, <<http://www.india-defence.com/reports-4104>> Accessed on January 3, 2010.

9. The ‘Milan’ scheduled for the year 2005, was not held owing to the tsunami devastation in the Indian Ocean region.

10. SIMBEX -05 was held in Singapore’s naval environment as part of a natural progression of the city state’s naval exercises with India .For more details, see *The Hindu*, March 6,2005 .

11. This appointment gains importance owing to the fact that Singapore has not posted its Defence Attaché in any of the European countries. This observation was made by the Defence Attaché of Singapore in 2006.

12. “SIMBEX 2009- Singapore, India Conduct Naval Exercise”, <<http://www.bharatprakshak.com/NAVY/Galleries/Bridges/2009/Simbex/>> Accessed on January 3, 2010.

frigate and a submarine. The IN deployed two destroyers, a corvette and an oil tanker. Maritime patrol aircraft from both countries provided air surveillance for the exercise, while fighter aircraft from the RSAF simulated aerial attacks. The navies have also interacted in several multilateral exercises. Singapore and India have crucial stakes in shielding their common sea-lanes of communication, combating piracy and narcotics trade, curbing gun-running, and preventing maritime terrorism.<sup>13</sup> Over the years, successive editions of SIMBEX have incorporated a wide range of sea-going serials, ranging from platform-specific exercises in *Damage Control* and *Fire Fighting*, through *Visit, Board, Search and Seizure* (VBBS) procedures in support of low intensity maritime operations and the countering of asymmetric threats, all the way up to advanced multi-threat scenarios, involving surface, sub-surface and airborne combatants, inclusive of weapon-firing serials.<sup>14</sup> These naval exercises clearly demonstrate that defence relations between the two countries have moved from 'liaison visits to strategic engagement'.

The first bilateral army exercise – involving armoured and artillery units – was held from February 11 to April 5, 2005, in Deolali and Babina.<sup>15</sup> The army exercises continued again in January 2006 at the same location. The third set of exercises was held in Babina, codenamed "Exercise Bold Kurukshetra" in March 2007. These exercises were aimed at multi-tiered planning and joint execution of missions under a unified command structure.<sup>16</sup> The Singapore Armed Forces (SAF) and the Indian Army conducted a bilateral artillery exercise in Deolali, India, code-named "Agni Warrior" in October 2009. The 2009 exercise, which was the sixth in the "Agni Warrior" series, involved soldiers from the 23rd and 24th Battalion, Singapore Artillery, as well as the Indian Army's 283 Field Regiment. As part of the exercise, the two armies carried out a combined live-firing with the SAF's FH-88

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13. Manjit Pardesi, "Deepening Singapore-India Strategic Ties", *IDSS Commentaries*, March 22, 2005. <[http://dr.ntu.edu.sg/bitstream/handle/10220/4002/RSIS-COMMENT\\_171.pdf?sequence=1](http://dr.ntu.edu.sg/bitstream/handle/10220/4002/RSIS-COMMENT_171.pdf?sequence=1)> Accessed on January 6, 2010.

14. n. 12.

15. Singapore India Sign Memorandum of Understanding for Army Exercises in India", <[http://www.mindef.gov.sg/imindef/news\\_and\\_events/nr/2005](http://www.mindef.gov.sg/imindef/news_and_events/nr/2005)> Accessed on September 12, 2005.

16. "India, Singapore Lock Horns in 'Kurukshetra'", <<http://www.rediff.com/cms/print.jsp?docpath=/news/2007/mar/24game.htm>> Accessed on December 30, 2009.

**The indigenisation of Singapore's defence industry has given it a competitive edge in defence technology.**

howitzer guns and 155mm battery guns from the Indian Army on October 26, 2009.<sup>17</sup> The joint military exercises under the defence cooperation agreement have enhanced India's expeditionary capabilities, while simultaneously adding a new understanding of the interoperability of systems and greater engagement of the two countries in the defence sphere. The question is whether military exercises could be a prelude to defence industry cooperation. In fact, during 1992, it was mooted that India should refurbish its MiG series of aircraft with the help of Singapore Technologies<sup>18</sup> but this could not get underway. Subsequently, however, when defence cooperation enhanced under the framework on defence cooperation, Singapore's Prime Minister opined that defence cooperation could percolate to the defence technology domain.

The indigenisation of Singapore's defence industry has given it a competitive edge in defence technology. It has created niche markets for its products as well as joint development options at the global level. India, being a principal importer of defence equipment, has expectedly raised commercial interests in Singapore. Its preference is, however, to have joint ventures in the field of defence R&D and product development and not merely a 'buyer-seller' relationship with Singapore.

**DEFENCE TECHNOLOGY COLLABORATION: WHY IS IT NECESSARY?**

The Third World defence equipment acquisition and military production technology acquisition pattern may be understood through an analysis of a number of arms transfer trends. These important trends are: the growing competition for sales of weapon systems, particularly among the Western European nations; the growing number of arms suppliers compelled to enter and to compete in the arms market primarily due to economic incentives; the

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17. "Singapore and Indian Armies Conduct Bilateral Artillery Exercise", [http://www.mindef.gov.sg/imindef/news\\_and\\_events/nr/2009/Oct/29Oct09\\_nr.html](http://www.mindef.gov.sg/imindef/news_and_events/nr/2009/Oct/29Oct09_nr.html)> Accessed on January 2, 2010.

18 G.V.C. Naidu, "India's Strategic Relations with Southeast Asia", in Baladas Ghosal, ed., *India and Southeast Asia: Challenges and Opportunities* (New Delhi: Konark Publishers Pvt.Ltd, 1996), pp.28-41.

number of new arms producers and suppliers, particularly those of the Third World; and, perhaps most critical in the long-term, the increasing necessity for arms suppliers to provide offsets on arms transfer agreements.

As more and more nations have developed a capability to produce weapon systems, they have entered the export market. Increasingly, much of the competition for exports is derived from the recent arrivals on the arms export stage which is motivated by economic considerations. These countries (one of them being Singapore), in contrast with the United States and the erstwhile Soviet Union, do not have a domestic demand for arms production. Thus, it is economically not as viable for them as it is for countries like the US and Russia. The impulse to export is largely motivated by the necessity of recovering the costs incurred in developing their arms industries, and is based on achieving the economies of scale that longer production runs can provide. While the cost savings of exports of these new producers are difficult to measure and data is obviously scarce or indirect, an example of cost savings may be seen from the exports of the General Dynamics F-16 fighter. Supplementing domestic requirements with exports can, not only reduce the manufacturer's costs per unit, but also reduce the costs of domestic defence procurement. In addition, many countries, both from the Third World and beyond, are experiencing trade deficits. The global economic slowdown has made the situation worse for these countries. Arms exports comprise one way to ameliorate this condition.

The dependency of military industries in the Third World indicates the importance of technology acquisition through licensed production in these countries. The policies and economic pressures on the more developed nations regarding technology transfers, offsets, co-production and licensing have already made a substantial contribution to the military production levels and the technology of production in Third World countries. In most of the Third World countries, the major issue is to acquire production knowledge. The production knowledge acquisition might lead to large scale indigenisation of defence production. The route to indigenous production of defence equipment goes through several stages. The primary stages are centred on the acquisition of military equipment through purchase or grant assistance

**The final stages are the development of the ability to modify acquired systems, to copy them, to design new systems and to produce those systems.**

from other nations. The recipient nation may require additional services to learn to operate and maintain the items it receives. Subsequently, the recipient will learn to perform routine check-ups and repairs, maintenance and rebuild tasks. The next stage of production knowledge acquisition includes licensed production and co-production agreements, for assembly of a system or for the production of components. At this point, the recipient has developed the capability to produce major components or parts for the system and has established the facilities for final local assembly. Major items such as power trains or advanced electronics, however, must be imported. The final stages are the development of the ability to modify acquired systems, to copy them, to design new systems and to produce those systems. An upgradation of this stage is the ability to design major weapon systems and then produce them with minimal dependence on external sources for critical components. Finally, a nation may develop the capability to design and then manufacture weapon systems using all indigenously made components. Thereafter, the nation tries to export the defence equipment for offsetting the development and production costs of the weapon system.

It is likely that the current defence technology patterns will escalate technology transfer through the practice of offsets as Third World countries increasingly attempt to export equipment to defray the costs of their defence production. Already, the transfer of technology has resulted in diminishing control over arms in the world as well as over the technology for producing the arms. The future of Third World producers, with economic motivations for arms exports and under recipient pressure to offset their purchases, will only contribute to declining arms and technology control.

The second major source of frequent technology transfer is the one created by the corporations, where pursuit of a particular product may lead to new applications in the commercial arena which were not considered at the outset for product development. Frequently, these may include technologies

developed for the defence arena such as those in communications, materials or other related fundamental aspects of military need. Consequently, the concept of dual use in the military arena became increasingly favoured through the mid-1990s in most parts of the world as a result of the change in the overall global market environment for defence material needs. Enormous efforts have been underway, aimed at adapting existing developed military technologies to the civilian arena under the broad umbrella of dual use technologies. Indeed, since the onset of the Strategic Defence Initiative (SDI) and Ballistic Missile Defence Organisation (BMDO), at least one organisation was tasked with the dual use mission right from its inception, and adheres to the earlier discussed suggestion that technology transfer is most successfully accomplished when dual applications or at least two initial applications are taken into consideration, from the 'concept' or 'development' stage. This allows more rapid integration of technology for both intended uses – in the defence arena as well as the civilian sector<sup>19</sup>. In fact, Singapore qualifies as a viable partner in defence technology cooperation and joint venture initiatives due to the commercial application of the defence technology and also the limited domestic demand.

#### **INDIA-SINGAPORE: DEFENCE TECHNOLOGY CONVERGENCE**

One of the more common vehicles by which technology transfer began to emerge as an industry had its roots predominantly in the creation of "joint venture strategies" achieving particular prominence during the 1970s and 1980s. A joint venture strategy usually meant the development of partnerships in the country of desired manufacture to arrive at local production of a given product. In the contemporary times, these have been increasingly regarded as "strategic partnerships" aimed at selected regional or even global marketplaces. The process by which these have been created from the 1970s until the present usually focussed on the identification of a suitable partner to secure mutual funding, manufacture and distribution of products within that market segment.

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19. P.F Gerity, "Fundamentals of International Technology Transfer" in Robert F. Dundervill et al. eds., *Defence Conversion Strategies* (Dordrecht: NATO ASI Series, Kluwer Academic Publishers, 1997), p.14.

**Among the most active and effective technology transfer mechanisms in commercial areas is the joint venture.**

One of the lessons to be learned in the technology transfer arena is that it is not always the case that the 'best' or the 'most advanced technologies' will attain a successful market posture. One must examine a market carefully and determine at least the initial need for the product within that arena and then begin to identify those that provide the technologies which might successfully compete for that market segment. Often, it is necessary to identify second and third tier technologies for market introduction into critical international markets. The initial task may become one of convincing those with the technology to enter possible new target markets. This is because it is usually easier to convince those with second and third tier technologies to consider this possibility as opposed to those who are industry leaders. Identification of the technology and interested party is normally only the beginning point for the consideration of successful technology transfer. The second decision which must be made is determination of the satisfactory partner to team with in the target market for product and technology introduction and manufacture. This part of the process is, perhaps, the most critical phase regarding technology transfer and its successful outcome<sup>20</sup>.

Among the most active and effective technology transfer mechanisms in commercial areas is the joint venture, a mutual undertaking by two or more distinct public or private entities. Large scale joint ventures have not been common until relatively recently in the Third World largely because of the absence of a skilled manpower base. Regulations (and other informal restrictions) promulgated by a number of Third World countries requiring near majority or majority participation in many activities have led to a rapid proliferation of joint venture arrangements, especially in the Middle East. But these are often more mechanisms for personal arrangements of recipient country nationals rather than for any true technology transfer. On the other hand, joint ventures between US and Israeli defence related firms started

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20. Ibid., p. 16.

earlier, and have been much more effective mechanisms for transfer due to the skills base of the Israeli partners<sup>21</sup>.

Similar in some respects to joint ventures, foreign affiliation involves overseas extension of ownership either through subsidiaries or other affiliates in other countries or through outright merger with a foreign firm or institution. Since international transactions in these circumstances are intra-firm transactions, much of the commercial or proprietary resistance to the international transfer of technology is minimised. Another active channel is the establishment or use of turnkey operations but this would work only when there is an adequate skilled manpower base. Co-production and co-development agreements may involve a one-way transfer of technology as well. It should be noted that licence agreements have not been included among the most effective channels of transfer of technology.<sup>22</sup> Singapore had embarked on the commercial development of technology as well as opening of subsidiaries and affiliates to gain access to relevant technology.

Singapore's defence industry has been driven to develop hardware both in collaboration with foreign defence corporations and by its home-grown enterprises. The Singapore Technologies Electronics Ltd (ST Electronics) was set-up in 1969, then known as the Singapore Electronic and Engineering Pvt. Ltd (SEEL), providing effective solutions and services in aerospace, electronics, land systems and marine sectors. In 1997, the four separate arms were merged to form Singapore Technologies Engineering Ltd (ST Engineering). This has broadened and deepened the technological capability of Singapore's indigenous defence industry and, importantly, positioned it to leverage defence collaboration. In line with the above objectives, the strategy of the indigenous defence sector is as follows:

- Establish long-term and enduring relationships with pioneers in the defence industry.
- Emphasis on training and education to provide a highly skilled

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21. Kwang Il Baek, ed., *The Dilemma of Third World Defence Industries: Supplier Control or Recipient Autonomy*, Pacific and World Studies No.3 (Boulder, Colorado: CIS-Inha University, West View Press, 1989), p.63.

22. Ibid.

technical workforce with the capacity for absorbing new and emerging technologies.

- Minimise the self-purchases which are currently about 45 per cent of total procurement.
- Emphasis on dual use industries and technologies of strategic significance to leverage spin-offs from critical technologies through a bigger market.
- Privatisation of the local defence industry to allow for greater transparency and efficiency in defence collaboration.<sup>23</sup>

Singapore's enhanced technical capability provides for greater potential collaboration than any other Southeast Asian country. Simultaneously, it also gives it the economic and strategic space that allows for strategic manoeuvrability. For example, as a 2007 RAND Report suggests, the US would like to place one of its aircraft carriers near Singapore in view of any exigency arising out of China's military might and modernisation of its navy<sup>24</sup>. Also, Singapore is the only Asian participant, apart from Israel and Turkey, in the Joint Strike Fighter (JSF) programme with the US and UK. South Korea, a longstanding US partner, with its emphasis on self-reliant defence capabilities, is constrained in deriving the possible benefits of being a security cooperation partner. Even Japan, which has one of the most advanced defence industries, is unable to participate in the defence technology exports and joint collaboration.<sup>25</sup>

The great speed with which Singapore's defence industry is acquiring technical knowhow would quickly make it one of the most versatile, allowing for wide-ranging joint ventures and collaborations in defence production. In 2002, the Singapore defence industry was given the North Atlantic Treaty Organisation (NATO) Codification System (NCS) 'Tier Two' status. This pertains to the regular maintenance and repairs of the NATO armoury and the millions of spare parts required. NATO has established

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23. "Government Procurement Policy, NZIER", <<http://www.defence.govt.nz/pdfs/nzier.pdf>> Accessed on June 3, 2007.

24. Roger Cliff, Evan Medeiros, and Keith Crane, "Keeping the Pacific: An American Response to China's Growing Military Might", <<http://www.rand.org/publications/randreview/issues/spring2007/pacific.html>> Accessed on June 3, 2007.

25. Christopher Griffin, "Pacific Arms Race: Why Asia is Where the JSF Matters Most", <<http://www.armedforcesjournal.com/2007/03/2545493>> Accessed on December 28, 2009.

more than 17 million spare parts under its codification. About 50 countries use the NCS but only four are certified to help NATO issue numbers on all the spare parts: Brazil, New Zealand, Australia and Singapore.<sup>26</sup> This gives the defence industry of these countries significant benefits in areas such as inventory reduction, warehousing and multi-source procurement.

The strength of Singapore's defence industry has been the diversification of the industry into the civil domain as well as providing tailor-made solutions to its customers. The one key feature to the success of ST Engineering is minimum government interference. A regulatory body, the Defence Science and Technology Agency (DSTA), coordinates the working of the various units of ST Engineering. While the government's non-interference policy is crucial to the overall growth and functioning of the company, the flip side is that the government is not proactive in promoting its industry, thus, resulting in a customer base that could have been far greater than the current one. In order to survive as well as to expand its base, ST Engineering has made several critical decisions:

- Civilianisation of industry which means that ST Engineering, apart from listing itself in the Singapore Stock Exchange, entered the civilian products sector like commercial aircraft maintenance, satellite and broadband communications, e-government infocomm and mobility solutions, infocomm security products and solutions, emergency and security systems, electro-optic systems, intelligent building management, transportation systems, training and simulation systems.<sup>27</sup>
- Inducting dual-use technologies for civilian and defence production which was seen during the outbreak of the Severe Acute Respiratory Syndrome (SARS) when thermal imaging was used to scan the passengers for possible symptoms of fever at the airports.<sup>28</sup>

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26. "DSTA Attains NATO Codification System(NCS)Tier 2 Status", <<http://www.dsta.gov.sg/home/DisplayPage/sideContentPage10.asp?id=433>> Accessed on July 6, 2006.

27. Information Brochure, Singapore Technologies Engineering, Singapore, 2005.

28. Adrian Kuah and Bernard Loo, *Examining The Defence Industrialisation-Economic Growth Relationship: The Case of Singapore*, Working Paper No.70 (Singapore: Institute of Defence and Strategic Studies, July 2004), pp.15-16 < <http://www.ciaonet.org/wps/kua05/kua05.pdf>> Accessed on January 1, 2010.

- High investment in systems integration and communication systems so as to have an advantage in cutting edge technologies in the wake of network-centric warfare and use of technology for the third generation soldiers.
- Joint collaborations, leading to Singapore's defence industry setting up its bases in various countries.<sup>29</sup> This has helped expand business and, thus, long-term sustainability, better perks and facilities for its workforce.
- Heavy investment in R&D to cater to the customer base with more tailor-made solutions. Instead of being a large-scale producer of arms, ST Engineering diversified itself and envisioned its place in the second tier defence firms which do not have much capital but have a high knowledge base to capitalise on.

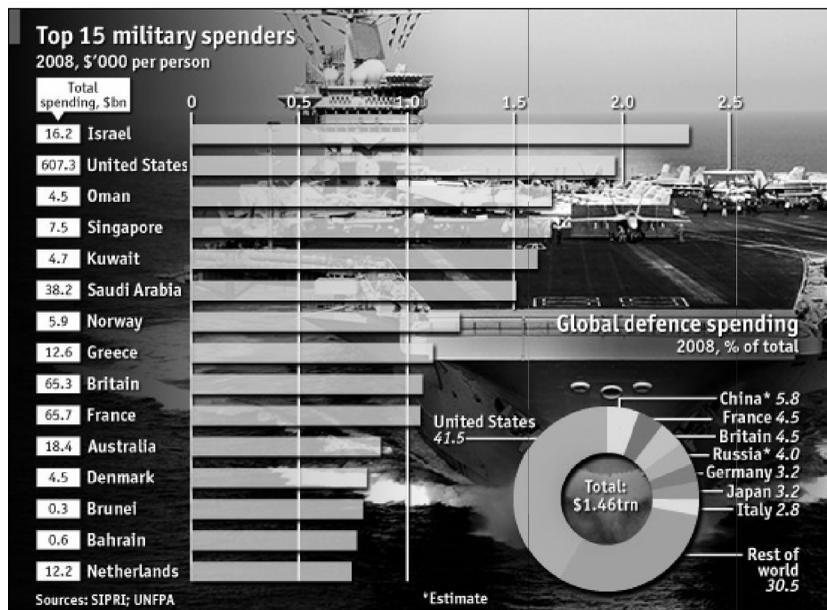
Singapore's defence industrial base has developed into a more customer-based industry with policies to counter rising costs through repair and making the industry more competitive at the global level. The developments of the lightweight howitzer Pegasus and SAR-21 assault rifle, to name a few, are success stories. In fact, owing to its diversified defence industry, the Singapore government is enhancing its defence budget and allocated one per cent of its total US\$5.16 billion defence budget to R&D of new defence technology in 2006. The budgetary allocation to the defence sector almost doubled in financial year 2008, reaching \$10.8 billion. The 2009 budget spending amounted to US \$ 11.4 billion. It was around 6 per cent of Singapore's Gross Domestic Product (GDP) in 2009, thereby making Singapore's one of the biggest defence budgets in the world.<sup>30</sup> The defence spending trends are further clarified in Fig 1 below.

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29. Adrian W.J. Kuah, "The Political Economy of Defence Industrialisation in Singapore: The Costs, Trade-Offs and Synergies", *Defence Studies*, vol. 5, no. 2, June 2005, pp.213-227.

30. "Singapore to Have One of the Highest Defence Budgets in the World in 2009", <<http://theonlinecitizen.com/2009/07/singapore-to-have-one-of-the-highest-defence-budget-in-the-world-in-2009/>> Accessed on January 1, 2010.

Fig 1



Source: SIPRI, UNFPA. On the net at: <http://i140.photobucket.com/albums/r19/theonlinecitizen/Pictures%20Posted%20on%20TOC/Security%20Forces/Military.jpg>

The money allocated is expected to go towards advancing weapons, exploring tactics and adding capabilities for the military.<sup>31</sup> The capacity and capability building has been the harbinger of growth of Singapore's defence industry and the 'butter versus guns' debate has not escalated to the extent of undermining its growth. The defence industry has the capability to sustain itself through innovation and adaptation as well as developing dual use technologies.

While the advantages of dual use technologies are manifold, there are, however, certain drawbacks. Singapore's defence industry has been relying to a large extent on maintenance and repair as well venturing into the commercial domain, which has led to substantial profits, but it has not been able to develop large military hardware independently.

31 "Singapore to Spend More on Developing Defence Technology: Report", <<http://www.spacewar.com/2004/040411061332.bfpq4fwt.html>> Accessed on December 22, 2009..

Though commercialisation of defence technology makes sound economic sense, strictly in defence understanding, the strategic advantage in terms of weapons and innovation gets diluted in the long-term. Secondly, the capabilities have been more in consonance with the economic requirements rather than building a defence technology base, which could be of help in times of war. Singapore has been scouting for partners who have strong economic fundamentals as well as a good defence industrial base for joint production and joint ventures in development of systems.

### **INDIA-SINGAPORE: EVOLVING DEFENCE TECHNOLOGY COOPERATION**

After having entered the Indian telecommunication and infrastructure sectors, Singapore companies have been eyeing the defence sector for quite some time. Regular visits of its Defence Science and Technology Agency (DSTA) personnel to India helped to establish the Singapore Technology Engineering Liaison Office in 2004. Subsequently, Singapore opened its Defence Adviser Office in 2005. Singapore, interestingly has no Defence Adviser Office in the European countries. Singapore Defence Industry, which is synonymous with ST Engineering, has been involved in manufacturing fast craft patrol boats for the Indian Coast Guard and also repair of Indian naval vessels in Singapore. In recent times, there has been a flurry of activities between Singapore's Defence Scientific Adviser and the DRDO Chief, exploring the possibilities of future cooperation in the field of space technology and R&D. Other areas of cooperation are in the realm of life-cycle management as well as upgrading aircraft and provision for time-bound replacement. India has been using the services of Singapore's defence industry, more specifically ST Aerospace, in the following areas (Table 1):

**Table 1**

<b>Customer</b>	<b>Existing Business</b>
Indian Navy	Supporting in their avionics upgrade of the Sea King helicopters and Harrier aircraft.
Hindustan Aeronautics Limited (HAL)	Supporting HAL in the area of avionics, mainly on the product range of radio.
Global Vectra Helicorp	Overhauling the transmission and power train items for the Bell Helicopters fleet.
Deccan Aviation	Supporting Deccan Aviation on the various product range from mechanical and avionics shops.
Pawan Hans	Supporting the power train items for the Bell Helicopters fleet
Indian Coast Guard	Repairing ARC182 items for the Indian Coast Guard. <sup>32</sup>

In the maritime domain, Indian naval ships have been visiting Singapore Technologies Marine for repairs and maintenance. The turnaround time provided by the Singapore Technologies Marine adds to the cost advantage and reduces the burden on India's shipyards. In the Eighties, the Singapore defence industry helped India to manufacture two fast attack craft and subsequently four were manufactured in the Cochin shipyards. India has also been seeking Korea's help in ship-building technology. Comparatively, Singapore scores above South Korea because of the lower costs and better efficiency. Lack of space provides Singapore the advantage to venture overseas and offer its expertise in ship repair and maintenance.

However, the major bottleneck, at the moment, for the India-Singapore defence technology partnership is the ongoing Central Bureau of Investigation (CBI) run enquiry regarding corruption charges against Singapore Technologies (ST). Singapore Technologies is alleged to have bribed Indian officials to grab the defence deals. With the enquiry still on, Singapore is suffering a lot because of this, since new agreements cannot be inked unless ST is given a clean chit. One cannot conclusively say whether the company, along with other six international companies, including the

32. ST Aerospace Customer Records, 2006.

**Singapore would also like to reap the benefits of the economies of scale because of India's huge military production base as well as increased domestic demand.**

ones from Israel, were involved in the bribery row, but it could prove disastrous to the companies involved in the bribery case, including the one from Singapore. For instance, in June 2009, Singapore-made 155-mm lightweight howitzers were lined up at the Army's testing range at Pokhran for testing but it took a long time for them to get the clearance. The top brass of the defence contractor, Singapore Technologies, the President and CEO Tan Phey Hock and Vice President Patrick Choy, visited Delhi in an attempt to explain to New Delhi that their company had nothing to do with either middlemen or those named in the bribery scandal allegedly involving former Ordnance Factory Board chief Sudipta Ghosh. This, in no uncertain terms, gave a tough time to Singapore.<sup>33</sup> On January 6, 2010, it was reported in the Indian media that ST might lose the US \$ 1 billion contract to the US because of the CBI enquiry. According to reports in the *Indian Express*, India's national daily, "A top defence official has said the Defence Ministry is looking at other options, including a direct military purchase from the US, for the ultra light 155 mm howitzer contract in which ST was the only contender."<sup>34</sup> The only ray of hope for Singapore, as reported in the *Indian Express*, is that "a direct military sale of the ST gun from Singapore could be pursued by the Ministry. This direct government-to-government sale would also take care of legal problems being faced in negotiating directly with a tainted firm like ST."<sup>35</sup>

### ASSESSING CAPABILITIES

India is on a fast track to harness the benefits of joint collaboration in the development of weapon systems. The advanced light helicopter with Israel and the supersonic missile Brahmos with Russia are success stories of joint

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33. "Gun Ready for Testing, Singapore Firm Top Brass Rush to Explain" *The Indian Express* (New Delhi), June 14, 2009.

34. "Singapore Firm May Lose Army Contract to US", *The Indian Express* (New Delhi), January 7, 2010.

35. Ibid.

ventures. Singapore would also like to reap the benefits of the economies of scale because of India's huge military production base as well as increased domestic demand. As India tries to integrate its rising economy with Southeast Asia, Singapore would increasingly play a key role as a base for India to expand into this region and also as the main destination for joint collaboration in R&D in defence. Singapore, responding to being a 'hot destination', has evolved a concept of defence ecosystem backed by efficiency and smooth coordination between its various agencies like DSTA and DSO. The defence industry in Singapore has risen to 35<sup>th</sup> position in the world defence suppliers' standings, with the 2001-05 aggregate exports amounting to US\$71 million (at constant 1990 prices).<sup>36</sup> The basic components of the Singapore defence ecosystem include the users, the developers and the producers, together with their operating environment. All are closely linked, from shared interests to cross-posted personnel. In fact, Singapore also endeavours to form a capable military force hinged on a sound defence industry catering to the requirements of the SAF. The effort was originally centred on three key thrusts:

- Developing the local defence industry.
- Building up a pool of specialised personnel to form the nucleus of Singapore's engineering and R&D efforts.
- Developing R&D capabilities.

These remain the basis for developing capabilities in acquisition, maintenance, design, manufacturing and production, upgradation and R&D.<sup>37</sup> Singapore's defence sector is particularly unique among the developed countries as the activities are overwhelmingly concentrated in a single group of companies. This has been the result of government policy aimed at developing self-reliance, combined with a limited domestic market. The growth of ST Engineering has been impressive and as per

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36. n. 1.

37. Robert Karniol, "Industry Briefing-Singapore Defence Ecosystem", *Jane's Defence Weekly*, February 15, 2006.

the latest data, the group has revenues of about US\$3.34 billion<sup>38</sup> along with an area of operations spanning 22 cities in 15 countries and a global workforce numbering of 12,000. In most of the cases, the industry has resorted to custom-made equipment either by acquiring an indigenous subsidiary or through a joint venture with the state enterprise. One of the success stories of Singapore's defence industry has been the development of the lightweight howitzer. The Indian Army has issued a Request for Proposals (RFP) for the procurement of 140 ultra lightweight 155mm/39 calibre field howitzers. The howitzers which were offered comprise the Pegasus SLWH from Singapore Technologies and LW 155 UFH from BAE Land systems<sup>39</sup>.

#### **SINGAPORE: GATEWAY FOR JOINT COLLABORATION AND R&D**

India has developed a competency with regard to electronic systems while Singapore has built up the expertise in the systems integration and in miniaturisation of systems. As India's domestic defence sector is still constrained owing to the existing international sanctions post-Pokhran in 1998, it is imperative to initiate fruitful and effective defence relations with technologically advanced capable countries like Singapore. Countries like South Korea, Japan, and Australia have their own large domestic demand and it is difficult to achieve a closer partnership with them. The technical collaboration would, in turn, strengthen bilateral relations. A few of the areas of cooperation are given below.

##### *Repair and Maintenance*

In order to meet its repair and maintenance requirements, India has to seek alternatives from countries which have a developed second-tier industry. The two countries which emerge prominently are South Korea and Singapore. China can be discounted from a political and security perspective. South Korea, as explained earlier, has its limitations. For India,

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38. For details, see <[http://www.stengg.com/pressroom/press\\_releases\\_read.aspx?paid=1002](http://www.stengg.com/pressroom/press_releases_read.aspx?paid=1002)> Accessed on December 25,2009.

39. Prasun K. Sengupta, "Firepower for Effect: Lightweight Howitzers to Enhance Firepower," *Force*, vol. 5, no. 6, February 2008, p. 75.

Singapore, thus, becomes an important strategic choice. Singapore has well developed maintenance and repair facilities catering to a number of military organisations. It also has the second largest third-party aerospace maintenance facility. In all likelihood, Western manufacturers might outsource the maintenance and spare facilities to alliance partners in Asia. This would help save costs on logistics and spare resources for further defence manufacturing.

Singapore has been trying hard to get a foothold in the Indian market through a joint venture with the Tatas in the aerospace sector and has been providing turnkey solutions to a few software companies in India on systems security. In 2006, ST Engineering signed a joint venture with the Kalyani Group of India for manufacturing defence equipment in India under the 26 per cent Foreign Direct Investment (FDI) approved by the government.<sup>40</sup> The superimposition of civilian research in the areas of metro-rail, simulators and systems integration is an added advantage for India. On the one hand, it would help in enhancing its technological base, while, on the other, in case of the diversification of the military hardware and future purchase of F-16s, it would give an early start in maintenance and repair of such systems.

### *Human Resource Development*

One of Singapore's unquestionable strengths is in the area of project management, optimising R&D and cost cutting. Singapore has achieved this capability through efficiency and better turnaround time. It is interesting that while Singapore receives product orders, it has to seek testing facilities in other countries. For example, India provides testing facilities for its Unmanned Aerial Vehicles (UAVs). Clearly, Singapore's defence industry and research consortium have been well integrated and are delivering results efficiently. Singapore has for long categorised its acquisitions in the form of low technology, medium technology and high technology military hardware. In terms of low technology, it has been

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40. "Kalyani Group Enters into Joint Venture Agreement with Singapore Technologies Kinetics" <[http://www.bharatforge.com/investers/JV\\_with\\_Kalyani\\_Final.pdf](http://www.bharatforge.com/investers/JV_with_Kalyani_Final.pdf)> Accessed on December 14, 2009.

**The Defence Cooperation Agreement of 2003 has the potential to create a minor trickle-down effect in terms of strengthening economic ties and boosting trade.**

seeking off-the-shelf-purchase, while with regard to medium technology, it has relied on joint collaboration. On the high technology front, it still has to make headway. Singapore has enhanced its R&D capability through commercialisation of technology and exports so as to garner funds for further research. The niche areas are electronics, systems security, networking and communications. Interestingly, in all these areas, India is also seeking technical knowhow as well as technology transfer.

Singapore and India can work as beneficial partners and help overcome the hurdles. India, for example, faces a technical crunch in a few areas, so a joint venture or even allowing for time-bound research is vital. The private sector players would be an important component and the few joint ventures existing in India under the 26 per cent FDI guidelines would set a benchmark for the other private players to come to India and seek joint ventures. As already known, India outsources its defence requirements and has been tipped to be the largest importer of military hardware. In this regard, the private sector can build consortiums with government help and should include centres of excellence like the Indian Institutes of Technology (IITs) and Indian Institutes of Sciences (IISc), which could be given project-based funding to develop technical acumen among the engineering students.

### *Maritime Security and Surveillance*

One important area of convergence can be the ground work on the development of advanced electro-optic sensors as well as fast patrol boats for enhancing the surveillance activities of the Coast Guard. ST Marine strength lies in its turnaround capability with regard to ship repair and this cuts costs as well as reduces man-hours of work. ST Marine even provided the Indian Coast Guard two patrol boats back in the Eighties<sup>41</sup> but there has

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41. Pankaj Jha's interaction with ST Marine officials in Singapore on March 3, 2006.

been little effort on the part of both governments to further cooperation in this field. India needs to be immediately reviving it with Singapore rather than adopting a pro-West purchasing policy for small requirements of patrol boats and small ships. Also, India's endeavours in the Andamans with the assistance of the Port of Singapore Authority (PSA) would be beneficial. Though a school of thought would argue that indigenisation is a good option for employment, in the field of defence economics, it should not become cost-intensive, and outsourcing becomes one of the rational options.

### CONCLUSION

The Defence Cooperation Agreement of 2003 forms the backbone of the India-Singapore strategic engagement. The agreement has the potential to create a minor trickledown effect in terms of strengthening economic ties and boosting trade which is expected to triple in the next ten years. However, these propositions will materialise only if Singapore Technologies comes out clean from the ongoing CBI inquiry regarding the bribery case or when New Delhi decides to find an alternative route to cooperation with Singapore. Indications are that New Delhi is thinking of such an alternative route, which has the potential to open up new vistas of mutual defence technology cooperation. One might argue that Singapore is likely to emerge as a major defence supplier in the Asia-Pacific region and also a major player in upgradation, maintenance and repairs. India has a big defence industry but it lacks cost-efficiency, while Singapore has a comparatively smaller defence industrial base which is efficient by world standards because of its least turnaround time in ship repairs, upgrading of avionics and maintenance work. India has not ventured into private partnerships, while Singapore has engaged private players, though with certain checks and balances and through regulatory authorities. India has been searching for markets, while Singapore has been marketing and selling its defence products. India is scouting for joint collaboration, while Singapore needs offshore production facilities because of space compulsions. India has a long-term training arrangement with

Singapore, while Singapore has been searching for defence R&D prospects in India. The complementarities are many between the two countries and there is a need on the part of both to enhance their partnership to a new level. Defence technology cooperation through joint ventures and joint production presents such an opportunity.

# AFGHANISTAN AND THE AMERICAN STRATEGIC PERSPECTIVE

SANJEEV BHADAURIA

The US policy has always exhibited a deep sense of insecurity and quest for materialistic gains along with its self-acquired role of acting as a universal policeman — the need for which is sometimes real but most of the time imaginary, bordering on paranoia. Moreover, the American engine has always needed an extraneous threat to set it in motion. Earlier, it was the Communist threat. Now it is the threat posed by the 'ungoverned states'. The sources of concern today are the states with large tracts of ungoverned territories like Afghanistan which offer ample opportunities to further its interests under the garb of international obligations. The situation in Afghanistan offers fertile ground for the US and the September 11, 2001, incident provided it with the reason to decipher its ambition. However, Afghanistan has gone from being one of Washington's greatest foreign policy triumphs to one of its most profound failures. During the Cold War, the US support to the anti-Soviet Afghan resistance resulted in a debacle for Moscow, humiliating the vaunted Red Army and discrediting the Soviets throughout the Muslim world. After the Soviets withdrew, however, Afghanistan has proved to be a disaster for US policy, especially in its second endeavour after September 11, 2001.

The geo-political dynamics of this country with a strategic location has

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**American interest in Afghanistan post-Soviet invasion in 1979 was guided initially by a purely short-term, tactical and emotive agenda to seek 'historical revenge' for Vietnam.**

led the policy-makers in Washington to show ample interest and be involved in its affairs, like in the Cold War period. The American interest in Afghanistan post-Soviet invasion in 1979 was guided initially by a purely short-term, tactical and emotive agenda to seek 'historical revenge' for Vietnam. However, once the Soviets withdrew, their interest in Central Asia suddenly revived and peaked due to the quest for the estimated 70 billion tons of oil reserves of Central Asia. The American geo-political drive also appears to be

motivated by the containment/engagement of China, Iran and extracting Central Asian oil and gas for the world market, in addition to putting the North Atlantic Treaty Organisation (NATO) right there at the doorstep of Russia. With the 9/11 attack, it realised to its chagrin and shock that the rabidly fundamentalist Al-Qaeda and Taliban, its own creation, had struck it with a vicious force that shook it beyond the realm of imagination.

Afghanistan can be characterised geographically as a mountainous desert interspersed with isolated fertile valleys, river basins and oases. It extends eastward from the Iranian plateau and incorporates the foothills of the Himalayan ranges, which rise to a height of 7,470 metres in the finger of land that divides Tajikistan from Pakistan and touches on western China. To the north of this range, known as the Hindu Kush, begin the plains that cross the Afghan frontier at the Amu Darya river and stretch for thousands of miles across Central Asia and the Russian steppes to the Arctic. To the south of the Hindu Kush is a bleak and windswept desert that passes through Pakistan to the Indian Ocean. More importantly, Afghanistan has an important geo-strategic location, connecting the Middle East, Central and South Asia.

Afghanistan provides a land bridge to Central Asia's vast oil and natural gas deposits. It is completely landlocked and only 30,000 sq km out of 6, 47,500 sq km is irrigated land; 31.75 per cent people are literate and unemployment ranges from 40-60 per cent. It stands at 174<sup>th</sup> rank in the terms of the Human Resource Development Index in the world.

In recent estimates by the United Nations Office on Drugs and Crime (UNODC), 52 per cent of the nation's Gross Domestic Product (GDP), amounting to \$2.7 billion annually, is generated by the drug trade. Some 3.3 million Afghans are involved in producing opium (90 per cent of world cultivation). It has a broad gauge railway network of only 24.6 km and a road network of 21,000 km most of which has been reconstructed recently. Out of 45 airports, only 10 have paved runways. It is clearly one of the more underdeveloped countries and the only positive indicator is the growing telephone network which stood at 15,000 fixed line telephones in 2001, and has now grown to 4.5 million, including the cellular network due to the reconstruction effort.

The new US security presence in the region is providing additional impetus toward a redefinition by those regional powers of their strategic interests *vis-à-vis* each other and the United States. But, some important constant issues that emerge which are worth taking note of are: **firstly**, that Afghanistan has a strategic location at the "fault line", of four civilisations<sup>1</sup> — Islamic, Russian Orthodox, Chinese and Hindu — which has arguably been a significant factor for the region's instability; **secondly**, Afghanistan has ethnic linkages and geo-political 'susceptibility' with neighbouring countries — Pakistan, China, Tajikistan, Uzbekistan, Turkmenistan and Iran — that continue to haunt the country despite the American military presence and that, in turn, will probably prolong the United States' presence;<sup>2</sup> and **lastly**, the existence of terrorist groups in Pakistan, many of them backed by elements of the country's military and fundamentalist Islamic groups which remain as the forces of instability in both Pakistan and Afghanistan — even in the face of Pakistan's apparent crackdown.<sup>3</sup>

Afghanistan is a pivot for relations among regional actors, principally Russia, China, Iran, Turkey, India, and Pakistan. Central Asia's huge oil and gas deposits continue to provide incentives to the regional actors,

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1. Samuel P. Huntington, *The Clash of Civilizations and Remaking of the World Order* (India: Viking Penguin Books, 1996).

2. A Giustozzi, *Koran, Kalashnikov, and Laptop: The Neo-Taliban Insurgency in Afghanistan* (New York: Columbia University Press, 2008).

3. *Ibid.*

including Russia, that strive for their say in the region's geo-politics. This remains an impediment in the region's political development vis-à-vis the US military presence. Afghanistan's internal political fragility and external vulnerability continues due to the country's fragmented social structure and rule of warlords, and their linkage to regional actors.

### US STRATEGIC PERSPECTIVE

An analysis of Washington's policy towards the pre-9/11 Afghanistan shows that the United States was ready to accept the fundamentalist regime of the Taliban to further its geo-political ambition (oil and natural resources as probable incentives) in the region. The geo-strategic argument was that since the Taliban was pro-Pakistani, and, at the same time, anti-Russian and anti-Iranian, the United States ought to accept it. As per this argument, it was not an American affair to ascertain how the Taliban treats its own people, or to cater to "a stable Afghanistan with an aesthetically challenged government than a convulsed Afghanistan that offers a playground for Iranian and Russian devilmments."<sup>4</sup> Nevertheless, the US hoped that after long years of turmoil, the Taliban would unite the country. A Sunni-dominated government in Kabul would serve as a bulwark against the influence of Iran in the region.<sup>5</sup> There were also reports that the US was using Pakistani guerrilla groups such as *Jundullah* to launch attacks on military and civilian bases in Iran.<sup>6</sup>

The containment of Iran had become an American strategy in the region, especially, after the Tehran government declared its readiness to extend port facilities to the newly independent Central Asian Republics and because of its regional ambitions. American interests in Afghanistan also increased when it became clear that the Rabbani government in Kabul had been drawn closer to Tehran, after the killing of Iran-backed Shia leader Abdul Ali Mazari by the Taliban in early 1995. What was more alarming

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4. A Garfinkle, "Afghanistanding", *Orbis*, vol.43, no.3,1999, p.415.

5. J.F. Burns and Levine, "For Afghans, Taliban's Rise to Power was Deliverance from Tyranny", *International Herald Tribune*, January 2, 1997.

6. Barnett R. Rubin, *The Fragmentation of Afghanistan: State Formation and Collapse in the International System* (New Haven: Yale University Press, 1995).

for the Americans and the Pakistani intelligence agencies was the Iranian diplomatic success in bringing together the erstwhile enemies of the Afghan War, Rabbani and Hekmatyar, in an agreement in June 1996.<sup>7</sup> So, the Americans were, and remain, most concerned over the possibility of Iranian interference in Afghanistan.

Afghanistan, being a transport-junction and land-approach between the landlocked countries of Central Asia and the littoral states of the Indian Ocean, will remain strategically important<sup>8</sup>. Therefore, the competition over control of trade and pipeline routes from Central Asia to the Arabian Sea (Indian Ocean) transformed relations between Iran and Pakistan, and Tehran's initiative in this respect was openly supported by Russia and India. The Taliban's ability to provide security for trade, and the projected pipelines was considered strategically advantageous to both Islamabad and Washington. Significantly, around this time, in the spring of 1996, a partnership between the American company UNOCAL and the Saudi Company DELTA had concluded plans for multi-million-dollar (\$2 billion) oil and gas pipelines from Turkmenistan to Pakistani Baluchistan via Herat and Kandahar.<sup>9</sup> Pakistan, with the American backing (as an American company was involved), and Saudi Arabia considered the deal very lucrative since it was not just the trade route, but potential oil and gas pipelines that were at stake. It was visualised that the Taliban's most important function was to provide "security for roads, and potentially, oil and gas pipelines that would link the states of Central Asia to the international market through Pakistan rather than through Iran."<sup>10</sup>

**The US was appeasing the Taliban at a time when the fundamentalist militia was training the Kashmiri, Uzbek, Tajik and Uighur radicals; thus, spurring the growth of destabilising fundamentalist movements.**

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7. P. Stobdan, "War in Afghanistan", in *Asian Strategic Review* (New Delhi: Institute for Defence Studies and Analyses, 1996-97), p.257.

8. Barnett R. Rubin, *Still Ours to Lose: Afghanistan on the Brink* (Council on Foreign Relations, September 21, 2006).

9. Barnett R. Rubin, "Women and Pipelines: Afghanistan's Proxy Wars", *International Affairs*, vol.73, no.2, 1997, p.288.

10. Barnett R. Rubin, *U S Policy in Afghanistan* (Muslim Politics Report), no. 11, 1997, p. 6.

It may be noted that the US was appeasing the Taliban at a time when the fundamentalist militia was training the Kashmiri, Uzbek, Tajik and Uighur radicals; thus, spurring the growth of destabilising fundamentalist movements throughout the region. But the hand-in-glove relationship could not last long as the real colours of the Taliban came out soon. After the bombing of the American Embassies in Dar-e-Salaam in Tanzania and Nairobi in Kenya in 1998 by Al Qaeda and lastly the 9/11 attack in 2001, however, Washington had to review its Afghanistan policy, while continuing its regional drive on a broad strategic set-up.

Presently, the situation inside Afghanistan appears far from being rosy due to the current strategy being followed by the United States and its NATO partners which does not inspire confidence that Afghanistan will soon do better. President Hamid Karzai would require more help from the international community to have a decent chance of avoiding future instability in his country and gradually improving the lives of the Afghans. Apart from this, Pakistan (a functional anarchy) is in the grip of one of its worst political crises in recent years.

With this background, the key components of the American perspective may be analysed as under.

### **THE LIGHT FOOTPRINT APPROACH**

Lakhdar Brahimi, the first post-9/11 UN Special Representative for Afghanistan and the main architect of the Bonn Conference, is the man behind the "light footprint" policy. Bob Woodward reports in *Bush at War* that when the Central Intelligence Agency (CIA) analysts discussed the US options in Afghanistan in the aftermath of the 9/11 terrorist attacks, "the general rule was to study what the Soviets had done and do the opposite". As the Soviets had committed a large number of troops, it was decided to avoid doing that and instead rely on a small number of Special Forces, aerial bombardments and the anti-Taliban Afghan militias.<sup>11</sup>

Thus, the initial "light footprint" policy was as much owing to this fear

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11. Lafraie Najibullah, *Resurgence of the Taliban Insurgency in Afghanistan: How and why?* (Dunedin: Department of Politics, University of Otago, New Zealand).

of repeating the Soviet mistakes as to the subsequent need of personnel and equipment for the war in Iraq. Although the number of American and Allied forces gradually increased from a few hundred in late 2001 to a few thousand in 2002, to about 10,000 in 2003 and to over 20,000 in October 2004 to 85,795 as of February 2010, it was never felt sufficient to root out the remnants of the Taliban and Al Qaeda. There is little doubt that the lack of dependable security forces around the country has given rise to “war lordism” and problems of law and order that have contributed to the resurgence of the Taliban. The treatment of the captured Taliban by the Northern Alliance, especially by Gen Dostum’s forces, added another incentive for many people to join the Taliban. Taliban Prisoners of War (POWs) were treated very inhumanely<sup>12</sup>, and it is alleged that thousands of them died while being transported in overcrowded containers from Kunduz to Dostum’s headquarters in Sheberghan. The low-ranking Taliban, who did not attract much attention, failed to find meaningful jobs or means of livelihood either in Afghanistan or in the refugee camps. Thus, when the Taliban leadership reorganised itself and started recruitment, they found a fertile ground among the former members of the movement.

The trigger happy International Security Assistance Force (ISAF) and the American troops, while carrying out aerial bombardments, have ended up killing hundreds of civilians<sup>13</sup>, thus, alienating themselves from the local populace. Lack of understanding of the local culture and sensibilities, coupled with human rights abuse and torture of the prisoners at Guantanamo Bay fuelled sympathy for the rising Taliban.<sup>14</sup> Further, the external forces and the Provincial Reconstruction Teams (PRTs) are operating without consulting or respecting the sentiments of the Kabul government.

If we add to this the weaknesses of Karzai viz, his own personality, factionalism within the government, questionable appointments, questionable legitimacy, rampant corruption, slow progress in reconstruction and human development, slow progress in creating an army and police force,

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12. D.Rohde, and D.E. Sanger, “How a ‘Good War’ in Afghanistan Went Bad”, *The New York Times*, August 12, 2007.

13. Najibullah, n.11.

14. Ibid.

**“Surge and bribe” is a short-sighted approach intent on repeating the very mistakes of American policy on Afghanistan and Pakistan over the past three decades.**

narcotic drugs problem and negative impacts of the free market economic policy, an unacceptable situation has been created in Afghanistan<sup>15</sup>. The policy of the American troops to negotiate with the local warlords while keeping the Kabul government in the dark has boosted the growth of “war-lordism” once again and has also undermined the authority of the Karzai government<sup>16</sup>. The situation has improved somewhat in the urban areas, but most rural parts of the country, where the majority of Afghans live, remains beyond Mr. Karzai’s control.

#### **THE SURGE AND NEGOTIATE POLICY**

The “surge first, then negotiate” plan of Barrack Obama<sup>17</sup> is to build up security in Afghan cities with new US troop arrivals before initiating talks with the Taliban. For the talks to be successful, the US intends to squeeze the Taliban first, including by taking another page from its Iraq experiment and setting up lightly trained local militias in every provincial district. The crux of the policy is to bring down violence by cutting deals to keep the Taliban intact as a fighting force, with active ties with the Pakistani military. The move ignores the danger that such militias could terrorise local populations. If a resurgent Taliban is now on the offensive, it is primarily because of two reasons: the sustenance the Taliban still draws from Pakistan; and a growing Pashtun backlash against foreign intervention. A US surge will not intimidate local Taliban commanders and tribal chieftains to negotiate peace deals, especially when some countries with forces in Afghanistan are exhibiting war fatigue and a desire to pull out troops. Indeed, it is naive to expect an Iraq-style surge-and-bribe experiment to work in Afghanistan, whose mountainous terrain, myriad tribes, patterns of shifting tribal and ethnic loyalties, special status as the global hub of the poppy trade and a history of internecine civil conflict set it apart from any other Muslim country.

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15. T.H. Johnson, “On the Edge of the Big Muddy: The Taliban Resurgence in Afghanistan” *China and Eurasia Forum Quarterly*, 5(2), 2007).

16. Najibullah, n. 11.

17. Brahma Chellaney, *The Times of India*, January 2, 2009.

In such a land, with a long tradition of humbling foreign armies, pay-offs won't buy peace. Yet, the US champions a 21<sup>st</sup> century version of a divide-and-conquer imperial strategy. If there is any certainty, it is that the US plan will help the already-entrenched Taliban sharpen its claws. However, to help justify "surge and bribe"<sup>18</sup>, a distinction is being drawn between Al Qaeda and the Taliban to portray the former as evil and the latter as a different force with whom a compromise ought to be pursued. The blunt fact is that Al Qaeda and the Pakistani military-reared organisations like the Taliban, Lashkar-e-Tayyeba and Jaish-e-Muhammad now constitute a difficult-to-separate mix of *jihad*-spouting soulmates, with safe havens in Pakistan. A deal with any one such group will only strengthen the global *jihad* syndicate, plus the Pakistani military.

"Surge and bribe" is a short-sighted approach intent on repeating the very mistakes of American policy on Afghanistan and Pakistan over the past three decades that have come to haunt US security and that of the rest of the free world. If America is to reclaim the global fight against terror, it will need to face up to the lessons from its past policies that gave rise to Frankensteins like Osama bin Laden and Mullah Omar and to "the state within the Pakistani state", the directorate of the Inter-Services Intelligence, made powerful in the 1980s as a conduit of covert US aid for the anti-Soviet Afghan guerrillas.

The primary lesson is to keep the focus on long-term interests and not be carried away by political expediency. Yet again, Washington was itching to give primacy to near-term considerations. Even if "in the best-case scenario", the Obama Administration managed to bring down violence in Afghanistan by cutting deals that would keep the Taliban intact as a fighting force, with active ties to the Pakistani military, such a tactical gain would exact serious costs on regional and international security<sup>19</sup>. In seeking such short-term success, the Obama team is falling prey to a long-standing US policy weakness: the pursuit of narrow objectives without much regard for the security of friends.<sup>20</sup>

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18. Ibid.

19. [www.crisisgroups.org](http://www.crisisgroups.org)

20. Chellaney, n. 17.

The US should realise that military campaigns such as the one in Afghanistan are far easier to launch than to bring to a decent conclusion; that American pride and credibility may be destined to leave America entangled in Afghan troubles for many years to come.

### **THE SURGE, NEGOTIATE AND RUN POLICY**

The emphasis in the communiqué of the London Conference on speedy action on Afghanisation in all areas, most notably security, reintegration, and development, is an unmistakable indicator that the US and its NATO allies wish to cut and run from Afghanistan and no longer have the inclination for retaining a heavy footprint in the country. In this context, it is relevant to recall that President Obama, in his address at West Point on December 1, 2009, had justified the 30,000 US troop surge in Afghanistan scheduled for the first half of 2010 on the grounds that it would allow the US to begin the transfer of forces out of Afghanistan in July of 2011. The speech was at once the declaration of a “surge” and the announcement of an exit strategy.<sup>21</sup>

Similarly, in the same speech, the President dwelt upon the importance of capacity building in the country so that there can be “a responsible transition of our forces out of Afghanistan”.<sup>22</sup> The US desire to disengage in Afghanistan from 2011, or thereabouts, is dictated partly by the recognition that a prolonged stay will be too costly in both military and economic terms, and partly by the fact that it cannot afford the luxury of such distractions at a time when it is still grappling with a grave economic crisis and many other more critical regional and international issues.

All that can be expected of the US and the international community is that, until their pull-out in 2011-12, they will do their best to upgrade the all round capacities of the Afghan government in order to help it secure the best possible power sharing arrangement with the Taliban. Reintegration, or the incorporation of elements of the Taliban into the Afghan government, explains itself by the imperative of the US and NATO wishing to leave Afghanistan.

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21. Fouad Ajami, “Afghanistan and the Decline of American Power”, *The Wall Street Journal*, WSJ.com, April 8, 2010.

22. www.rediff.com, *Communiqué, London Conference on Afghanistan: Implications for India*, February 08, 2010.

Indeed, President Obama, in his West Point speech, quite openly stated that the US will support efforts by the Afghan government to open the door to those Taliban who abandon violence and respect the human rights of their fellow citizens. Similarly, in an interview to Reuters on February 3, Gen David Petraeus, head of the US Central Command, went much further in suggesting that though it was too soon to hope for reconciliation with the likes of Afghan Taliban leader Mullah Omar, negotiations with senior Taliban leaders could not be ruled out.<sup>23</sup> Clearly, therefore, the arguments against differentiating between the good and the bad Taliban have been brushed aside. The Afghan government has already been in dialogue with the Taliban with a view to persuading some of them to cross over to it and cut their ties with Al Qaeda, etc.

**The best case scenario is that substantial elements of the Taliban break away and opt to join Karzai, in which case his government will have a reasonable chance of prevailing.**

Though the exit of the US and its NATO allies from Afghanistan in the 2011-12 time-frame appears to be distant, coupled with efforts at accommodating the Taliban, the outcome is still somewhat uncertain as there are many imponderables. For instance, it is not clear whether the Taliban will be ready to accept a power sharing arrangement with President Hamid Karzai under the Afghan Constitution and to cut its links with Al Qaeda. Despite Obama's announcement of a July 2011 date to begin withdrawing US forces, NATO Secretary General Anders Fogh Rasmussen stressed that such a transition would be "conditions-based" in each province, and only when Afghan forces are capable. "There is no doubt the going will be tough, no one should expect instant results," he said. "But it will not be a run for the exit."<sup>24</sup>

Assuming that the US and its allies have virtually decided to withdraw, they may wait it out in the belief that time is on their side. Another possibility is that the Taliban may agree to an accommodation with the

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23. Ibid.

24. Jill Dougherty and Elise Labott, "NATO to Send More Troops to Afghanistan", CNN.com, December 4, 2009.

government, and once within the system, engineer a take-over. The best case scenario is that substantial elements of the Taliban break away and opt to join Karzai, in which case his government will have a reasonable chance of prevailing.

The US dilemma in Afghanistan is that the war is unpopular domestically and analysts believe that the Americans will cut a deal and run — they will cut a deal with the Taliban and withdraw prematurely, before the Afghan Army is ready. If they do, it will be a disaster for the war ravaged country and perhaps for the region as well.

### **ROLE OF REGIONAL POWERS**

We all are aware of the role of the regional actors in Afghanistan and the resulting ‘muddle’ since the Soviet invasion, the consequent civil war, the Bonn Agreement, ‘the Afghanistan Compact’ and the recently concluded London Conference. Regional actors generally assess that the United States is the only outside actor in Afghanistan. Nonetheless, other states seek to pursue their own objectives in Afghanistan.

These strategic and geo-political ambitions of the United States have led to considerable resentment among the countries surrounding the region. Russian, Chinese, and Iranian unhappiness is particularly visible in this context. In order to keep the Americans away from their “dirty games” in the region<sup>25</sup>, these countries will continue to support the ethnic and tribal groups through whom they hope to promote their own geo-strategic interests. For instance, China will continue to be perturbed by the expanding US presence on its southwestern frontiers and support the anti-US forces; the Russians, by the Tajiks and Uzbeks; and the Iranians, by their Shia minority ethnic group in the northwestern part of the country, because these countries perceive that through its military presence in the region, the United States is unduly interfering in their “sphere of influence.”

In this sense, the overarching American geo-political objective in the region may be kept off balance by the regional powers, and that will continue

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25. Rubin, n. 8.

to keep Afghanistan fragile and fragmented. In the process, America might get bogged down militarily in this landlocked country that has a long history of fighting against foreigners. Despite some high-handedness on terrorism and religious extremism, the regional actors complain that the US was not responding fully to the terrorist threat because it was not affecting the US interests directly. Leaders of Afghanistan's neighbours have pointed fingers at the US for its "selective approach" and "double standards."<sup>26</sup> They view that while the enduring American military presence in Afghanistan and the region is not going to eliminate the spectre of terrorism and Islamic fundamentalism, the menace has provided a good pretext to the US for entrenching itself in the region.

#### US ANTI-INSURGENCY POLICY

The United States does not still have an anti-insurgency policy in place primarily because like any other traditional state army, it was meant to win wars and not to fight insurgency, in the first place. But then, a pertinent question arises, that perhaps in its exuberance to react instantly, was the US notion of dealing with the insurgency flawed?

Let us examine the implications of an insurgency operation where the US Army is involved. In order to undertake the challenge, the old Cold War mindset deserves a relook. There seems to be a view that a relentless attack against Islamic insurgents, wherever they surface, should be waged. The view is as seemingly logical as the Cold War belief in a worldwide Communist conspiracy for global domination — and just as wrong. So, the larger lesson is to retain the clarity of a "local" versus "global" perspective and to selectively apply the lessons of previous successful campaigns in similar asymmetric conflicts.

Here, it would be interesting to analyse the politics of asymmetric conflicts and to figure out on the basis of the pre-theoretical perspective of Andrew Mack as to *Why Big Nations Lose Small Wars?*<sup>27</sup>

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26. [www.cfr.org](http://www.cfr.org) (Council on Foreign Relations- Washington).

27. Andrew Mack, "Why Big Nations Lose Small Wars: The Politics of Asymmetric Conflict", in Klaus Knorr, ed., *Power, Strategy and Security* (New Delhi: Asian Books, p.126).

**The road ahead is going to be tough for the NATO forces, even with the big increase which President Obama has announced and which is still not fully implemented.**

The key facets of his thesis are:

- The conventional wisdom that military superiority prevails has been destroyed in this war as the constraints on mobilisation are political, not material. In none of the conflicts noted was more than a fraction of the total potential military resources of the external power, in fact, mobilised.
- The theatre of war extends beyond to encompass the polity and social institutions of the external power — full mobilisation is not possible as it also increases domestic costs.
- Direct costs become of strategic importance when translated into indirect costs — psychological and political — as the aim of the insurgents is not the destruction of the military capability of their opponents as an end in itself.
- Dissent permitted in ‘open societies’ is an obstacle. The totalitarian societies are not troubled by the domestic constraints which the US faced on Vietnam.
- The progressively greater human, economic and political costs give rise to “war weariness”. The last years of the Vietnam conflict were marked by troop mutinies, widespread drug addiction, high levels of desertion, and even the murders of over-zealous officers’ intent on sending their men on dangerous patrols.

It can be appreciated that the postulates propounded by Mack are valid and applicable in all prolonged asymmetric conflicts, including the ongoing one in Afghanistan. Mack concludes that a lesson for the governments (of the US and NATO countries, in this case) which have committed themselves for such conflicts is that they should realise that, over time, the costs of the conflict will inevitably generate widespread opposition at home. The causes of such dissent lie in the structure of the conflict itself – in the type of conflict being pursued and in the asymmetries which form its distinctive character. Henry Kissinger has correctly observed on the war in Vietnam, “We lost

sight of one of the cardinal maxims of guerilla warfare that the guerilla wins if he does not lose and the conventional army loses if it does not win".<sup>28</sup>

It seems that the lessons should once again be remembered by the US and NATO in their campaign in Afghanistan. The United States must remember that it intervened in Afghanistan to destroy Al Qaeda and the Taliban, not to rebuild the country or spread democracy, and has not adjusted its strategy since, says James Dobbins, a former US special envoy to Afghanistan and Director of the International Security and Defence Policy Centre at RAND Corporation.<sup>29</sup>

Today, when the United States is being asked to increase its level of commitment to rebuilding Afghanistan as a means of stabilising the country, even as American troops battle the resurgent Islamic extremists who operate along the Afghan-Pakistan border, the key question is no longer whether to withdraw but rather when and how.

### **THE ROAD AHEAD**

Clearly, the road ahead is going to be tough for the NATO forces, even with the big increase which President Obama has announced and which is still not fully implemented. NATO forces are pretty thinly stretched and when a very large surge goes into particular areas, as has recently happened, that means that there can be gaps elsewhere.

Hence, "Mission AFGPAK" will need all the diplomatic, military and economic might of America and all the regional players to succeed. Whether America will follow the zero-sum game or Washington will rehyphenate the relationship in such a way that Pakistan gets a 'soft landing' and simultaneously engages New Delhi at a much higher level than before, befitting an emerging superpower, remains to be seen.

Some of the suggestions given by the Afghan Study Group operating under

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28. Henry A. Kissinger, "The Vietnam Negotiations", *Foreign Affairs*, XLVIII, January, 1996, p. 214.

29. Bernard Gwertzman, Consulting Editor, *Afghanistan Success Hinges on Karzai Reforms*, an interview with Stephen Biddle, Roger Hertog Senior Fellow for Defense Policy, CFR (NY : Council on Foreign Relations, January 27, 2010).

**In a counter-insurgency “things get worse, inevitably, before they get better,” and there is concern about whether there will be enough time for current plans to succeed.**

the aegis of the Centre for the Study of the Presidency<sup>30</sup> released in January 2008 outlined the critical issues to be addressed by the US and its NATO partners which were related to international coordination, security, governance and the rule of law, counter-narcotics, economic development and reconstruction, and Afghanistan and its neighbours. The 2008 London Conference also produced a document called “Afghanistan Compact.” The document postulated on every aspect of Afghanistan’s social and economic development. But, on the country’s security challenges, Pakistan was not even named in connection with the growing insurgency. Instead, the Compact called for “full respect of Afghanistan’s sovereignty, and strengthening dialogue and cooperation between Afghanistan and its neighbours.”

At the February 2010 London Conference, the international community pledged its long-term commitment to Afghanistan and support for the Government of Afghanistan and its security, development and governance. The participants agreed to support the phased growth and expansion of the Afghan National Army and Afghan National Police to levels of 171,600 and 134,000 respectively by October 2011. It was further agreed that the Afghan forces would progressively assume the leading role in all stages of operations. The Afghan government would host a conference in Kabul, later in the year, preceded by a grand peace *jirga* (gathering of elders). Presumably, this would be to facilitate the national peace and reintegration programme.<sup>31</sup> But, how and when these recommendations would be implemented remains to be seen as their transformation into reality is questionable as it involves huge resources and efforts.

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30. Bernard Gwertzman, Consulting Editor, *Cordesman : Despite Gains, Future in Iraq, Afghanistan Remains Uncertain*, an interview with Anthony H. Cordesman, Arleigh A. Burke Chair in Strategy, Centre for International and Strategic Studies, (NY : Council on Foreign Relations, January 14, 2008), p. 3.

31. [www.cfr.org](http://www.cfr.org) (Washington: Council on Foreign Relations).

The prime worry in Afghanistan, as of now, is extremism of the kind which has been continuing for a long time, and these forces usually feed on political instability which, to a large extent, can be attributed to forces in Pakistan. The current insurgency in Afghanistan does not arise from a profound disaffection among large elements of the Afghan population with their government. This insurgency has been raised in Pakistan, mostly by individuals residing in Pakistan, a majority of whom are refugees from Afghanistan supported by others who are native Pakistanis. For the tens of millions of Pashtun tribesmen on both sides of the current border, the distinction between Afghan and Pakistani is, indeed, of little importance, as neither they, nor the Government of Afghanistan, for that matter, recognise the current border between the two countries as legitimate.

Richard Holbrooke's feedback and recommendations should help President Obama unfold his terms of engagement in the future. It is imperative that the US deals with Pakistan with an iron hand. The safe haven for the opposing forces inside its territory must be denied, if it has to achieve success in the strife-torn region but the indications are to the contrary. The Pakistani establishment had tried its level best to make America rethink and was finally successful in extracting aid without strings — a dangerous development which has the potential to destabilise the region.

Stephen Biddle says that the Allied Command is guardedly optimistic that they will eventually succeed. But he notes that in a counter-insurgency "things get worse, inevitably, before they get better," and there is concern about whether there will be enough time for current plans to succeed. He also said, on the eve of an international conference in London on Afghanistan, that success in Afghanistan will "require, among other things, a conscious decision by [President] Hamid Karzai

**The United States remains bogged down in a growing insurgency in the country, and if the US missiles take more innocent lives, Washington's strategy could well backfire.**

to . . . implement reforms. If we cannot persuade him to do that, we are not going to succeed.”<sup>32</sup>

We will find out pretty soon, certainly within the next year, whether the surge policy is making a difference. Time is running out in Afghanistan, not in terms of finishing the insurgency, but in halting the momentum it has had over the last year. The US and NATO forces have to gain the initiative over the next year. If they fail to gain the initiative in Afghanistan with this big influx of resources, then the pressure for a very different approach will become imminent.

## CONCLUSION

Bringing about a normal situation in this war-ravaged country will depend on how the United States acts in the coming days. The present trend does not look conducive to permanent peace in the country. The American peace efforts so far appear fragile, and the country is passing through a thin edge of instability as it is still being haunted by so many divisive and centrifugal forces. Afghanistan remains critical to the future of its neighbours, as instability in this landlocked country has the potential to destabilise the whole region. A potent combination of drugs, weapons, and militants traverse Afghanistan and cross into its neighbours and beyond, and hence, the seeds of instability remain intact.<sup>33</sup> The Bonn process, reconstruction of the country and its national security are not intrinsic to the Afghan situation alone. It is, in fact, heavily loaded with regional geo-politics. As stated above, many believe that the geo-political factors such as Central Asia/Caspian energy resources; China’s Xinjiang, Iran, etc are the reasons for the US interest in Afghanistan. And, if that is the case, and the United States remains bogged down in a growing insurgency in the country, and if the US missiles take more innocent lives, Washington’s strategy could well backfire.<sup>34</sup>

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32. Afghanistan Study Group Report (Centre for the Study of the Presidency), Second Edition, release date January 30, 2008.

33. E. Sky, “Increasing ISAF’s Impact on Stability in Afghanistan”, *Defense & Security Analysis*, 23(1), 2007.

34. n. 32.

This is the centre of gravity of the problem and unless a suitable end game is played out, the desired end state where the regional aspirations are fulfilled satisfactorily, may remain elusive. And within this geo-political entanglement, the regional and non-regional actors, especially the US, have to play their part decisively, proactively and positively.

As we are seeing today in Iraq and Afghanistan, America has been unable to defeat insurgencies with the sheer power of the US military. Ultimately, it will be the local conditions, population, unique features and personalities of each nation that will determine the outcome of the insurgencies against the US-backed governments. The larger lesson is to retain the clarity of a "local" versus "global" perspective in dealing with the future insurgency challenge.

We must have optimism for Afghanistan: the Afghans want security and hope which they deserve after about 30 years of near-constant war, but realism says it will take time.



# CHALLENGES FOR THE INDIAN MILITARY: MANAGING OZONE DEPLETING SUBSTANCES

MANOJ KUMAR

One of the last vestiges of Ozone Depleting Substances (ODS) usage happen to be the military organisations due to the known efficiency of these chemicals. After the international agreement (Montreal Protocol) amongst nations on phasing out these chemicals, they were no longer to be produced and their availability would be drastically reduced. This has the potential to adversely impact upon military operations. The present article attempts an overview of some of the approaches that could be adopted by defence organisations to successfully phase out ODS and introduce their alternatives, where feasible. The legacy military equipment designed to work with ODS-based technology would have to be carefully managed so as not to allow accidental discharges which would harm the ozone layer adversely. Due to these reasons, the military organisations would now have to take leadership decisions and manage their operations without ODS in the long run and by optimum inventory management in the interim, till their replacements are in place.

## THE OZONE LAYER: BACKGROUND

The ozone layer had formed millions of years ago to safeguard life on the planet. High in the atmosphere, some oxygen (O<sub>2</sub>) molecules absorbed energy

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**While both oxygen and ozone together absorb 95 to 99.9 per cent of the sun's UV radiation, only ozone effectively absorbs the most energetic UV light.**

from the sun's ultra-violet (UV) rays and split to form single oxygen atoms. These atoms combined with O<sub>2</sub> to form ozone (O<sub>3</sub>) molecules, which are very effective at absorbing UV rays. The thin layer of ozone that surrounds the earth acts as a shield, protecting the planet from UV radiations. Nature had provided for the sun to be an abundant source of energy for the earth and was benign enough to provide for the ozone layer so that the associated

UV rays do not harm the living organisms on the planet.

The amount of ozone required to shield the earth from biologically lethal UV radiation wavelengths from 200 to 320 nanometers (nm), is believed to have been in existence 600 million years ago. Prior to this period, life was restricted to the ocean. The presence of ozone enabled organisms to develop and live on the land. The formation of the ozone layer and its maintenance has been so pristinely planned by nature that its despoilment by the human race is a tragedy beyond comprehension.

Ozone molecules in the stratosphere absorb UV light from the sun, providing a filter that prevents this radiation from passing to the earth's surface. While both oxygen and ozone together absorb 95 to 99.9 per cent of the sun's UV radiation, only ozone effectively absorbs the most energetic UV light, known as UV-C (220-290 nm) and UV-B (290-320 nm). Energetic UV radiation at the earth's surface is a health concern because it causes biological damage in the form of skin cancer (malignant melanoma), tissue damage to the eyes, plant tissue damage and destruction of plankton populations in the ocean.

The overall amount of ozone in the stratosphere is determined by a balance between photochemical production and recombination. The whole process was in a state of equilibrium till anthropogenic actions ensured placing ODS in the stratosphere, namely, the halogenated carbons. Some of these compounds are chlorofluorocarbons (CFCs), methyl bromide and bromochloro/fluoromethane, namely, halons, amongst others. The halogen atoms of chlorine and bromine act as catalysts to destroy the

ozone molecules. Each of these compounds has a different Ozone Depleting Potential (ODP).<sup>1</sup>

### *History of Research*

- In the 1950s, David Bates and Marcel Nicolet presented evidence that various free radicals, in particular hydroxyl (OH) and nitric oxide (NO), could cause a disassociation reaction, reducing the overall amount of ozone.
- In 1970, Prof. Paul Crutzen showed how NO affects the ozone layer. In the following year, Crutzen and (independently) Harold Johnston suggested that NO emissions from supersonic aircraft, which fly in the lower stratosphere, could also deplete the ozone layer.
- In 1973, Chemists Frank Sherwood Rowland and Mario Molina, then at the University of California, began studying the impacts of CFCs in the earth's atmosphere. They discovered that CFC molecules were stable enough to remain in the atmosphere until they got up into the stratosphere where they would be broken down by UV radiation, releasing chlorine atoms. They then proposed that these chlorine atoms would cause the breakdown of large amounts of ozone in the stratosphere. Their argument was based upon an analogy to contemporary work by Crutzen and Johnston mentioned above. Later, two more scientists, McElroy and Wofsy, extended the work of Rowland and Molina by showing that bromine atoms were even more effective catalysts for ozone loss than chlorine atoms and argued that the brominated organic compounds known as halons, widely used in fire extinguishers, were a potentially large source of stratospheric bromine. Crutzen, Molina, and Rowland were awarded the 1995 Nobel Prize in Chemistry for their work on stratospheric ozone.
- In 1985, British Antarctic Survey scientists Farman, Gardiner and Shanklin shocked the scientific community when they published the results of a study in the journal *Nature* showing an ozone "hole"— showing a decline in polar ozone far larger than anyone had anticipated.

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1. The ODP is a number that refers to the amount of ozone depletion caused by a substance. It is the ratio of the impact on ozone of a chemical compared to the impact of a similar mass of CFC-11. Thus, the ODP of CFC-11 is defined to be 1.0.

- The same year, 20 nations, convinced of the problem of ozone depletion, signed the Vienna Convention which established a framework for negotiating international regulations (Montreal Protocol) on ozone-depleting substances. However, the CFC industry, led by DuPont, still took some more convincing before they actively started working on its replacement.

### IMPACT OF OZONE DEPLETION

A brief recap of the impact of ozone layer depletion would enforce the rationale behind urgent international action for phasing out the ODS. As already mentioned, depletion of the ozone layer allows dangerous UV radiations to pass through to the earth surface. This, in turn, harms all living organisms in the following manner:

- **Skin Cancer:** The most common forms of skin cancer in humans have been strongly linked to UV-B exposure. A study of people in Punta Arenas, at the southern tip of Chile, showed a 56 per cent increase in melanoma and a 46 per cent increase in non-melanoma skin cancer over a period of seven years, along with decreased ozone and increased UV-B levels.<sup>2</sup>
- **Cataracts:** Studies are suggestive of a direct association of UV-B exposure and ocular cataract.<sup>3</sup>
- **Increased Tropospheric Ozone:** Increased surface UV radiation leads to increased tropospheric ozone. Ground-level ozone is a health risk, as it is toxic due to its strong oxidant properties.
- **Effects on Crops:** An increase in UV radiation would affect the bacteria responsible for retention of nitrogen in plant roots, thereby affecting their growth and productivity.
- **Effects on Marine Ecosystem:** Planktons are susceptible to the effects of UV light. They are vitally important to marine food webs.<sup>4</sup>

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2. Jaime F. Abarca, and Claudio C. Casiccia, "Skin Cancer and Ultraviolet-B Radiation Under the Antarctic Ozone Hole: Southern Chile, 1987-2000," *Journal of Photo-dermatology, Photoimmunology & Photomedicine* (ISSN 0905-4383).

3. West et al., Sunlight Exposure and Risk of Lens Opacities in a Population-Based Study: The Salisbury Eye Evaluation Project, August 26, 1998.

4. NewsFactor Network.

## USE OF ODS

The US Environment Protection Agency (EPA) has divided ODS into two groups as per their ODP range. Class 1 ODS are those in which the ODP is 0.2 or higher. Class 2 ODS are those in which the ODP is less than 0.2. Their impacts can be gauged when the wide array of their usage is analysed. A list of some of these ODS is compiled (from the US EPA Internet sites) below in a tabular form for ease of understanding.

**Table 1: Class I Ozone-Depleting Substances**

Chemical Name	ODP (Montreal Protocol)	GWP <sup>5</sup> (TAR)	Usage
CFC-11 (CCl <sub>3</sub> F) Trichlorofluoromethane	1	4600	CFCs are/were commonly used as refrigerants, solvents, Metered Dose Inhalers (MDI) and foam blowing agents.
CFC-12 (CCl <sub>2</sub> F <sub>2</sub> ) Dichlorodifluoromethane	1	10600	
CFC-113 (C <sub>2</sub> F <sub>3</sub> Cl <sub>3</sub> ) 1,1,2-Trichlorotrifluoroethane	0.8	6000	
CFC-114 (C <sub>2</sub> F <sub>4</sub> Cl <sub>2</sub> ) Dichlorotetrafluoroethane	1	9800	
CFC-115 (C <sub>2</sub> F <sub>5</sub> Cl) Monochloropentafluoroethane	0.6	7200	
CFC-13 (CF <sub>3</sub> Cl) Chlorotrifluoromethane	1	14000	
Halon 1211 (CF <sub>2</sub> ClBr) Bromochlorodifluoromethane	3	1300	Halon 1211 (CF <sub>2</sub> ClBr) is used as fire extinguishing agents, both in built-in systems and in hand-held portable fire extinguishers. Widest use is in defence establishments.
Halon 1301 (CF <sub>3</sub> Br) Bromotrifluoromethane	10	6900	
Halon 2402 (C <sub>2</sub> F <sub>4</sub> Br <sub>2</sub> ) Dibromotetrafluoroethane	6		
Methyl Bromide (CH <sub>3</sub> Br)	0.6	5	Methyl bromide is an effective pesticide used to fumigate soil and many agricultural products.

5. The GWP is the ratio of the warming caused by a substance to the warming caused by a similar mass of carbon dioxide. Thus, the GWP of CO<sub>2</sub> is defined to be 1.0. TAR is the Third Assessment Report of an international body of scientists studying the climate, called the Intergovernmental Panel on Climate Change (IPCC).

**Table 2: Class II Ozone-Depleting Substances**

Chemical Name	ODP (Montreal Protocol)	GWP (TAR)	Usage
HCFC-133a (C <sub>2</sub> H <sub>2</sub> F <sub>3</sub> Cl) Monochlorotrifluoroethane	0.02 - 0.06		These are transitory alternatives of CFCs in the refrigeration industry. Their ODP is much less than the CFCs but still with a high GWP.
HCFC-141b (C <sub>2</sub> H <sub>3</sub> FCl <sub>2</sub> ) Dichlorofluoroethane	0.11	700	
HCFC-142b (C <sub>2</sub> H <sub>3</sub> F <sub>2</sub> Cl) Monochlorodifluoroethane	0.065	2400	
HCFC-221 (C <sub>3</sub> HFCl <sub>6</sub> ) Hexachlorofluoropropane	0.015-0.07	Not Mentioned	
HCFC-222 (C <sub>3</sub> HF <sub>2</sub> Cl <sub>5</sub> ) Pentachlorodifluoropropane	0.01-0.09	-do-	
HCFC-223 (C <sub>3</sub> HF <sub>3</sub> Cl <sub>4</sub> ) Tetrachlorotrifluoropropane	0.01-0.08	-do-	
HCFC-224 (C <sub>3</sub> HF <sub>4</sub> Cl <sub>3</sub> ) Trichlorotetrafluoropropane	0.01-0.09	-do-	
HCFC-225ca (C <sub>3</sub> HF <sub>5</sub> Cl <sub>2</sub> ) Dichloropentafluoropropane	0.025	180	
HCFC-225cb (C <sub>3</sub> HF <sub>5</sub> Cl <sub>2</sub> ) Dichloropentafluoropropane	0.033	620	
HCFC-226 (C <sub>3</sub> HF <sub>6</sub> Cl) Monochlorohexafluoropropane	0.02 - 0.1	Not Mentioned	
HCFC-231 (C <sub>3</sub> H <sub>2</sub> FCl <sub>5</sub> ) Pentachlorofluoropropane	0.05 - 0.09	Not Mentioned	

HFCs are considered better replacements for CFCs for refrigeration purposes as well as in MDI for asthma patients. Their ODP is 0 but their GWP is very high. Some examples are given below.

**Table 3: Examples of HFCs**

Chemical Name	ODP	GWP
HFC-134a CF <sub>3</sub> CFH <sub>2</sub>	All zero	1300
HFC-143a C <sub>2</sub> H <sub>3</sub> F <sub>3</sub>		3800
HFC-152a CF <sub>2</sub> HCH <sub>3</sub>		140
HFC-227 C <sub>3</sub> H <sub>7</sub> F <sub>7</sub> and blends	Now being considered for defence applications	2900

These ODS are used in many applications in military establishments. In the Indian Air Force (IAF), halons are used for fire-fighting in the Crash Fire Tenders (CFTs) as well as on every aircraft (for the engine, auxiliary power unit and cargo compartment) as a fire suppressant. In the Navy, they are used for fire-fighting operations in ships and submarines at almost all vulnerable places of these platforms. In the Army, all motorised armoured carriers utilise them for fire-fighting operations. As refrigerants, these ODS are used in all central air-conditioning plants, mobile communication hubs, missile batteries, armoured carriers, and cockpits/cabins (for certain aircraft only). The use of carbon tetrachloride (CTC) as solvents for cleaning and degreasing as well as precision cleaning of electronic components was also carried out in a few defence applications.

### **THE MONTREAL PROTOCOL: AN IMPACT ANALYSIS**

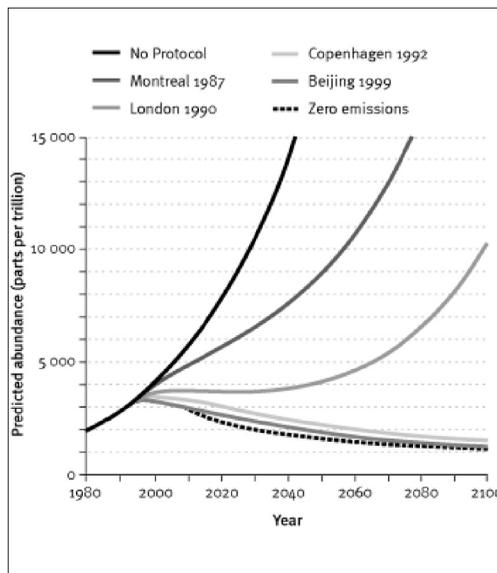
Life on the planet was in jeopardy. The international community acted in concert to halt production and consumption of these ODS, through an agreement called the Montreal Protocol under the aegis of the United Nations. The treaty was opened for signature on September 16, 1987, and entered into force on January 1, 1989. Since then, it has undergone seven revisions, in 1990 (London), 1991 (Nairobi), 1992 (Copenhagen), 1993 (Bangkok), 1995 (Vienna), 1997 (Montreal), and 1999 (Beijing). The successive revisions expanded the list of regulated substances, accelerated control measures and set time-lines for phasing out the use and production of some of the regulated substances. Scientists had claimed that if the international agreement is adhered to, the ozone layer would recover by 2050. However,

**The successive revisions expanded the list of regulated substances, accelerated control measures and set time-lines for phasing out the use and production of some of the regulated substances.**

now it is being said that due to the impact of global warming, a more realistic time-frame of recovery would be 2060 due to the reported impact of Green House Gas (GHG) emissions on the ozone layer. As reported by the scientific assessment panel, the United Nations Environment Programme (UNEP) 2006, (Nairobi), due to its widespread adoption and implementation, the Montreal Protocol has been hailed as an example of exceptional international cooperation.

Fig 1 shows the effect that the Protocol and its various amendments have had and are expected to have in reducing effective stratospheric chlorine (combined effect of chlorine and bromine) throughout the coming decades. The reduction is a result of restrictions on the production and consumption of synthetic ozone depleting substances.

**Fig 1: Effect of Montreal Protocol in Reducing Halogens in the Atmosphere**



Source: (Modified by the Australian Government) from WMO 2007.

The Protocol and its revisions have many features which directly affect the functioning of India's military establishment. These features are explained in the succeeding paragraphs. Their impact on the Indian military establishment would be analysed thereafter. The Protocol has 20 Articles in all. Brief details<sup>6</sup> of the salient points of the relevant Articles are mentioned below.

Article 1 states the definitions of the terms used in the Protocol. The relevant definition to note is that of production and consumption of ODS.

- "Production" means the amount of controlled substances produced, minus the amount destroyed. The amount recycled and reused is not to be considered as "production".
- "Consumption" means production plus imports minus exports of controlled substances.

Article 2 defines the production control measures that need to be adopted for various ODS. These control measures are defined in Articles 2A to 2I, for different groups of ODS and with respect to 1986 consumption figures. A brief summary of these control measures is tabulated below.

**Table 4: ODS Control Measures as Stipulated in Montreal Protocol**

Substance	Developed countries	Developing countries (Article 5 countries)
Chlorofluorocarbons	Phased-out end of 1995	Phase-out 2010
Halons	Phased-out end of 1993	Phase-out 2010. Accelerated phase-out 2008.
Carbon tetrachloride	Phased-out end of 1995	Phase-out 2010
Methyl chloroform	Phased-out end of 1995	Phase-out 2015
Hydrochlorofluorocarbons	Frozen in 1996 Phase-out 2020	19 <sup>th</sup> MOP Freeze 2013 level, 100% reduction in 2030 with a service trail up to 2040.

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6. The Montreal Protocol: [www.unep.org/ozone/Montreal-Protocol](http://www.unep.org/ozone/Montreal-Protocol)

Methyl bromide	Frozen in 1995 Phased-out 2005 (Essential Use Exemption exists for some countries)	Frozen at 2002 level Phase-out 2015
Bromochloromethane	Phased-out 2002	Phased-out 2002

Article 3 mentions the method of calculating the control levels, till the phase-out. Article 4 talks of trade issues related to ODS and the introduction of the licence system. These are relevant to India’s context as the national ODS imports would have to conform to these stipulations.

Article 5 is very relevant to the Indian context. It states, “Any Party that is a developing country and whose annual calculated level of consumption of the controlled substances in Annex A is less than 0.3 kilograms per capita on the date of the entry into force of the Protocol for it, or any time thereafter until 1 January 1999, shall, in order to meet its basic domestic needs, be entitled to delay for ten years in its compliance with the control measures set out in Articles 2A to 2E, provided that any further amendments to the adjustments or amendment adopted at the Second Meeting of the Parties in London, 29 June 1990, shall apply to the Parties operating under this paragraph after the review provided for in paragraph 8 of this Article has taken place and shall be based on the conclusions of that review.” It is clear that special provisions have been made for the developing countries as per the principle of “common but differentiated responsibility.”

Article 6 talks of assessment and review of control measures on the “basis of available scientific, environmental, technical and economic information. At least one year before each assessment, the Parties shall convene appropriate panels of experts....” Article 7 is concerned about reporting of data on the production, imports and exports of each of the controlled substances by the countries within three months of becoming a party.

Article 8 speaks of procedures and institutional mechanisms for determining non-compliance and their treatment thereof. Article 9 is regarding research, development, public awareness and exchange of information “taking into account in particular the needs of developing countries.”

Article 10 is regarding establishing a financial mechanism “for the purposes of providing financial and technical cooperation, including the transfer of technologies” to the developing countries (Article 5). The multilateral fund has been established under this provision under the London Amendment. Articles 11 and 12 are on administration of the Protocol. Other Articles (13 to 20) are regarding the provisos mandated by international agreements.

The parties to the Montreal Protocol have defined recovery, recycling and reclamation as follows:

- Recovery relates to the collection and storage of controlled substances from machinery, equipment, container vessels, etc., during servicing or prior to disposal.
- Recycling refers to reuse of recovered controlled substances following a basic cleaning process such as filtering and/or drying.
- Reclamation is about reprocessing and upgrading of a recovered controlled substance through such mechanisms as filtering, drying, distilling, and chemical treatment, in order to ensure that the substance once again meets specified performance standards. Such processing often takes place offsite at some central facility.

### **MULTILATERAL FUND**

With a view to assist the developing countries in their ODS phase-out efforts, a Multilateral Fund (MLF) has been established. It has various functions like financing various incremental costs of ODS phase-out, including cost of technology transfer, purchase of capital equipment and operational cost of switching over to non-ODS technologies. Enterprises using ODS technology prior to July 25, 1995, are eligible for funding to convert to non-ODS technology. India, being an Article 5 country, is eligible for this funding.

### **IMPACT ANALYSIS**

India became a signatory to the Montreal Protocol in 1992. Since then, it has played an active role in meeting its obligations under the agreement. It has displayed a matured leadership in the international arena with

regard to shaping the world policies on the issue. These issues are spearheaded under the aegis of the Ministry of Environment and Forests (MoEF), with the National Ozone Unit (NOU – Ozone Cell) having been set up in Delhi. The Ozone Cell is the nodal agency which oversees the implementation of Montreal Protocol stipulations in India and also reports on the status as required vide the relevant Article of the Protocol. India has prepared a detailed Country Programme (CP) to phase out ODS in accordance with its National Industrial Development Strategy. This strategy primarily took into consideration the economic considerations of the consumer and the industry. Defence sector considerations were left to the concerned stakeholders.

Major users of ODS have been the civil industrial sectors of Refrigeration and Air-Conditioning (RAC), fire-fighting, solvent industry, MDI, and foam manufacturers, besides some others. Oil, space and nuclear plants are essential or critical users of ODS, especially in the RAC and fire-fighting applications. The military establishment – the three Services as well as the defence production Public Sector Undertakings (PSUs)—are also major and strategic consumers of ODS, as already explained above. Parties to the Montreal Protocol decide, at their annual meeting, which uses of ODS are to be granted an “Essential Use Nomination” (EUN). This exemption is with respect to the regulatory provisions that set the phase-out dates for the production and import of ODS. Thus, it allows the production or import of **new or virgin** ODS after their respective phase-out dates. The EUN is not granted by the national government. No such EUN has been granted for any military use till date. The EUN has only been given to non-Article 5 countries primarily for health purposes (MDI – asthma patients), methyl bromide as fumigant due to lack of alternatives, and other ODS for laboratory use only. For all other usages, the EUN has either not been sought or not granted by the Meeting of Parties (MOP) to the Protocol.

The military establishments have not been kept out of the ambit of the Protocol stipulations and India cannot specifically ask for an EUN for them for any ODS production unless it can justify that human lives are at stake owing to their unavailability. In such a scenario, it is obvious that the Indian

civil and military establishments will have to take care of this requirement by either planning for their alternatives or stockpiling (banking) their inventory for use in the legacy equipment. Just to provide the right perspective to the readers, aviation majors like Boeing and Airbus Industries have stockpiled halons to the amount of thousands of metric tonnes so that their business interests are taken care of in the near future – 40 years or so — by which time a technology change either of the system or environmentally friendly alternatives would have been invented. All developed military powers have sufficient inventories of these chemicals so that their operations are not adversely affected. In contrast, India has developed the Light Combat Aircraft (LCA) which would now enter service – and presumably stay in service for the next four decades — but it uses halons for inbuilt fire-fighting applications. New or virgin halon is not being produced within India or elsewhere in the world. India has met the 2002 freeze in consumption and production of halons, a 50 per cent reduction by 2005, and has to now meet total phase-out by 2010. Therefore, the military establishment has to be totally geared for it in terms of policies and procedures.

The RAC applications, whether in civil or defence organisations are not very different from each other in terms of usage and system requirements. So if the replacements are fine-tuned for the civil organisations, it would be a matter of time before they find their way in defence applications also. However, drop-in replacements are hard to find for any defence application because of having to satisfy the military standards. The developing countries have already passed an important milestone: the 1999 freeze in consumption and production of CFCs. In 2005, CFC use had to be reduced by 50 per cent and they are now to be completely phased out by January 1, 2010. As part of the accelerated phase-out of CFCs, India had completely phased-out CFCs by August 1, 2008, ahead of the agreed phase-out schedule.<sup>7</sup> Clearly, the quantity of ODS permitted in the manufacture, operation and maintenance of critical military weapons systems will be restricted in the near future.

So the moot question is: why were halon production facilities within the country closed before catering for the requirements of the military

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7. "The Montreal Protocol: India's Success Story", Ozone Cell MoEF GOI 2008 Journal.

establishments? There are many answers to this question, depending upon whom the question has been posed to. The MoEF, the Defence Research and Development (DRDO) body (Centre for Fire, Explosive and Environment Safety – CFEES) and the military establishments themselves have different takes on the problem. To be fair, the military establishments have only recently started to realise the implications of the Montreal Protocol on their functioning. The need of the hour is to institute ground level bodies within the military establishments that are aware of their responsibility with regard to the ODS that they are handling. UNEP and a few individuals within and outside the organisations who see the complete picture are already spearheading the capacity building within the defence sector.

The ostensible ‘disconnect’ between the MoEF and the military establishment would have to become a thing of the past. Concerted effort would have to be mounted within the military in studying the implications of the absence of ODS on their functioning – at the present and in the future, – and ways and means to ameliorate the situation both in terms of mitigation and adaptation. The ‘national halon bank’ that has been established with CFEES (DRDO) in Delhi has no military inventory of halons which are banked with them. This situation has to be addressed on a war-footing and the inventory level needs to be built up wherever required. It can well be understood that in the absence of halons, no military hardware utilising them can be put into operation. Similarly, for RAC applications, military hardware may not be readily compatible for utilisation with alternatives. Different types of military hardware use different ODS, mostly depending upon the origin of the hardware – Western or Russian. Therefore, the requirement becomes still more complex as these ODS are not drop-in replacements for each other. This is another facet of the problem.

### **IS IGNORANCE BLISS?**

The impact of non-availability of ODS or their replacement on military operations described above is too parochial an approach. The larger picture emerges when one considers the following scenario. Due to lack of information,

the defence sector could not react in time to ensure that there was no interruption in supply due to phase-out of ODS. Therefore, it is entirely possible that their personnel even now do not comprehend the damage potential of the ODS usage, and the ways and means to avoid their accidental release. The ODS are being utilised by the personnel working on the military hardware at the manufacturing/ overhaul agency such as defence PSUs or the repair workshops/ depots/docks, ordnance factories, and even by the field level operators. The refrigerants are also utilised by the Military Engineering Services (MES) for the air-conditioning of defence buildings which they are supposed to maintain. Lack of policy, knowledge or

Standard Operating Procedures (SOPs) on safe use of the ODS inventory of refrigerants (CFCs/HCFCs) and fire suppressants (halons) at any of these nodal points can cause comprehensive damage. On the one hand, the inventory level of the ODS may get depleted due to accidental or careless release and, on the other, the impact of their release into the environment will be prohibitive.

The data on the requirement of these ODS by the three military Services in India was last compiled in 2002/03 with the help of CFEES. This happens to be the only authentic but outdated source of such information till date. With so much of military hardware having changed in the three Services in the last five years, the requirement of these substances would have changed in both quantity and type. The overhaul agencies like Hindustan Aeronautics Limited (HAL) and Heavy Vehicles Factory (HVF), etc. and in-house organisations like base repair depots in the Indian Air Force (IAF) and repair docks and workshops in the Indian Navy (IN) and Army respectively should by now have a fair idea of knowing their ODS requirements, and need to compile these for the next two to three decades at least.

A centralised data repository in India within the MoEF or any other ministry needs to be set up which can provide regularly updated information on the amount of ODS – halons and refrigerants — being stocked or held by

**A centralised data repository in India within the MoEF or any other ministry needs to be set up which can provide regularly updated information on the amount of ODS being stocked or held by all users.**

all users – private and government departments, within the country. In its absence, there may be cases wherein private halon holders (from erstwhile stocks of fire appliances) may find it difficult to dispose of their stocks within the country. In the absence of this information, the defence sector also would not know the amount of halons that it can procure/ exchange from within and the amount it needs to import. Such rudimentary information is a must if the Indian military establishment is to become self-sufficient in ODS management.

Banking of halons along with recycling and work on alternatives to the refrigerants is required to gather sufficient momentum in the Indian military establishment. The Indian Navy has set up two halon recycling plants. The IAF and Army are as it is at different stages of setting up their own halon banks with sufficient inventories to remove their dependency upon the national halon bank at CFEES in Delhi. From January 1, 2010, onwards, pressure would start building on Article 5 countries for progressively reducing their ODS inventory. Since there are very few users left of halons, the defence sector would definitely be exposed to this pressure.

The race for finding alternative refrigerants – with lower ODP and GWP—is presently on in the civil sector. Military systems would also need to be modified as per these alternatives. This is likely to pose a challenge as modification of systems cannot be allowed to cause a disruption in the operational capability of the armed Services. The military establishment cannot afford to be ignorant of these changes taking place around them as there is the potential of again missing the bus if it does not voice its requirements. It might result in Indian policy-makers taking decisions akin to closing of halon production in the country without understanding the needs of the military establishment.

Scarcity of this vital chemical has the potential to disrupt military operations. If the variables involved in managing ODS in the military are not thought out, a possibility exists wherein the Indian military establishment, through the government, might be constrained to ask for the EUN from the parties to the Montreal Protocol. Such an eventuality does not bode well for an emerging superpower like India. It is, thus, essential that an elaborate

ODS management policy and action plan be put in place by the Indian military Services. An in-depth policy and action plan has been drafted here to help the Indian military establishment draw its own customised solutions. The same is explained in the succeeding paragraphs.

## **RECOMMENDED POLICY FOR ODS MANAGEMENT AND ACTION PLAN FOR THE INDIAN MILITARY**

### *ODS Utilisation in Various Applications Pertaining to Military Equipment*

The Indian military would have to take urgent action even if it is a late entrant on the ODS management scene. From fire-fighting agents to refrigeration, air-conditioning, some metal cleaning and medical equipment sterilisation applications, ODS have been widely utilised in military equipment due to their properties such as low toxicity, stability, corrosion resistance and very fast fire sequestering action relative to volume and weight proportions. Finding alternatives to ODS like halons used for fire-fighting in military applications is not going to be easy, even though considerable efforts are on in this direction. Therefore, it would be prudent for the military establishment to draw a comprehensive policy on how to cope with the situation, in terms of adaptation to their non-availability, mitigation so that they do not harm the environment while utilising ODS, and, finally, adoption of technology that would enable phase-out of ODS from defence applications. The latter is especially relevant for ODS refrigerants utilised in RAC applications, for which a wide variety of alternatives is available, which require sustained efforts in terms of implementation of technology to phase them out.

An adaptation and mitigation policy supported by an action plan is presented here so that it may be used as a blueprint to develop a more comprehensive individual plan with respect to formations under a particular branch of an organisation. For example, this blueprint may be used on a template for an operational wing/ station under any air force. It could also be applied, albeit with minor modifications, to the defence PSUs and defence estate organisation. This plan takes the Air Force as a template for assumptions of certain ground

features. These features may not match exactly with a particular air force but are generic, for ease of understanding and implementation of policy in any military establishment.

### *Air Force (AF) Policy on Ozone Depleting Substances*

#### *Background*

The Government of India (GoI) has signed the Montreal Protocol, an international agreement for phasing out ODS to protect the ozone layer. The Ministry of Environment and Forest (MoEF), GoI, has issued a Gazette notification Ozone Depleting Substances (Regulations and Control) Rules 2000 under the Environment Protection Act, 1986, on control of production and consumption of ODS in India within the laid down time span.

#### *Aim*

The aim of the policy on ODS management and its action plan would be to reduce the use of ODS to levels absolutely necessary and promote use of alternative substances and processes, whenever possible. This will limit the use of environmentally non-friendly substances. It is equally important to ensure that while doing all this, degeneration of the operational capability of the military forces is not allowed. Finally, it is also important to demonstrate leadership in the control and phase-out of ODS procurement and use in the military organisation to strengthen the government's actions on this front.

#### *Scope of Policy: (May be issued as an AF Order/ Instructions)*

The policy would apply to all formations of the Air Force – operational, maintenance or purely administrative in nature, equipment, systems and products purchased by the Air Force. All relevant Air Force policy directives, issued under any authority, would be read in the context of this policy. The policy statement would include the following ODS.

- Halons: Halons 1211,1301 and 2402 are used primarily as fire-fighting agents.
- Chlorofluorocarbons (CFCs): 11, -12, -113, -114, -115, -13, -111, -112, -211,

-212, -213, -214, -215, -216, and -217 are used primarily as refrigerants and cleaning solvents.

- Other controlled substances: Carbon tetrachloride (CTC) and methyl chloroform (MCF), are used primarily as cleaning agents and methyl bromide is used as a pesticide and fumigant.

### *Contours of the Action Plan*

An ODS Management Plan would have to be put in place by the Air Force to support the government's initiative and minimise the effects of ODS phase-out on its operations. The contours of the plan would have to include the following broad three focus points:

- **Assessment of ODS use pattern and future needs, including the phase-out strategy.** *As part of this initiative, the Air Force needs to*
  - Develop a comprehensive inventory of ODS, processes, systems, and management practices at installations that use these chemicals.
  - Standardise processes and management practices.
  - Stop purchase of halons-based fire extinguishing equipment and ODS containing air-conditioning and refrigeration equipment for ground applications; stop award of contracts for equipment that requires the use of ODS; cease use of solvents / cleaning agents containing CFCs.
  - Focus research on converting mission-critical systems to non-ODS as far as possible.
- **Operations/ practices and procedures for minimising ODS demand and emission reduction.** *These would include:*
  - Instituting operations, maintenance and administrative procedures to minimise or eliminate the use of ODSs.
  - Developing refrigerant and halon management plans at each installation. Use of conservation practices such as banking, recycling, reuse, and substitution where applicable. Specifically, this should include a recovery plan while decommissioning ODS-based equipment.

- Preventing intentional release of ODS into the environment even in training or during validation of maintenance procedures.
- **Institutional structure for management of ODS. *This would include:***
  - Establishing a base/ formation focal point (under the maintenance/ logistics/ administrative head) to track and control requisitions, receipts, and issues of all ODS, including refrigerants. A reporting chain till the Service HQ needs to be set up from the formation ODS manager upwards, to provide organisation-wide focus to the subject.
  - The use of ODS in construction of air-conditioned buildings, chiller plants for hospitals and other uses, and similar uses for existing utilities would be tracked by the designated focal point through adequate reporting procedures put in place by the formation head.
  - Managing ODS to meet mission critical needs, including operational requirements (war reserves), while systems are being converted to non-ODS alternatives.
  - Information exchange on ODS-free alternatives to relevant authorities from national, regional and international resources.
  - Interaction with the National Ozone Unit on specific ODS phase-out issues such as preparation of the HCFC phase-out management plan, implementation of phase-out and substitution tasks, participation in study tours/programmes organised in the military, etc.

Defence research labs should consider identifying substitutes as per applicable Military Specifications (MILSPECs) and standards. Till the time alternatives are in place, such ODS as halons for fire-fighting operations would continue to be utilised. Their effective management is thus an imperative.

**Action Plan:** The ODS action plan would take into account the ground features of the organisation for which it is intended. In fact, wherever the ground features do not include an established organisation hierarchy catering to environment related issues, it would be imperative for the top echelon to

first set up a formal structure which would manage the ODS and other environmental related issues in the entire organisation. This formal structure would manage both intrinsic and extrinsic communication channels on all environment issues.

Whatever be the type of ODS being utilised, a military organisation would first have to ensure that at no stage are its operations compromised. Therefore, ensuring their availability is imperative. For this purpose, inventory management of the ODS should be the primary focus of the organisation. Inventory management would include optimum utilisation of the existing ODS with recycling; their procurement and banking – for both peace and war applications; supply to each formation – transportation to and from the bank; and, ensuring that discharges, accidental or intentional, are kept to the barest minimum. Even the non-utilisable ODS being banked would have to be safely maintained till they are destroyed in an environmentally safe manner.

It would also have to take the lead in changing over all non-critical application from ODS-based to non-ODS. Defining what constitutes a critical application is another criterion that each organisation would have to institute. However, a broad definition of mission critical applications would be those ODS applications which have the potential of adversely impacting on operational training during peace; combat missions during operations; and for which no alternative has yet been identified, developed, or implemented. They include applications integral to military hardware systems, absence of which would directly degrade their operational capability.

***Halon Policy: Use Pattern, Future Needs Assessment and Purchases***

The purchase of newly produced or virgin halons is to be prohibited as per the existing regulations. Halon needed to meet mission critical applications will be recycled from existing stocks at an ODS bank that would need to be set up.

**Whatever be the type of ODS being utilised, a military organisation would first have to ensure that at no stage are its operations compromised.**

Mission critical halon applications in the Air Force may be defined as those used on board aircraft which are required to meet flight safety and flight survivability requirements. In the event the ODS bank is unable to meet the requirements, recycled halons may be purchased from commercial sources. However, it is to be ensured that all aircraft in development at the defence PSUs or being contracted for do not use ODS-based systems. In the event they do use halons for fire-fighting, ensuring its supply for the entire duration of the aircraft life should be the responsibility of the aircraft supplier and this should be incorporated in the initial contract.

Aircraft halon systems such as fuel tank inserting systems tend to discharge into the atmosphere for other than actual fire situations. Therefore, this shall be used only in actual operations. Correcting fire warning systems and operational procedures that result in false alarms and discharges shall be a top priority of system engineers at the respective production/overhaul facility. The halon fire-fighting system in the flight line or Crash Fire Tenders (CFTs) has to be disabled or replaced with non-halon alternatives which are widely available and used at many civil airfields across the globe. Halon so retrieved may be used for mission critical operations after recycling, where possible, or returned to the bank. It is evident that the twin focus of halon policy should be on its inventory management and banking strategy. Both these are now explained in some detail.

### *Inventory Management*

A major user of halon is the system maintenance group. Therefore, it would be the responsibility of the maintenance group head at the Service HQ to identify total annualised halon requirement needed for mission critical applications by its quantity, type and application system, until its requirement is no longer felt. The operational/administrative group would identify the same for the ground-based fire-fighting system, which in any case, needs to be replaced with alternatives identified. Total Air Force requirement should then be matched against the availability in the halon bank. The halon bank manager would verify the inventory level of each type of halon projected. The requirement would have to take into consideration

the halon lost during recycling, minimal losses due to accidental discharge plus an amount that may actually be required for fire-fighting. A typical halon inventory management instruction from the Service HQ should ensure that:

- halons be removed from aircraft being retired and be redeployed or added to the Air Force bank;
- all servicing of aircraft halon systems should capture the filled halon for recycling;
- there is no atmospheric discharge during servicing, other than the bare minimum;
- halon captured by base/ major repair organisations shall be recycled for reuse by returning to the bank or recycling plant if co-located;
- halon removed from non-mission critical applications which have been declared excess, be added to the Air Force halon bank;
- banking of halon which is not fit for use till its destruction; and
- the halon bank itself does not discharge halon into the atmosphere for any reason.

**The Air Force bank should have the complete details of the inventory of halon being used at each operational base.**

Halon filling operations are mostly carried out at system repair/ overhaul workshops. The operations of filling, removal and testing and transportation of halons – from the aircraft bottle as well as the source tank/ bottle – should be standardised for all workshops, including the defence industry, by an internal standardisation body already existing in India. It should be ensured that nitrogen used for pressurising halons in the aircraft bottle should be pure so as not to contaminate it lest it requires changes often. Annualised losses while undertaking these operations should be calculated as a percentage of the total quantity handled and measured against a benchmark (theoretically established with the help of system consultants). System operations would then be improved for meeting these standards. Halon not restorable/ recyclable to usable condition shall be stored in the bank until approved destruction facilities are made available.

The Air Force bank should have the complete details of the inventory of halon being used at each operational base as well as base/ major repair depots through effective communication between them. This inventory should include halon filled in the aircraft. The net figures should be easily accessible between the Service HQ of each sister Service for ease of transfer in case of excesses and shortages. These figures could also be shared with the defence production/overhaul agencies that may also be involved in mutual sharing of the resources in case of shortages. (At the national level, this information bank would have to be handled by the MoEF – National Ozone Unit)

### ***Banking Strategy***

Since the production of halons has stopped the world over, two courses of action are open to the users. The first and the best course of action would be to use this opportunity to change the technology requiring the use of halons. However, in most military applications where legacy equipment is being used, this is presently not economically and operationally feasible. Therefore, the next course of action is to set up halon banks where stocking is feasible for some time to come, till alternatives are in place. Working out the exact requirement is very important as excess quantity would lead to the requirement of its disposal in the future. A good estimate would take into account the Total Technical Life (TTL) of the equipment using this type of fire suppressant and then working out the requirements considering the overhaul life, servicing discharges, actual usage and minor amounts of accidental discharges. Some amount of war reserves would also have to be catered for, taking into account discharges and fast supply cycle required during operations. Setting up recycling plants along with the banks as well as at the hardware servicing facilities or repair depots would be essential so that halons can be retrieved if the purity is observed to have deteriorated. If the repair depots do not have the facility to check the purity level of the gas, there would be no alternative but to blindly charge new gas in the system hardware and return the old usable gas to the bank. Additionally, the

bank should also have the facility to check the purity level of the gas being received/despatched and, thus, being able to decide which is recyclable and which is not.

### *CFC Policy*

#### *Refrigerants: Use and Purchase*

As per the local legislations, new ODS-based RAC equipment cannot be manufactured in almost all member countries, including India. Therefore, the need of the hour is to conserve CFCs for use in legacy equipment and, where possible, use replacements. Refrigerants are used in the military establishments for various types of air-conditioning – in buildings and for automotive usage, chiller plants and food service refrigeration units in the Officers' and the Other Ranks' (OR) Messes, etc. Various types of CFC and its blends are used for the purpose.

The ODS manager in each formation would have to coordinate with the controlling manager of each of these assets to ensure that adequate CFC refrigerants are available for RAC applications till the replacements are in place. The acquisition of new air-conditioning systems, Ground Equipment (GE) and other refrigeration and support equipment using ODS will have to be prohibited in any military establishment as per the local legislation. This aspect would have to be built into procurement of both administrative and maintenance assets, including buildings and vehicles.

This policy would, in most cases, be drafted and implemented at the Service HQ level. The existing equipment using ODS refrigerants may be used till the end of its economic life or if the retrofitment with the new refrigerant is not cost-effective, considering the years of life left. However, any equipment having more than 75 per cent of its TTL left should be retrofit with an alternative refrigerant system, provided the same is available. Retrofitment would be the responsibility of the maintenance staff at the Service HQ along with the concerned defence research labs.

### *Refrigerant Leakage Rate, Leak Detection and Training Issues*

A good maintenance and repair programme of the equipment using ODS refrigerants should be in place to avoid accidental discharge in the atmosphere. Purchase of recycled ODS should only be permitted to charge such equipment whenever required.

For example, the US EPA does not permit discharge of more than 15 per cent for comfort cooling and 35 per cent for refrigeration and process cooling applications, on an annualised consumption rate. This maintenance benchmark would ensure reduced release of ODS into the atmosphere as well as maintain the inventory level for future uses. All technicians who work with refrigerants should be trained to reduce accidental emissions, and be certified. Training includes improved maintenance practices and refrigerant conservation measures. This training should be inclusive and has to cater to stakeholders such as the Military Engineering Services (MES) in charge of the construction and maintenance of buildings. Further, to conserve and properly manage the base refrigerant resource, a routine inspection programme and record keeping of the RAC applications needs to be drawn up by the base commander.

### *Inventory Management*

As in the case of halons, inventory management of refrigerants till they are in service is very important. The Service HQ would have to designate the concerned Administrative/Maintenance Directorates to identify total annual ODS refrigerant required to meet mission critical applications, by quantity, type, and application for Service-managed systems until their requirement no longer exists. The CE Directorate/Branch should identify requirements for the buildings being managed by them. Correcting leaking systems shall be a top priority for system managers.

Banking and recycling of refrigerants would be simpler as the time spans involved would be much less than in the case of halons due to availability of alternatives. However, till the time ODS refrigerants are in use, the standard maintenance processes outlined above need to be implemented to prevent their escape into the atmosphere.

Purchase of recycled ODS refrigerants from commercial sources may be permitted to maintain this equipment. However, this approach shall not be seen as a substitute for effective management and recycling of the existing refrigerant inventory, and proper repair and maintenance of equipment. ODS refrigerants would have to be recovered from equipment being retired at the end of their economic life, and utilised to service the remaining ODS systems in the inventory.

Refrigerants needed to meet mission critical applications will be obtained by using existing stocks from the ODS bank till the alternative/retrofitment takes place. The ODS bank would be responsible for mapping the entire inventory of ODS refrigerants of the Service as without this information, no serious and measurable efforts can be mounted for their phase-out. Such information is to be shared within the Ministry of Defence establishments for ease of transfer of ODS on the demand and supply principle. The underlying idea would be to avoid procurement of these ODS from an outside source without exhausting the sources within.

**For the military hardware utilising CFC-based air-conditioning, it may now be feasible to develop in-house alternatives by suitable redesigning as the available alternatives are as efficient.**

#### *Refrigerant Phase-out Strategy: Alternatives*

Research on alternatives to the refrigerants would include refrigerant containment and conservation options, equipment retrofit options, equipment replacement options and/or refrigerant replacement options. The defence research labs would have to work in conjunction with civil consultants for designing the retrofitment. The individual Service HQ may consider hiring a civil consultant for undertaking this retrofitment design change till it meets the MILSPEC requirements. The long-term ramifications of using HCFC-based alternatives must be carefully evaluated. These chlorine-based refrigerants (such as R-22), although with less ODP than CFCs, have also recently been subject to a phase-out. For this reason, Air Force policy may allow their use only as a last resort after all other

alternatives for a particular application have been evaluated and ruled out.

### *Screening and Selection*

A feasibility-and-cost screening analysis is essential for each alternative and for each piece of equipment. Each identified option should be rated based on engineering, environmental and economic factors, including: age and reliability of existing equipment, efficiency, maintenance, effect on the environment, safety, cost, and likely sources of availability. For the military hardware utilising CFC-based air-conditioning, it may now be feasible to develop in-house alternatives by suitable redesigning as the available alternatives are as efficient. Retrofitting existing equipment is less expensive than total replacement. However, incompatibilities between replacement refrigerants and lubrication oil, age and reliability of existing equipment, and complexity of the retrofit all play a major part in the decision to retrofit or not. Therefore, this option needs to be exercised with due diligence.

**Natural Refrigerants:** As discussed above, refrigerant choice is normally a function of several considerations – economic and property compatibility. The property-based factors include the GWP and ODP of the alternative, flammability, and efficiency (thermo-physical properties), etc. Natural refrigerants are most beneficial due to their least impact on the environment with less GWP and nil ODP. These refrigerants include ammonia ( $\text{NH}_3$ , R-717), carbon dioxide ( $\text{CO}_2$ , R-744), and hydrocarbons (iso-butane R-600a, propane R-290, propylene R-1270, and a mixture thereof). These are the three most commonly used natural refrigerants in the compression system.<sup>8</sup> In view of the accelerated HCFC phase-out programme, this aspect needs to be a part of the Air Force policy.

### *ODS Solvents: Policy*

The existing legislation on ODS in any country would normally specify a ban on ODS solvents. Sufficient advancements have taken place wherein ODS

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8. Natural Refrigerants Sustainable Ozone and Climate-Friendly Alternatives to HCFCs by gtz, Proklima German Federal Ministry for Economic Cooperation and Development.

solvents utilised for cleaning avionics and micronic filters, lubricating compounds and preservation of parts in the past, may be replaced with available alternatives. No solvent use should be considered mission critical. Most of these solvents are CFC-based or methyl chloroform. For their replacement, the standards are to be specified by the central standardisation body of each military establishment. Sharing this information may be very useful in this context. However, for this to happen, an inventory of usage in different applications should be drawn up by the logistics maintenance managers at the Service HQ level.

The USEPA, for instance, has a Significant New Alternatives Policy (SNAP) programme to evaluate and regulate substitutes for the ozone-depleting chemicals that are being phased out under the stratospheric ozone protection provisions of the US legislation — the Clean Air Act (CAA). They have identified many alternatives to aerosol-based solvents and the details are available on the site <http://www.epa.gov/ozone/snap/aerosol/list.html>. With so much of international effort already having been undertaken on this front, phasing out the use of ODS solvents should be a priority of the system managers at field and production levels.

### *General Policy Provisions*

In addition to the above, Service HQ would need to lay down certain policy provisions in the various facets of their working so as to meet the objectives of the Montreal Protocol. These provisions cover the entire gamut of military operations and are cross-linked. Thus, it is best not to group them under different headings but apply them as per each organisation's processes.

- Specifications and standards laid down by the Maintenance and Administrative Directorates for systems/processes that require ODS should be revised to change over to non-ODS alternatives. The concerned stakeholders (hardware maintenance engineers and estate managers) at the field formation level should be asked to forward a request for

**Specifications and standards laid down by the Maintenance and Administrative Directorates for systems/processes that require ODS should be revised.**

revision of these specifications and standards. This bottom-up approach would result in a microscopic examination of ODS usage at the field level, thus, ensuring no details are missed out. This would be a one-time exercise which would purge the organisation of standards mandating ODS use.

- The hardware servicing schedules development department of the military establishments would examine all servicing schedules to undertake a similar exercise as outlined above. It should also be ensured that in case substitute chemicals are being proposed for an ODS, the same should not contradict the accelerated phase-out schedule of HCFCs or be Kyoto Protocol-controlled substances. The alternative strategies outlined for refrigerants can be used for such evaluation.
- After standards have been changed, certain processes would be observed wherein only ODS usage is possible. These processes should be compared between each Service HQ to ensure that there are actually no alternatives to the use of ODS for the same. These usages/processes would need to be compared internationally for economically feasible alternatives and in the event no such alternatives are found, the Service HQ should then ensure that adequate provisions are made for the availability of that ODS through internal or external sources of recycled chemicals. In the event retrofitment is an economically viable option, the same may be considered, provided it does not degrade the combat potential of the equipment and also that of the organisation. These iterative processes are essential to ensure that there is no need to prematurely phase-out costly military hardware due to non-availability of an essential ODS or its alternatives.
- The Service HQ shall implement procedures whereby the use of non-ODS alternatives should be a technical Qualitative Requirement (QR) in all future Air Force procurements. If the Service HQ determines that a feasible alternative is available for use in a contract under evaluation, the appropriate directorate shall enter into negotiations to modify the contract so as to mandate the use of the alternative.

- Supplies out of the ODS bank should be a controlled and properly monitored exercise. An external audit of the ODS bank by the central audit team of the Service HQ should be an annual exercise as per the SOP laid down for an operational formation. This would ensure that no emissions from the bank are taking place.
- A nodal agency on the ODS and other environment matters should be formed at the level of Service HQ and Regional/ Command HQ. An information flow on ODS inventories within the defence production industries and military Services should be formalised by the Ministry of Defence (MoD).
- Reporting relationships are required to be set up for effectively controlling the ODS management in military organisations. Since the military cannot work in isolation on this vital issue, the reporting relationship would be required to be established both externally and internally.

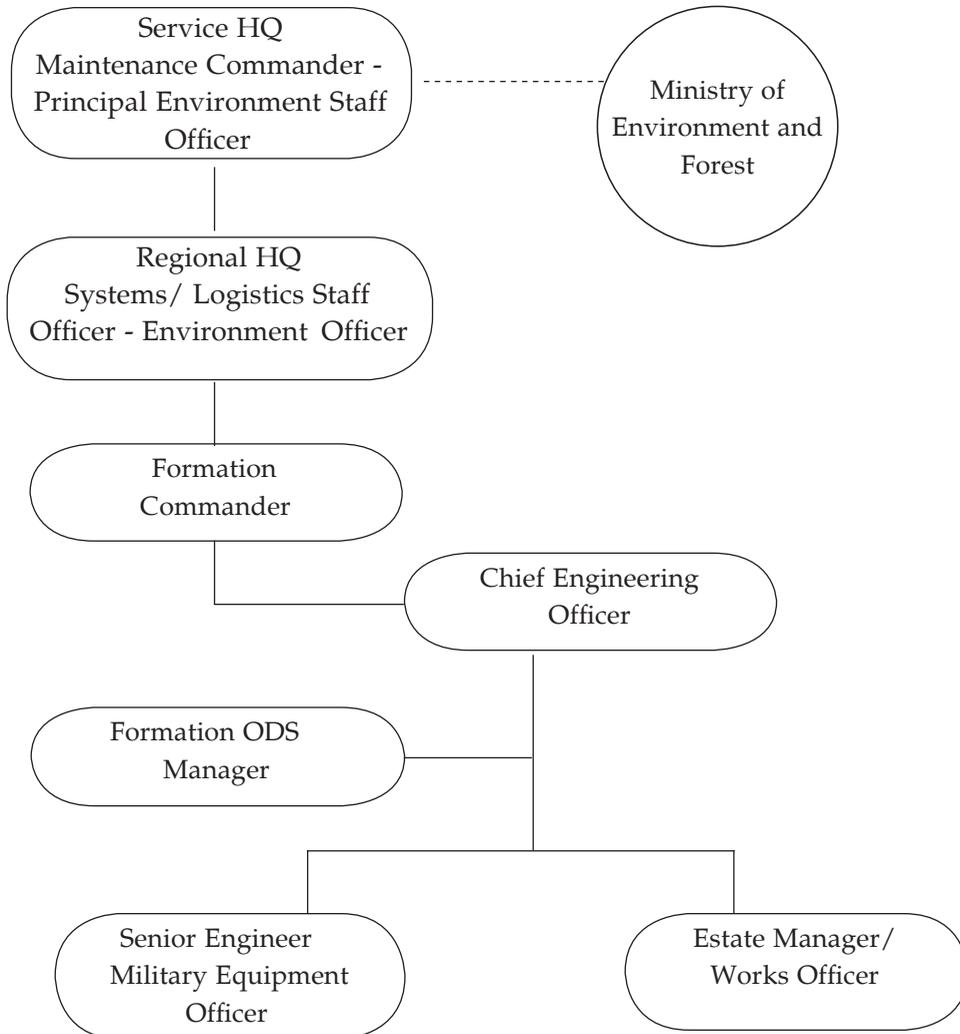
**A nodal agency on the ODS and other environment matters should be formed at the level of Service HQ and Regional / Command HQ.**

## CONCLUSION

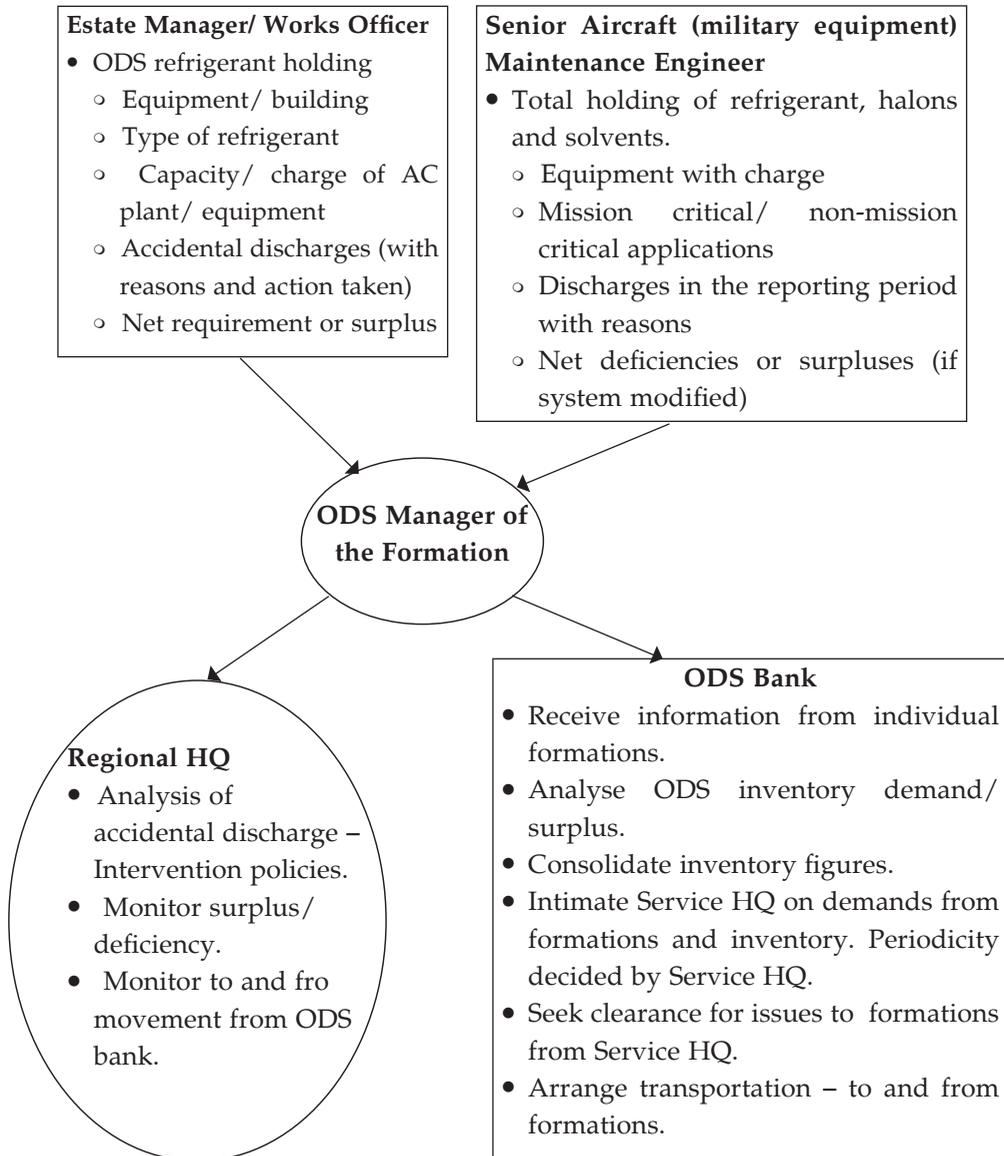
An attempt has been made in this article to engage the military organisations on the ODS management issues. A brief sketch of how this could be implemented has also been added. However, this does not in any way make this a comprehensive plan which would have to be developed by organisations considering their ground realities. The purpose would be well served if it provokes the readers into thinking on these lines.

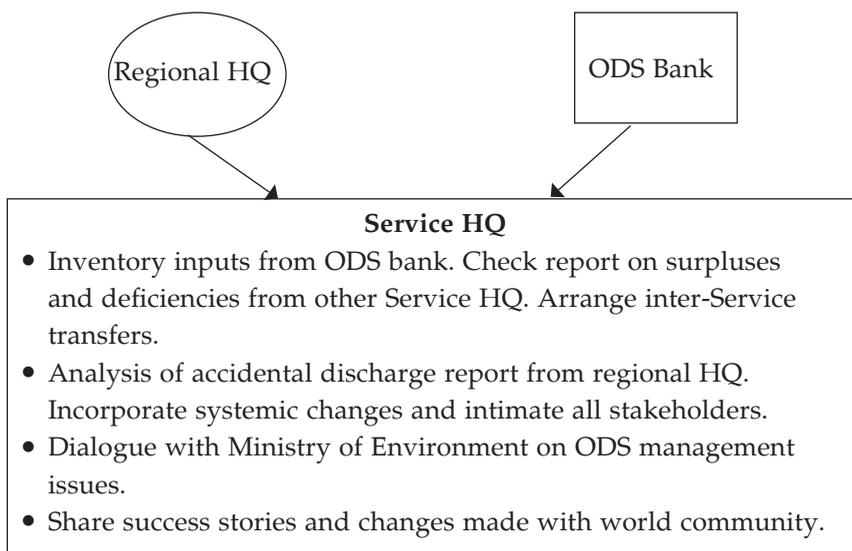
*Appendix 'A'*

**Suggested Environment Management Organisation Structure in the Military Organisation**



**Recommended Reporting Relationships/Communication Channels for Effective ODS Management in a Military Establishment**





# GEO-POLITICS OF THE GULF, 1971-1991

**M.R. KHAN**

My previous paper had dealt with the history of the Gulf region up to the year 1971 and its strategic significance through the ages. With the departure of the British in 1971, the colonial phase of the region had come to an end. At that time, it was felt that the British exit would leave a geo-political vacuum in the region. It was also a period when the southern Gulf states were in a nascent political stage and their oil wealth had started altering the living standards of their citizens at an unprecedented pace. In the northern Gulf, the Shah of Iran, who was politically firmly aligned with the West, was trying to modernise and develop his ancient country. He also had grandiose dreams of regional primacy and was rapidly arming towards that end. Iraq was in the grip of Arab nationalism and Saddam Hussein was emerging as an important leader. Overall, the Gulf looked a tranquil place except for an insurgency problem in the Dhofar region of Oman. The aim of this paper is to pick up the thread from there and explore the geo-politics of the region from 1971 to the Gulf War, after which things altered radically. The paper covers the basic political structure and analysis of important geo-political events of the period to achieve a better understanding of a region which is of vital interest to us, as was clearly brought out in the previous paper.

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## AN OVERVIEW OF THE REGION

The riparian states of the Gulf are the Kingdom of Saudi Arabia (KSA), Iran, Iraq, Kuwait, Bahrain, United Arab Emirates (UAE) and Qatar. In 1971, all of these were hereditary monarchies except Iraq, where the Arab nationalist socialist Al Ba'ath Party was in power. Traditionally, Iran, Iraq, and the KSA are considered medium or regional powers of the Gulf. The rest of them, that is, Oman, Kuwait, UAE, Bahrain and Qatar are smaller countries. Although Oman has a large area, its national resources and indigenous population are small, whereas Iran, Iraq and Saudi Arabia have large populations, geographical areas and natural resources to categorise them as regional powers. Even the regional powers differ considerably in size and population. The population of Iran (72 million) is three times that of Saudi Arabia (23 million indigenous, estimated) and two and a half times that of Iraq (29 million). Their geographical sizes too differ greatly. Saudi Arabia is about two-third the size of India, though most of it is inhospitable, oil rich desert. Iran is about half our size but much of it is semi-arid or arid. Iraq is somewhat small and is less than one-third the size of Iran, and, once again, mostly desert but also it contains fertile basins of two major rivers, the Euphrates and Tigris. Iraq is also squeezed out from the sea front by the artificial demarcation of colonial boundaries, which has been the cause of much turmoil in recent times. The entire region is rich in hydrocarbon deposits with approximately 61 per cent of the world's oil and 40 per cent of the natural gas reserves being located here.<sup>1</sup> The oil reserves are mainly in Saudi Arabia (22 per cent), Iran (12 per cent), Iraq (9.5 per cent), Kuwait (8.5 per cent), and UAE (8 per cent).<sup>2</sup> Iran, Saudi Arabia and Qatar have large deposits of natural gas too. That is not all: the cost of extraction of oil in the Gulf region as well as the cost of taking it to the nearest sea terminals for export is also minimum. These factors together make it the preeminent location of the world's most prized strategic resource.

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1. While figures differ at different sites, these figures are taken from the "World Oil Year end 2007" and are without the Tar sands of Canada, which are strictly speaking not proven reserves.
  2. Ibid.

The Arab Gulf states have been traditionally ruled by tribal chieftains who assumed the titles of Emirs and Sultans under the British patronage. The rulers of these states can be somewhat compared with the enlightened despots of 18<sup>th</sup> century Europe. In tribal structures, they were first among equals in an essentially egalitarian culture. With the coming of oil wealth, of which initially the ruling families were the main beneficiaries, they became fabulously rich and began distancing themselves from the common people by building grand palaces and introducing Western monarchical protocols. Initially, much of the oil wealth was garnered by the so-called royal families and extended royal families, but the continuous inflow of large sums was later sensibly utilised in building world class infrastructure and a welfare state, with all citizens being provided free health services, education, social security and housing. These welfare measures, along with the large influx of expatriate workers from the poorer Arab countries and elsewhere at low wages, especially from South Asia, who were employed in menial as well as skilled work, put the small numbers of indigenous populations in a comfort zone. Therefore while the political space was limited and civic institutions non-existent, there still was a measure of political stability, meaning that if a country has a small population and a large income, you can virtually bribe every citizen.

**The Arab Gulf states have been traditionally ruled by tribal chieftains who assumed titles of Emirs and Sultans under the British patronage.**

Iran and Iraq were also authoritarian states but with different political structures. The Shah of Iran had come back to power through a US engineered coup and was wary of civil liberties. He traced his heritage from ancient Persia and downgraded Islamic institutions and became increasingly autocratic. He tried to structure a quasi-secular state with liberal market policies to keep the upper and middle classes happy. With oil wealth and an alliance with the US, he was trying to make Iran the preeminent military power in the region and was rapidly arming towards this end. To engender a sense of nationalism and pride, he forcibly occupied the strategic islands of Greater and Smaller Tunb and forced joint control of another island, Abu

Moosa, on the UAE with some complicity by the British and the US, though earlier all three had belonged to Sharjah. On the domestic front, he had rapidly modernised infrastructure, while simultaneously crushed political opposition through his feared secret police, Savak, trained by the Central Intelligence Agency (CIA) and Mossad. He had also unwisely undermined the clergy, which had strong grassroots support in a deeply conservative society. The Shah had also first imprisoned and then exiled the influential cleric and a strong critic of his policies, Ayatollah Ruhallah Khomeini.

Iraq, on the other hand, had gone through a number of coups since 1958 when the Hashemites, who came to power through British help after World War I, were overthrown by Brig Gen Abdul Karim Qasim. In 1968, the leader of the Arab Socialist Ba'ath Party, Ahmed Hasan Al-Bakir had taken over the reigns of government through another coup, but it was his associate and friend, Saddam Hussein Al-Tikriti who was emerging as an important and influential leader of the party. The Ba'ath Party doctrine, though essentially secular and republican, was based on pan-Arab unity, Arab nationalism and anti-imperial sentiments, with religious identity pushed to the background. But there was no mistaking its quasi-fascist cell-based structure, with an emphasis on withstanding government repression and infiltration. Thus, at the time of the British departure in 1971, all the regimes in the Gulf countries were authoritarian and autocratic but politically stable, albeit meta-stable. In geo-political terms, the Shah of Iran, supported by the West and Saudi Arabia, was trying to fill the so-called regional security vacuum occurring due to the British departure.

It is popularly believed that the southern half of the Gulf consisting of Saudi Arabia, Oman, Kuwait, the United Arab Emirates, Qatar and Bahrain could conveniently be considered as a sub-region of the wider "Arab World", whereas the northern littoral comprising Iraq and Iran, historically represented a different religio-cultural identity. It may be partly true but as a geo-political region, it represents a fairly homogenous environment with similarities in political, strategic and economic aspects. Historically also, as explained earlier, the migration of Arab tribes to the coast of the Gulf began two centuries preceding the advent of Islam and continued throughout the

subsequent history till the birth of the concept of nation-states in the Gulf during the later part of the 19<sup>th</sup> century. Therefore, in spite of the complex ethnicity of the region, there is a strain of a composite culture, the so-called *Khalijiat*, prevalent over the region.

### **US INTERESTS IN THE REGION**

The US strategic interests in the region have grown over a period of time and coincide with its preeminence during the post-War period. The starting point of US interests in the region comprised the concessions it won from the British for oil extraction in Saudi Arabia with the founding of the Arab American Oil Company (ARAMCO). The emergence of the state of Israel in 1948 was the next step in the enhancement of US interests. But until 1968, when the British announced their intention to give up their military presence in the east of Suez, Washington was maintaining only a supportive role. At that time, the oil-producing states of the region were providing about half the requirements of the Western alliance and 70 per cent those of Japan. In subsequent years, despite its own considerable production, the US had increasingly become dependent on foreign oil, particularly that of the Gulf region. During the period following the oil crisis of 1973, this dependence rose sharply to about 4.9mbpd or about 25 per cent of its total requirements in 1977. In later years, the US has diversified its sources of supply, but oil is fungible, and shortage from any source, especially a source as large as the Gulf, affects prices worldwide. Therefore, the primary US interest became maintaining the unimpeded flow of oil from the Gulf to the West and Japan. Any disruption in oil supplies could have disastrous consequences for the economies of the industrialised world.

Suddenly, following the quadrupling of oil prices in 1973, the Gulf countries had acquired wealth to expand imports on a huge scale. As a result, they had become an important market for American goods. US exports to the region zoomed from \$3.5 billion in 1973 to 12.3 billion in 1977. More importantly, they helped in correcting the balance of account distortions which had come in due to the import of crude oil. A major component of Washington's trade to the region was armaments, and continues to be to date. By 1975, the US had emerged as the number one supplier among the 28

**While Washington was responsible for well over 50 per cent of the world's arms trade, the Persian Gulf states had accounted for as much as 60 per cent of the orders over the years.**

states supplying military hardware and services to the Gulf countries. While Washington was responsible for well over 50 per cent of the world's arms trade, the Persian Gulf states had accounted for as much as 60 per cent of the orders over the years. Between 1972 and 1978, Iran ordered \$ 19.5 billion worth of arms. One Congressman had referred to it as "the most rapid build-up of military power under peace-time conditions of any nation in the history of the world." Saudi Arabia too imported arms at an enormous scale

during this period though at a lesser scale than Iran. Though Iran became a pariah state post-revolution and Iraq after the Gulf War, the rest of the Gulf countries have been an extremely lucrative market for the US' and, to a lesser extent, the other Western countries' weapon systems. The sale of expensive weapon systems not only helped in addressing the negative balance of trade on account of costly oil imports, but was also useful in ameliorating the research and development costs of these systems.

During the decades of the Seventies and Eighties, containment of Communism was a major US foreign policy objective. Therefore, blocking Soviet expansion southward was another prime US interest in the region. With its long history of involvement in Iran, it was perceived that the Soviet Union would either seek to control the region directly or by increasing its presence significantly in the countries of the region. While oil could not be a primary Soviet objective, since Russia is a net exporter of oil to this day, the region could provide much needed succour towards a long standing need of Russia of a warm water, round-the-year port, and also could be used as a pressure point to counter Soviet weakness elsewhere because of its proximity to its Central Asian domain. The threat became even more viable after the Soviet invasion of Afghanistan in 1979 and rapid expansion of the Soviet Navy in the Seventies. Hence, the so-called Carter Doctrine of 1980 came into being. Under the terms of this policy statement, President Carter pledged: "Any attempt by an outside force to gain control of the Persian

Gulf region will be regarded as an assault on the vital interest of the United States of America.” The pledge went on to state that the US was prepared to back up its interest with action, saying that such an assault would be repelled by any means necessary, including military force.

Another important US interest in the region is the geo-strategic location of the Gulf. It has been amply explained in the historical perspective, that the Gulf, since the earliest known period of history, has been an important East-West communication link. It occupies a vital location between the three continents. Therefore, any country with aspirations to be a world power, must have a sizeable presence in the Persian Gulf and the Arabian Sea. The Portuguese started it, Britain followed, the US is maintaining it and the USSR tried it during its heyday. The other countries in the race to be a world power, China, India and Russia, regard it as a vital area and may contest it as their economies and, consequently navies, expand. Last, but not the least, Washington is committed to the preservation of the state of Israel. Initially, there was some debate among the US foreign policy planners on whether to support the creation of Israel or not. The opponents argued that Israel, because of the Arab hostility, could prove a strategic liability towards achieving the goal of unimpeded flow of the Gulf oil, while the supporters projected it as a more reliable ally and an important asset in the containment of the USSR in a highly volatile region. It was felt that Israel had a cultural, ideological, political and economic affinity with the West and, therefore, a confluence of interests. Accordingly, a strong public opinion was built up by the rich and influential Jewish and evangelist lobbies in support of the Zionist state. Then onwards, Washington ensured that Israel was built up as the dominant military power in West Asia, and its preservation in a hostile environment became an unwavering US commitment.

During the early years, after the departure of the British, Washington sought to protect its interest through its client states in the region. These were the Nixon years and the policy was known as the Nixon Doctrine or “Twin Pillar” policy. It meant that the Gulf security was left to the Shah of Iran, who had already become militarily the strongest in the region and was supported by a weaker regional power, Saudi Arabia, with the US providing

over the horizon protection. Both were wary of the Arab nationalist, anti-imperialist regime in Iraq and manoeuvred to contain it.<sup>3</sup>

### **SOVIET/RUSSIAN INTERESTS**

Historically, Russia has sought influence in Iran since the 19<sup>th</sup> century as a measure of security for its Central Asian domain. Much of Russian expansion in the Central Asian region was at the cost of Iran, and Iranian cultural and linguistic influence in four of these republics gave it a sense of vulnerability. During the 1890s, Russian activity in the region challenged the British influence. They sent naval vessels to the Gulf, tried to ally with the Saudis, subsidised a steamship line from Odessa to the Gulf, and like Germany, had plans to build a railway line with a terminus at a Gulf port. In 1907, Britain and Russia agreed to divide Iran into a Russian sphere in the north and a British one in the south, leaving only a weakened independent government in the centre. The new Soviet government renounced this agreement as an imperial vestige, but soon itself became interested in Iran. A Soviet-Iran Treaty was signed, giving the Russians rights to send troops in Iran if forces threatening the USSR entered Iran. During World War II, the USSR and Britain occupied Iran in 1941 to provide a secure alternate land route for the supply of Western arms and stores to the Soviets in their fight against Nazi Germany. The Soviets were unwilling to vacate Iran at the end of World War II and it took some arm-twisting by the Americans before Stalin agreed to withdraw in 1946, and the two autonomous republics in Azerbaijan and Kurdistan collapsed. Soviet support to the Communist Tudeh Party of Iran continued, but after the US backed CIA engineered coup against the democratically elected liberal Prime Minister Mossadegh and the return of the Shah, Iran became pro-Western. Iran joined the Baghdad Pact in 1955 and signed a security agreement with Washington in 1959. The Soviets objected to both actions. Subsequently, the Shah established good relations with Moscow as a balancing act.

During the Communist era, the primary Soviet interest in the region was preservation of a peaceful Moscow-controlled Soviet Central Asia. The

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3. Markus Kaim, *Great Powers and Regional Order* (Cornwall: MPG Books Ltd.), p. 14.

Islamic revolution in Iran was initially welcomed by the Soviets on account of its hostility to Washington but subsequently it gave rise to fears that the fervour of fundamentalist Islam may spill over to the Muslim republics of Central Asia. After the invasion of Afghanistan in 1979, its pacification and maintenance of pro-Soviet socialist regimes became another important Soviet interest. It could not be achieved unless Iran and Pakistan stopped support to various Mujahideen groups. A third Soviet goal in the Gulf was both to prevent from growing, and reduce where possible, American influence in the region. The reduction of American influence was an offensive goal while preventing its growth was a defensive one.

**The Soviets also had a strong interest in maintaining in power governments in the region which were friendly towards Moscow.**

The Soviets also had a strong interest in maintaining in power governments in the region which were friendly towards Moscow. In addition to the leftist regimes allied to Moscow in Afghanistan, Syria and South Yemen, the Soviet Union wanted to preserve the Ba'athist Iraq for strategic reasons. A fifth goal the Soviets had in the region was to keep the Arab world united in its opposition to Israel. So long as the Arab governments saw Israel as their main enemy and Washington as its closest ally, Moscow could keep them engaged and dependent on its military hardware and opposed to the American foreign policy. In addition, Moscow had a strong interest in seeing that Islamic fundamentalism did not become a strong rival of Marxism Leninism as an ideology for those seeking radical political change in the Gulf and West Asia as a whole.

The Soviets had other, more long-term, goals in the region such as historical quest for an all-weather warm water outlet, promotion of Marxist ideology, and control of the region's oil resources. As a superpower rivalling the US, they could not ignore its strategic location, and with the expansion of the Soviet Navy, it became feasible to display their flag in the Arabian Sea and the Gulf with tangible presence. Towards these aims, they made diplomatic efforts to establish good relations with the conservative governments of the Gulf Cooperation Council (GCC). From 1963 to 1985,

the USSR had diplomatic relations with only one GCC state: Kuwait. The others were all anti-Soviet and cooperated with the US and Britain. In 1985, however, Moscow succeeded in establishing relations with both Oman and the UAE. Soviet contact with Saudi Arabia also increased. All these efforts were aimed at reducing the US influence in the region.

### **IRANIAN REVOLUTION**

Iran's Islamic revolution in February 1978 was a unique event in the history of the Islamic world. Never before had clerics taken over the reigns of a Muslim country through a popular revolution or otherwise after the Umayyads changed the contours of the Islamic state around 675 A.D., approximately 43 years after the death of Prophet Mohammed. Initially, the revolution was populist, nationalist with a tinge of socialism but later became Shia Islamic. Accordingly, during the early period of the revolution, the clerical community was involved in an existentialist struggle with the nationalists and the leftist Tudeh Party. They managed to eliminate or exile most of their opponents through better grassroots support and organisational structure, and consolidated their hold on power under the charismatic leadership of Ayatullah Ruhallah Khomeini.

Much has been written about the causes of the revolution. Some historians believe that its foundation was laid when the democratically elected government of Mossadegh was overthrown in 1953 with the help of the United States. This also changed the republican image of Washington in popular Iranian imagination vis-à-vis Britain and Russia which were seen as imperialist and predatory due to their machinations during the 19<sup>th</sup> and the first half of the 20<sup>th</sup> centuries. The Shah was perceived by many as beholden to America whose culture was corrupting that of Iran and eroding Islamic values, and the US was now seen as the Shah's partner in cruel political repression through the Savak, and became another focus of public ire. The glorification of ancient Persia and undermining of the Islamic past, sidelining of the powerful Shia clergy, an attempt at rapid modernisation and Westernisation of a conservative society, an overly ambitious economic and militarisation programme which caused shortages and inflation and

created economic bottlenecks, and autocratic policies are some of the other reasons put forward as the causes of the Shah's fall.

Post revolution, a large part of the Muslim *Ummah* looked at Iran with great expectations. No government of a Muslim country had promised to be entirely guided by the *Quran* and the *Sunnah* and the democratic principles enshrined in the Medina

model since 675 AD, as mentioned earlier. The nostalgia for the Utopian Medina model is deep in the Muslim psyche. But, unfortunately for Iran and the region, instead of concentrating on creating and institutionalising a just, efficient and accountable state on the cherished Medina model as was professed, focus shifted towards external affairs. The main thrust shifted to exporting the revolution across the borders. The grand aim was to revolutionise the entire Islamic world, but the early targets were the authoritarian regimes of the Arab neighbours. This resulted in a sharp deterioration of relations with the Arab world and more specifically with the monarchies of the southern Gulf and Ba'athist Iraq. Iraq felt most threatened by the Iranian propaganda because more than 50 percent of its population is Shia and another 20 percent comprises the Kurd who have greater affinity to the Persian culture and, like them, claim Aryan descent. Further, Iranian hostility against the US, aggravated by the hostage crises of 1979 to early 1981, and the rhetoric against the godless Soviets resulted in consolidating the opposition to the theocratic regime.

**Iraq felt most threatened by the Iranian propaganda because more than 50 percent of its population is Shia.**

### THE IRAN-IRAQ WAR

The causes of the Iran-Iraq War cannot be explained purely in historical terms of conflict between the Persians and the Arabs or the vulnerabilities Iraq perceived from the revolutionary rhetoric of Iran, as stated earlier, though both played their part. The more important reasons were related to contemporary geo-politics. Firstly, the Algiers Accord of 1975 was grudgingly agreed to by Iraq under pressure from Iran due to its overwhelming military superiority and the international leverage it enjoyed because of a special

relationship with Washington. It, nevertheless, left Iraq with a sense of grievance over the partial loss of sovereignty on the waters of the Shatt-al-Arab. Secondly, the Baghdad regime believed that it had the opportunity to wrest the dominance of the Gulf from Iran and push its territorial and other claims. Thirdly, the personality of Saddam played a key role. In spite of great oil wealth, a sizeable population and a now strong military, Iraq was unable to play a central role in Arab affairs, due to the preeminence of Egypt and Syria in an anti-Israel coalition, a favourite Arab cause. Syrian primacy particularly irked him as it was ruled by a rival Ba'ath faction. His ambitious, vain and adventurous nature saw it as an ideal opportunity to play the knight in shining armour, in the mould of his hero Salauddin, defending the Arab cause against the marauding Persians. As the war progressed with its rise and ebb, his theme of protection of the "Eastern gateway to the Arab nation" became the main propaganda tool of the Iraqi President. Therefore, no amount of financial support given by Saudi Arabia, Kuwait and the other Gulf principalities was adequate. The wavering of any Arab's support anywhere became tantamount to national betrayal. He was particularly severe on any Gulf regime which showed even the slightest amount of hesitation in opening its purse strings as he was primarily waging this war to protect the Gulf from the demonic Persians. It did not matter to him that the Gulf nations did not ask him to defend the "Eastern gateway", and left on their own, would prefer to live in peace and amity with their northern neighbour.

Saddam had calculated that the chaotic conditions prevailing in Iran due to the civil strife and fragmentation of the Iranian Army would allow him a swift victory, ending the Iranian threat once and for all, and he would regain full sovereignty over the Shatt-al-Arab as an added benefit. Initial victories and rapid advance of the Iraqi Army further strengthened his view that the adventure was paying off. Unfortunately for him, the external threat united the warring domestic factions in Iran, with the clergy getting the upper hand. They were not only able to repel the Iraqi attack but crossed over to the Iraqi territory in their own offensive after two years of the war. Had Iran been satisfied with its achievement and agreed to

peace negotiations, the course of events in the region would have been different. But once again, the personality of a leader played an important part in determining the course of events in the Gulf. Ayatollah Khomeini was not one to easily forgive and forget. He was determined to punish and humiliate Saddam by toppling his regime and establish a Shia dominated Islamic regime in Iraq.

**It became clear to them that a decisive Iranian victory would inevitably impose an Iranian hegemony and seriously threaten all the Gulf regimes.**

The turning point was the Iranian crossover into Iraqi territory and occupation of the Fao Peninsula. The other Gulf regimes, which had been lukewarm to the war and feared its effect, suddenly felt threatened. It became clear to them that a decisive Iranian victory would inevitably impose an Iranian hegemony and seriously threaten all the Gulf regimes. They all rallied to support Iraq, politically and financially. It is estimated that Saudi Arabia provided Iraq with \$26 billion, Kuwait with \$12 billion and Qatar and the UAE smaller sums, besides other facilities. At the end of it, the Gulf countries believed that they had given all they could in spite of their own difficult circumstances due to low oil prices during the late Eighties, but the Iraqi President believed that these countries had given only a little, considering what they had and the great service he had provided them. In the wider Arab world, Yemen, Egypt and Jordan supported Iraq, while Syria and Algeria were aligned with Iran. The other Arab countries were more or less neutral.

As of the superpowers, initially the USSR had welcomed the Iranian revolution because of its hostility to the US, and hoped to improve its relations with Iran. Therefore, during the days of war, in spite of its close relations with Iraq, its reaction was guarded, not willing to offend Iran. Though military spares continued to flow, an embargo was placed on new sophisticated weapons. Initially, the US too was very circumspect and sympathetic to Iraq, but when it thought that an Iraqi victory could prove advantageous to the USSR, along with Israel, it indulged in an unprincipled and infamous operation popularly known as "Iran Gate" to assist Iran under

**The end of the Iran-Iraq War came when Ayatollah Khomeini accepted the ceasefire due to the exhaustion of war.**

which military spares were supplied to Iran through Israel. But soon the two superpowers assessed that Iran with its revolutionary Islamist ideology posed a common threat to their interest alike. Hence, when the tide of war began to turn in favour of Iran and an Iraqi defeat appeared imminent, the superpowers as well as the industrialised nations in general became aligned with Iraq. This alignment took the form of the supply of advanced weapons, credit facilities from international institutions and sensitive military information as most of the Iranian weapons were of Western origin. The irony of the situation was that much of this arsenal which the East and the West banded together to provide Iraq, contributed a great deal in precipitating the Gulf War later. It also exposed the short-sightedness of Washington's Gulf policy. Finally, the end of the Iran-Iraq War came when Ayatollah Khomeini accepted the ceasefire due to the exhaustion of war. Blatant and large scale military intervention by the US during the final stages of war, when the Iranian Navy suffered huge losses, also played its part.

The Iran-Iraq War was the most destructive war in the history of the Gulf. The two potentially rich nations were reduced to penury. Both sides claimed victory. But the truth is that the war ended where it began. The material losses for Iraq have been estimated at \$500 billion, while Iran estimated its own losses up to a trillion dollars. Both sides suffered nearly a million casualties in human terms.

**THE PRELUDE AND THE BUILD-UP OF THE GULF WAR**

In the aftermath of the Iran-Iraq War, inter-Arab relations had reached an equilibrium not seen in recent times. Egypt was back in the Arab fold after a brief period of isolation following its contractual peace with Israel, thanks to sustained support from Iraq. Ironically, it was Iraq that had taken the lead in 1978-79 in imposing sanctions on Egypt. But the two had come together in a loosely grouped Arab majority bloc against Iran during the hostilities. The bloc also included Saudi Arabia, Jordan, Morocco, and the smaller Gulf

countries. Egypt was fully reinstated to its former pivotal position in the Arab bloc at the 1989 Casablanca Arab Summit. By the end of the decade, every Arab country except Libya had reopened its embassy in Cairo.

It was also the period when the Arab countries in general were in the throes of pressing domestic problems. The Iran-Iraq War and constant confrontation with Israel had taken a toll on their economic reserves. Falling oil generated revenues, rapidly increasing populations, skewed development, and the looming threat of political Islam, all seemed to necessitate an Arab political order, which would concentrate on economic development and inter-state cooperation. The imminent European Community (EC) economic union reinforced further the notion that if the Arab world was to avoid being marginalised in the international system, it needed to create new cooperative structures. To these ends, two new structures were created in 1989. The first, the four-member Arab Cooperation Council (ACC) was composed of Egypt, Iraq, Jordan, and Yemen. Iraq, with the active cooperation of the Palestine Liberation Organisation (PLO) which played a leading role in its creation. The second was the Arab Maghreb Union (AMU), composed of the five Arab states of North Africa. The six-member Gulf Cooperation Council (GCC) composed of Saudi Arabia, Oman, UAE, Qatar, Kuwait and Bahrain was created in 1981 at the height of the Iran-Iraq War when these countries felt most threatened, first by Iraq, when it looked like winning the war, and, later by Iran. Apparently, its aim was economic, cultural, scientific and technological cooperation, but there was no mistaking the security underpinnings. At this juncture, Syria was the only major country standing apart from these developments due to the long-standing enmity with Iraq owing to geo-political, ideological, and personality differences between the two dictators.

Along with these groupings, Saddam's stature as an all Arab leader had also risen. His espousing of the Egyptian cause, rhetoric against Israel at every Arab forum, a large standing army, the belief that he had saved Arabs from the Iranian menace, and off and on belligerence against the US, all played up in the Iraqi media and the media of some other Arab countries had given him a larger than life image in the Arab street which tended to overlook his many failings and mercurial nature. But beneath all the rhetoric of victory and the

**The Iraqi people, accustomed to a certain level of prosperity in the pre-war years, were thoroughly disillusioned due to scarcity and even grinding poverty of certain sections of the society.**

creator of victory (ie.Saddam), the Iraqi President was a worried man. The war had encumbered him with a debt of \$90 billion. The financial support from the Gulf countries was down to a trickle. The long war of eight years had eroded his firm grip on the oppressive political system in general and the loyalty of the military to his personal rule in particular. He saw the several attempts at his life by military officers as ample poof of it. There was nothing on the ground to show as fruits of victory. He had been unable to extend Iraq's sovereignty over the entire Shatt-al-Arab waterway, the main reason for the war. Nor was he able to change the Iranian regime. The Iraqi people, accustomed to a certain level of prosperity in the pre-war years, were thoroughly disillusioned due to scarcity and even grinding poverty of certain sections of the society. Under these distressing circumstances, perhaps, the President's beleaguered mind reasoned in favour of adventurism as the safest way to shore up his regime against possible dissent. As time passed, he became increasingly convinced that the invasion and annexation of Kuwait was the only way for Iraq to be bailed out.

But he had to reckon with possible strong reactions from the Arabs, Washington, and the other countries of the Western world. He was reasonably sure of the support from the PLO and Jordan, as some say he promised them a share of the booty. Egypt, he felt was deeply obliged to him and had only returned to the Arab fold under his patronage. Moreover, nearly two million Egyptians employed in Iraq, who were making a substantial contribution to Egypt's precarious economy, could not be easily ignored. He did not have too high an opinion of Fahd Bin Abdal Aziz of Saudi Arabia. He considered him a weak and indecisive leader, in fact, on one occasion during the Iran-Iraq War when he advised caution, Saddam accused him of cowardice. He also knew of his squeamishness about the presence of US military personnel in Saudi Arabia due to domestic sentiments. He was familiar enough with the monarch to know that he would defer painful, difficult decisions as

long as possible. Saddam had also exploited King Fahd's visit to Iraq after the end of the Iraq-Iran War. The visit was made at the urging of the Iraqi President who arranged a warm official and popular reception for the King. He asked the King to sign a non-aggression pact between the Kingdom and Iraq. The request seemed strange to the King in view of the close relations to the countries. Nevertheless, the King acceded to the request. He was, therefore confident that the Kingdom would not permit its territory to be used by foreign forces, regardless of circumstances.

Saddam Hussein had excellent tactical acumen, but like most dictators, his strategic perceptions were poor. He thought of President Bush as another version of his predecessors who were eager to avoid military confrontation and would be content with a boycott or sanctions. He was completely prepared to confront such reactions. Moreover, he believed that, after a reasonable period of time, guaranteeing the flow of oil at low prices would suffice to convince the US to accept the invasion as a *fait accompli* as Kuwait was not bound to the United States by any security pact. He also failed to take into consideration the altered circumstances of the USSR. President Gorbachov had initiated *Perestroika* and *Glasnost* or reconstruction and openness, with a view to completely reform the degenerating Communist system. He was convinced that his success depended a great deal on economic aid from Germany, France and the US to lift the Soviet economy. The Soviet Union of yore would have been quick to oppose and, if need be, use its veto in the UN Security Council to thwart any American initiative. But under these changed circumstances, Gorbachov was not to defend Hussein's Kuwait adventure at the cost of strategically important relations with the West and UK. Saddam, to the contrary, assessed that he would be providing the Soviet Union a golden opportunity to reassert itself as a superpower, which it could not possibly ignore.

The idea of invasion and annexation of Kuwait as the ultimate answer to all his problems having taken root in Saddam's mind, and having assessed world and Arab environments as conducive and favourable to it, he was now ready to make his move. He first presented to the Gulf countries for concurrence his strategic vision which included Warbah and

**The Iraqi claim on Kuwait was based on the fact that during the Ottoman rule, Kuwait was administered as a *vilayat* of Basra.**

Bubiyan Islands and other military bases in the GCC countries. This was, as expected, rejected by the Gulf countries. He accused them of completely selling out to the Americans and spoke repeatedly and vehemently against American military presence in the Gulf. Several months after the Iran-Iraq War, he sent envoys to Saudi Arabia and Kuwait to ask them for a loan amounting to \$10 billion to tide over post-war economic problems. Saudi Arabia promised to examine the matter whereas Kuwait offered a more modest sum, citing its own difficulties. Saddam felt that this was a humiliating response. Iraq had also demanded cancellation of its Kuwaiti debt, running into billions of dollars. Kuwait refused and continued to send routine reminders of the accounts to be settled between the two countries. This added fuel to the fire, but the ultimate provocation came when Kuwait and the UAE refused to accede to Iraq's request to decrease oil production to enable Iraq to sell a larger amount of its oil. Saddam also accused Kuwait of stealing oil from the Rumailah oilfield which straddles the border of Kuwait and Iraq. He called it a blatant act of aggression. The casebook against Kuwait was getting thicker.

Iraq's claim to Kuwait is an old one, going back to the 1930s when King Ghazi first proffered the claim. He wanted to consolidate and expand Iraq all over the Al-Hilal al Khaseeb (fertile crescent) from Syria to the Gulf. Ghazi tried to induce union of the two countries and succeeded in convincing the advisory council to the Kuwaiti ruler to pass the resolution advocating the union. Kuwait had then hoped to gain from the union because it was not oil rich. But under British pressure, the Sheikh of Kuwait disowned and disbanded the council. The Iraqi claim on Kuwait was based on the fact that during the Ottoman rule, Kuwait was administered as a *vilayat* of Basra. Subsequent Iraqi governments, including Saddam Hussein's, had never renounced their claims to Kuwait, and had avoided settling the issue of final borders between the two countries.

Another development which Baghdad interpreted as conducive to annexation was a round of intense political activity in Kuwait during that period, demanding greater pluralism and popular participation in the decision-making process. This had taken the form of the Kuwaiti Opposition's mobilisation of public opinion to demand the return of the elected National Assembly, which the Emir had disbanded four years earlier. It was only under pressure from the Opposition, that when Kuwait was compelled to seek American protection for its tankers in the final phase of Iran-Iraq War, it denied permission to American warships to enter its territorial waters or allow American helicopters to land on its territory. Saddam concluded from the domestic political situation in Kuwait that he would receive a big welcome there, at least from the Opposition.

The stage was now set for Baghdad to precipitate the situation in a manner that would show Kuwait as uncooperative and belligerent, and when the annexation occurred, its own culpability would either be condoned or there would be a minimum adverse reaction. Saddam made his next move by addressing some impossible demands to Kuwait, which, among others, included, cancellation of the Iraqi debt of some \$12 billion, compensation for oil taken from Rumaylah oilfield amounting to \$2.4 billion and lease of the islands of Bubiyan and Warbah at virtually nothing. In addition, Iraq demanded an enormous unspecified sum as the nucleus of an Arab Marshall Plan for the reconstruction of Iraq from the damage sustained during the Iraq-Iran War. The demand for the nucleus funds was addressed to the other GCC countries also. The Kuwaiti government viewed these demands as egregious, especially when there was no accompanying offer for a final and comprehensive settlement of the long standing Iraq-Kuwait border dispute. Kuwait concluded that acceding to these demands would mean the end of Kuwait as an independent state.

At the Amman Summit held in early 1990, the Iraqi President talked of Kuwaiti belligerence and hinted at the gravity of the situation. This was followed by many statements made by King Hussain and Yasir Arafat, which alluded to fears of approaching wars. Such signalling reached a peak at the Baghdad Summit, which was held weeks before the invasion. It was

here that with bitter sarcasm the Iraqi President told the Emir that he would “surprise him” with a visit to Kuwait and would “surprise him” with a comprehensive, final solution to the border issue. The poor Emir did not understand the sarcasm and received both these surprises warmly. Now onwards, Saddam or his Foreign Minister Tariq Aziz would complain of Kuwait’s intransigence at every Arab forum and accuse it of stealing oil from Rumailah, hatching a conspiracy to glut the oil market to deprive Iraq of a fair price for its oil, demand compensation running into billions of dollars and a complete moratorium on Iraq’s entire war-time loan. He also frequently accused Kuwait and the UAE of conspiring with “world imperialism and Zionism” to cut the livelihood of the Arab nation. He cautioned, “If words fail to afford us protection, then we will have no choice but resort to effective action to put things right and ensure restitution of our rights.”

Amidst all this sabre rattling, on July 25, 1990, Saddam summoned the US Ambassador to Baghdad, Ms April Gillespie, to what was to become one of the most crucial and controversial meetings. We may never know the truth of what really transpired, but she reportedly told him that Washington was not inclined to taking sides in the internal Arab disputes. To be fair to her, she was summoned at short notice and was perhaps ill prepared for the meeting and failed to understand his real intentions. Whatever the actual contents of their conversation, Saddam emerged from the meeting confident of America’s neutrality towards the possible occupation of Kuwait. Still, he projected an appearance of Iraqi moderation and agreed to a Saudi mediated meeting to resolve the issues. The meeting was held on July 31, 1990, in the Saudi city of Jeddah to make a last ditch effort at preventing the blood-letting between the two neighbours. By this time, Saddam had perhaps already made up his mind to invade Kuwait, therefore Izzat Ibrahim, the Iraqi Vice President was unwilling to accept anything except complete capitulation by Kuwait. Saad al-Abdullah, the Crown Prince of Kuwait had an open mind but was unwilling to capitulate. He recommended postponing the discussion until the next meeting which was to be held in Baghdad. He reportedly excused himself from the meeting on the pretext of a headache.

On the August 1, 1990, the talks collapsed amidst mutual recrimination. Kuwait was invaded a day later.

### THE GULF WAR

The causes and political manoeuvres leading to the invasion of Kuwait have been described in some detail because they highlight the perennial problems of the Gulf security and Arab politics in general. The occupation itself was swift and carried out with rare effectiveness. The reaction of the Gulf states was of shock and complete disbelief. Despite the warning signs, none of the Gulf leaders believed that Saddam could dare to occupy a sovereign Kuwait. Such was their disbelief that during the early days of the invasion of the Gulf, radio and television broadcasts refrained from mentioning the invasion altogether. There was a consensus that this was only a transient move by the mercurial leader and soon things would return to normal. When the shock wore off, every Arab forum was activated to find an Arab solution to the crisis. The hectic activity in every Arab capital and the countless delegations to and fro the crisis area were of no avail, and within a few days, it was clear that a mutually acceptable solution between the intransigents was not feasible. The diplomatic activity culminated in the Arab nations being for or against Iraq. Jordan, Yemen, the PLO, Tunisia, Mauritania and Sudan sided with Iraq. Algeria was close to neutrality, despite its inclination towards Iraq. The other Arab countries lined up behind Kuwait, condemned the aggression and welcomed the forces that were coming to repel it.

Reaction in the Western capitals was no different. In spite of highly advanced surveillance systems and intensive intelligent network, none of the leaders had a definite warning of the invasion. The Iraqi military concentration on the Kuwaiti border was no secret, but was dismissed as the usual sabre rattling by the Iraqi dictator, and his lethal intentions could not

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be guessed. The US, calling it a serious threat to world peace, called for an emergency meeting of the Security Council within hours of the invasion. Iraq attempted to justify its action, stating that it was invited by a group of revolutionaries who had successfully staged a *coup d'etat* and Iraq was staying on to assist a "free provisional government of Kuwait" to restore order. The Council rejected the Iraqi contention and passed Resolution 660 with the support of 14 members, with only Yemen abstaining, condemning the invasion and demanding Iraq's unconditional and immediate withdrawal. Iraq rejected the resolution as unjust and iniquitous. Kuwait welcomed the resolution, accused Iraq of expropriating its resources and called upon the Security Council to see that the wishes of the international community were carried out by imposition of sanctions against Iraq for its refusal to withdraw.

Meanwhile, the United States, the European Community, Japan, Canada and the Soviet Union had already declared measures against Iraq like freezing of assets, ban on oil supplies, and embargo on weapon shipments. To legitimise the sanctions, Resolution 661 was adopted on August 6, 1990, which imposed a worldwide oil embargo and comprehensive sanctions banning economic and financial dealings with Iraq and Kuwait, and prohibiting imports from, and exports to, the two oil rich countries. Resolution 661 allowed supply of foodstuff and medical goods under humanitarian circumstances. The committee included all members of the Security Council. The voting was 13-0-2, with Cuba and Yemen abstaining. On the two previous occasions when such sanctions were imposed on Southern Rhodesia in 1967 and South Africa in 1977, they were found to be ineffective. But this time, the US and the allies were far more determined to make them work. A virtual naval blockade was enforced by the ships of the alliance and all ships approaching Iraq or Kuwait were interdicted. Saddam Hussein formally annexed Kuwait on August 8, 1990, claiming it was part of Iraq.

While the Arab and other Western countries were nonplussed and ambivalent as to the action to be taken against Iraq, the US President had decided that come what may, Saddam Hussein would not be allowed to keep Kuwait, and if war was the only way out, then there was no flinching from it. He hastened to freeze Iraqi and Kuwaiti assets in American financial institutions and ordered the State Department to begin a campaign to condemn the invasion inside and outside the UN. He spent long hours on the telephone in an attempt to mobilise an alliance to counter the invasion. The only existing contingency plan for the Gulf region was based on a probable Soviet attack. The President ordered the immediate implementation of the plan, with necessary adjustments to suit the circumstances of the Iraqi invasion.

The Vietnam War had taught Washington that it must not intervene militarily unless such intervention was dictated by absolute national interest and was accompanied by a clear objective and adequate forces. Accordingly, symbolic military measures such as air and naval raids, were excluded as an option. The first batch of forces totalled close to a quarter million soldiers. When this number was in place, the American President decided to double it, leaving little to chance. With half a million personnel and an enormous amount of war material in place, it became impossible to retreat without the unconditional and complete liberation of Kuwait.

How could George H. W. Bush take such firm and peremptory action within a short time? One plausible reason, besides others is that, prior to joining politics, he had worked in the oil industry of Texas. Thus, the strategic dimensions of the invasion of Kuwait were clear in his mind from the outset. Iraq and Kuwait together held oil resources comparable with Saudi Arabia. Their manipulation by such a mercurial, ambitious and unpredictable dictator could prove to be deep trouble for the industrialised economies. Moreover, in Washington's view, the threat to other Gulf countries, including Saudi Arabia, could not be discounted, despite the Iraqi President's protestations to the contrary. In addition to strategic calculations, scenes of the invasion on American television and other media coverage aroused feelings of anger and disgust against Iraq and sympathy towards the small victim, making it easier for the US President to get the political consensus.

After the decision had been taken to oppose the invasion by all means available, Washington played its cards right. On November 29, 1990, the use of force was endorsed by the Security Council when it adopted Resolution 678 under Chapter VII of the UN Charter. The resolution was valid 12-2-1, in which China abstained, and Cuba and Yemen opposed. The actual words “use of force” were not used but there was no doubt that it was covered under “all necessary means”. Iraq was given the ultimatum to implement all the Security Council resolutions and vacate Kuwait latest by January 15, 1991.

When the war came, it was swift and decisive. The conduct of the war is not the subject of this paper and much has already been written about it. Contrary to popular belief, Saddam did not give in easily. He planned to turn Kuwait into the largest battlefield since World War II and amassed half a million soldiers on its territory. He took many measures, such as holding foreign citizens hostages in an attempt to prevent an attack before the completion of his preparations, planted explosives in all the oil wells in Kuwait, and threatened to detonate them in case of an attack, and also made preparations to pollute the entire Gulf by pumping oil into it as a last ditch measure. He planned to turn the land borders into killing fields. He bragged that it would be the “Mother of All Battles”. If the attacker escaped the mines, he would be torn to pieces by the artillery, if he escaped the artillery, he would fall in the burning trenches. But his plans were simplistic and could not be implemented due to the many force multipliers used by the US. He did not realise that the technological gap between the adversaries was too large. An army equipped and tactically arranged on the pattern of World War II, could not possibly defeat an army preparing for the 21<sup>st</sup> century.

However, the Iraqi President was clever enough to ensure his survival in defeat. He did not hazard his air force against much superior opposition nor commit many units of his elite and fiercely loyal Republican Guard to any offensive action which could lead to heavy casualties. He needed them to deal with the post-war climate, which was later illustrated by their brutal suppression of the Shiite uprising in Southern Iraq in the wake of the war. After the air campaign had completely unravelled Iraq’s infrastructure,

the Allied ground offensive began in late February 1991. Saddam soon realised that his plans had gone completely awry. In less than 48 hours of the start of the ground offensive, around midnight of February 25, 1991, Saddam publicly ordered his troops to withdraw in an organised way from Kuwait. Two days later, he agreed to honour all relevant UN Resolutions. On February 28, 1991, President Bush called a halt to all war operations.

Two significant questions remain regarding the Gulf War, which are difficult to answer and have had a profound effect on the Gulf's geo-politics during the post-war years. The first: why did Saddam reject various face-saving formulas when it had become clear that he could not keep Kuwait and war could be his undoing? And the second: why did President Bush leave his regime intact, despite knowing his adventurist nature and the dangers he might pose to American interests and the stability in the region?

Perhaps, the answer to the first is that that the gambler that Saddam was, he could not abandon such a big bet midway. Dictators fear nothing more than the loss of face. Many have killed themselves rather than lose face. He could have withdrawn if he had succeeded in installing a puppet regime in Kuwait. Having failed in that, he just could not afford to be seen withdrawing under American pressure. After a certain point, Washington too did not want him to withdraw, as it had plans to extract the cost of operations from the GCC states, the European allies and Japan, as it later did. It was a period when the US economy was not doing too well. If the war did not take place, it would be difficult to convince them to part with adequate money, whereas enormous expenditure had already been incurred by the US in amassing half a million troops and the war material. Hence, Washington continued to use intemperate language and threats to psyche him. More or less, this was confirmed to me by the US defence attaché, Col Smith, posted in Oman at that time. Saddam also had notions of turning a military defeat into a political victory like his hero Nasser did during the Suez crisis. It is only in hindsight that one can say that his calculations went horribly awry.

The answer to the second question is even more difficult to guess. The US President held all the cards and should have foreseen the problems

Saddam was to later cause from Washington's point of view. Henry Kissinger cites three probable reasons<sup>4</sup>. Firstly, the highest officials of the US Administration had testified before Congress and assured the international community that America's sole objective was liberation of Kuwait. With that objective accomplished or acceded, domestic and international support for continuing the war was in danger of eroding. Secondly, it was feared that the disintegration of Iraq and success of the Shiite rebellion might produce an Iran leaning republic, thereby, aggravating the Gulf situation. It was also hoped that internal turmoil due to Saddam's heavy defeat would lead to the formation of another Sunni dominated regime minus Saddam. And, lastly, the prospects of an independent or autonomous Kurd republic in the north were highly disconcerting to Turkey, a close and reliable American ally in West Asia. Whatever may be the truth, underestimating Saddam's staying power would cost the US dear, as events later proved.

## CONCLUSION

The period from 1971 to 1991 was a stormy one in the geo-politics of the Gulf. It started with the British withdrawal after an overwhelming presence of 150 years. Besides the riparian states, the United States and the Soviets/Russia also had, and continue to have, abiding interests in the region. Initially, the Shah of Iran tried to fill the so-called security vacuum left by the British departure with the support of the US and a large scale military build-up towards a regional hegemony. Accordingly, during the decade of the 1970s, the US was happy to manage its interests in the region through its client states, Iran and Saudi Arabia, with outside support from Israel. The Soviets too had allies in the region, such as South Yemen, Iraq and Syria. A state of equilibrium, if not complete stability, existed during the period. Both the superpowers contested for influence but carefully avoided a blow-up.

The Iranian revolution of 1978 and the Soviet invasion of Afghanistan in 1979 changed the geo-political picture radically and Washington started

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4. Henry Kissinger, *Does America Need a Foreign Policy* (New York: Simon & Schuster, 2001), p. 190.

getting more deeply involved in the region. But much of the instability during the period was caused by the regional rivalry between the two medium powers of the Gulf, Iraq and Iran, and its geo-political fallout. Personalities of the leaders of the two countries and the different state ideologies also played a part. The heavy military presence of the US and its policies added to the friction. The resulting two devastating wars of the period left the medium powers weakened but not entirely out of contention. Perhaps, a more restrained behaviour and political sagacity from the leaders of Iran and Iraq, and a less expedient and far-sighted outlook from the US in its Gulf policy, could have avoided the tragedy of the two devastating wars of the period.





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