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EDITOR'S NOTE

July 28, 2014, will mark the centenary of the outbreak of World War I. Nine million people perished during that war which was dubbed the fifth most deadly conflict in human history. All major powers agreed that this must be the war to end all wars. Many of the countries involved experienced major upheavals, political changes and even revolutions. In spite of the good intentions, less than a mere 26 years from the end of that war, the world was plunged into World War II, the deadliest war in history in which some 50 to 85 million people perished. This war ended with the use of nuclear weapons and the world became an even more dangerous place. Again, many nations were the victims of turmoil and revolutions, and the global political geography altered considerably. With the near uninhibited increase in weapons of mass destruction, the danger quotient increased many times over. However, it was soon recognised that use of a nuclear weapon was akin to suicide and, mercifully, no such weapon has since been used, but the threat of annihilation remains. The situation was captured admirably by Churchill when, in a speech in the House of Commons, on March 1, 1955, he said "...Then it may well be that we shall, by a process of sublime irony, have reached a stage in this story where safety will be the sturdy child of terror, and survival the twin brother of annihilation." The spectre of a war wherein the death toll is even greater than in World War II is highly avoidable.

The threat of massive retaliation helped to ensure that the 'Cold War' did not degenerate into a real war. The nuclear powers did not fight each other and, though wars were fought, there was no direct confrontation between the superpowers. The situation remains unaltered except that there are so many more nuclear powers now and the danger has multiplied. With the horizontal proliferation

of nuclear weapons, we have also to contend with the aspect of deniability. Does this make the chances of a nuclear exchange less unlikely?

The end of the Cold War saw the United States as the sole superpower. However, with its misadventures in Iraq and Afghanistan, and with much stronger economic competition, the sheen of American power has rubbed off to an extent. This has emboldened many powers, notably China.

At present, the world is witnessing increasing competition for resources, influence and markets. As is to be expected, opportunism abounds and there is growing uncertainty in international relations. With China displaying an increasingly aggressive attitude, the memories of 1974 when China wrested control of the Paracel Islands by force have been revived. Will a similar pattern play out again? China's economic power has grown to the extent that its actions are not seriously challenged by other powerful nations like the USA. The less powerful countries that are affected recognise that they have to fend for themselves, strategic alliances notwithstanding. The concept of asymmetric war is being given a fillip. Even the less resourceful countries are no longer diffident about protecting their interests. A tenuous peace or a fortuitous absence of war has become the norm. Yet the thrust and parry, threats and counter threats could degenerate into use of force. A military action could escalate, particularly if national pride or face saving measures come to the fore. Confidence in escalation control can become illusory.

The current situation with so many hot spots around the globe demands enlightened diplomacy. However, for diplomacy to succeed, it must be backed by military power. Hence, defence and diplomacy must go hand in hand and this *Journal* proves the adage over and over again.

Happy Reading



CONFLICT AND AEROSPACE POWER IN THE 21ST CENTURY

VALEDICTORY ADDRESS
AT 5TH JUMBO MAJUMDAR SEMINAR BY VCAS

R.K. SHARMA

I wish to thank the Director General, Centre for Air Power Studies (DGCAPS), for extending this opportunity to me to deliver the valedictory address. The mix of topics in the seminar has a common theme of enabling and empowering the war-fighter with knowledge. We live in a complex environment wherein we need to prepare for action across a broad spectrum of possibilities: Humanitarian Assistance and Disaster Relief (HADR) missions, sub-conventional operations, right up to a large scale conventional war. Therefore, it is important for us to know how nations react to a contingency that requires use of air assets.

In my view, our own strategic culture will develop in a manner that would work best for us. The concept of total national power is still evolving and is inexorably linked to our economic development. It is important to understand the strategic culture of other nations while ours evolves. I would like to thank the DG CAPS for his foresight in recognising the need for understanding the strategic culture of nations and including it as a topic in this seminar.

Air Marshal **R.K. Sharma**, PVSM, AVSM VM is the Vice Chief of Air Staff.

An examination of past conflicts highlights the critical role that air power plays as a component of national power. There have been debates with regard to the Indian Air Force (IAF) attributing less importance to counter-surface force operations vis-a-vis counter-air operations. In fact, a large part of the IAF's effort in the past conflicts has been in support of surface battles. Contrary to the perception, the IAF does take cognisance of the fact that different air effort constructs are needed for different battlefield situations and this needs to be understood by all war-fighters.

There is a major shift in our operational planning and force level considerations as we transform from being 'platform-based' to being entirely 'capability based'. The strike packaging, based on Over the Target Requirements (OTR), has been replaced by effects-based planning and parallel targeting. There is rapid migration of operations to a network-centric environment, with possession of omni role capabilities by future combat platforms. Moreover, future conflicts are likely to be short and sharp, with a greater challenge of unpredictability. These would require a capability for assured, swift and flexible responses. Suffice to say, it is here that air power provides a crucial edge as the first choice for force application. Whether it is a shock and awe campaign or a drone strike on a terrorist vehicle, all are manifestations of the all-pervasive nature of air power.

In the air force, we keep ourselves tactically and technologically current, because both are essential to win air wars. Air power is intrinsically technology intensive, therefore, it is important to keep abreast with technological trends in this sector. As a natural progression, the medium of air power employment has evolved into the medium of aerospace. Application of aerospace power is now not constrained to geographical areas. Due to its inherent flexibility, application of air assets can be assigned to any task on priority for attainment of objectives over large areas. The IAF has, accordingly, founded its doctrines and plans. It is a matter of necessity that for an air force to function effectively, it has to have complete access to, and control over, space resources. Towards this end, there is a requirement to develop the means to ensure extension of air dominance into space. In the future, most advanced countries will invest considerable resources into developing long

range hypersonic precision strike capability that will use exo-atmospheric vehicles. In our plans, modern weapon systems and sensors would be significantly strengthened and a complete integration of civil radars for enhanced situational awareness would enable gap-free surveillance of the entire Indian air space.

The IAF's air defence doctrine is also being progressed to take cognisance of the need for strengthening our air defence network. The IAF has already implemented the two pillars of network-centric operations: a terrestrial network and an airborne network. Our air warriors, therefore, need to look at all space and network-based issues for effective command and control, extended reach, higher situational awareness, quick decision cycles and reduction of the sensor-to-shooter loop. Advanced countries are progressing to Anti-Satellite (ASAT) capabilities and this underscores the requirement to safeguard our unfettered access to space and move towards defending our space-based assets. An Aerospace Command, with the IAF as the lead Service, has, therefore, been proposed to harness the potential and defence of this continuum.

Technology is at the core of an air force, hence, acquisition and assimilation of technology is a primary challenge. The IAF's transformation plan is not bereft of budgetary challenges. Though the slow pace of economic growth the world over is expected to be a transitory phenomenon, it is likely to affect our short-term modernisation plans. The government is seized of the matter and we are assured of the necessary support to cope with our perspective plans. However, there is a need to focus on prudent financial management. Rather than being overtly critical of the budgetary squeeze, the armed forces need to understand the balance between defence expenditure and economic development. One cannot be at the cost of the other and, therefore, it is important to focus expenditure on the development of the core competencies of the Services rather than duplication of assets.

The IAF supports our nation's quest for indigenisation. Air force modernisation needs to be driven by rapid indigenisation of our equipment. Indian industry needs to allocate higher resources towards research and development in the aerospace sector. Our Defence Public Sector Undertakings (DPSUs) and vendors in the private sector need to meet all contractual obligations in entirety, without compromising on quality and timelines since slippages automatically translate

into cost overruns. A collaborative and participative approach of partnership users, among the Defence Research and Development Organisation (DRDO), industry, DPSUs and foreign vendors is the way forward. The IAF believes that in multiple partnerships, the user must be the driver. The government's endeavour to transform the current 'buyer-seller' relationship to joint ventures, co-development and co-production is strongly supported.

An operational contingency in the future will not only demand control of the air with precision strike capabilities, it will also need mobility and sustainment through tactical and strategic air transport support. Thus, our force structure matrix ensures availability of the right capability mix. Our aim is to build as much adaptability and multi-role capability as possible into the force structures. For this, our focus has shifted from emphasis on individual platforms for execution of particular roles, to platforms that seek delivery of capability. Towards this end, the three key components of our transformational plan are to:

- Preserve and maintain our existing assets through increasing indigenisation.
- Upgrade to improve our weapon delivery capability by both day and night, in all weather.
- Acquire to replace our old and ageing equipment with more contemporary ones.

This seminar has painted a large canvas of these contemporary themes directly related to the application of aerospace power in conflicts. Future wars will be based on time-critical operations which will rely on information dominance. This can be achieved only through the medium, and exploitation, of the aerospace domain.

The IAF is prepared to act at two levels: be persuasive in peace while staying prepared to be equally effective in war. I assure you, our skies are secured round-the-clock by our air defence platforms. Our commitment towards HADR extends beyond our boundaries. Even as I speak, Mi-17V5s of the Eastern Air Command (EAC) are currently involved in dousing forest fires in Nagaland, using their Bambi buckets. While being vigilant at all times and supporting the HADR effort, our combat crews continuously work to improve their skills for undertaking the entire spectrum of air operations.

To conclude, in order to tackle any contingency in the future, we need to improve upon tri-Services joint planning for integrated operations. There is also a need to develop Service-specific core competencies and build upon them to derive the maximum from any budgetary constraints that may come about in the future.

Jai Hind!

RISE OF ASIAN SMART POWERS: INITIATIVES OF JAPAN, CHINA AND INDIA

ANKIT KUMAR

“It is better to be feared than loved, if you cannot be both”, says Machiavelli. Perhaps for a country that applies the classical realist approach to international relations, the advice sounds reasonable. And why not, might is always right. But with the dawn of globalisation in international relations, for greater success, it is imperative for countries to be both feared and loved equally. A case in point is the fact that the United States is a superpower and world leader and is feared because of its sheer hard power capabilities. But it is the attraction of the United States’ culture and values which has consolidated its position as the leader of the world. This gives the US a *de facto* right to maintain a military presence in all the regions around the globe. The soft power tools have been used by, and have helped, the US to convince countries that its presence and policies are for the greater good of the world. The US has been able to convey the belief that it upholds values that are supreme and that its policies are legitimate. Because soft power tools lend tremendous persuasive strength and also have far-reaching ability, the United States has been able to sell the “American dream” effectively to everybody.

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Security is paramount for any and every state, so a state would seek to build and enhance its military power to secure its national interests. But then, it also starts creating problems for the state as has been the case with China's rise, and now it is beginning to give a headache to Japan too, at least in its neighbourhood, if not globally. While there are apprehensions about China due to the rule of an authoritarian regime and dearth in transparency about its intentions, the problem for Japan arises because of its pre-1945 history record. For India, the problem is no different. Due to India's rising economic and military clout, the South Asian nations fear that India might become a regional hegemon. The problem arises primarily because a state does not have much control over how it will be perceived by the other states; it is specifically this problem which could be compensated by the usage of soft power tools to create favourable perceptions in the other states. Hence, it becomes important for a country to be able to convince the others that its intentions are noble and it is a responsible nation.

This is easier said than done. How can a state build its military power, secure its own national interests and also keep others happy about it? This presents a tough challenge to the diplomacy of a country. But, at the same time, these challenges also present various opportunities to the country. How a state maintains a balance between the use of hard power and soft power to pursue its objectives determines the success of its diplomacy. Only those states which succeed in using both hard and soft power diplomacy will rise as great powers. How will the Asian powers that are aspiring towards great power status respond to this? The states have realised this and that is why we notice that military, economic and cultural diplomacy are all being promoted equally by countries. The frequency of military exercises has increased, generous economic aid is being showered upon, and popular art, culture and cuisines are being promoted in, other countries.

This article presents a comparative analysis of the smart power initiatives of the three Asian giants, China, India and Japan, with emphasis on soft power initiatives. Has there been any shift in their policies? How much success has the smart power strategy brought to these countries? And what can India do for, and learn from, others?

THE SUPERPOWER DEBATE

The debate in the strategic and political spheres regarding the emergence of a country as a superpower is only half baked and addresses only one side of the story. Although scholars do not agree on any established definition of superpower, they agree that the economic capabilities and military prowess of a country make it a contender for superpower status. These two criteria are given preference because they help a country in commanding reasonable and, at times, even absolute, influence and control on others. However, another important criterion which has emerged in recent times and which is equally important as are the aforementioned criteria, is the soft power of a country. In other words, the ability of a country to attract others to it by means of a beckoning cultural sheen, cuisine, films, language, etc. In fact, it is the soft power ability of a country that plays a crucial role in being "accepted" internationally as a responsible great power. This also makes more sense because there is only a limited number of things that may be achieved with economic and military means. Former Indian diplomat, Dr. Shashi Tharoor, argues that hard power is exercised whereas soft power is evoked. A country's soft power emerges from the world's perceptions of what that country is all about. The image that crops up in the global imagination by the mere mention of a country's name is often a more accurate gauge of its soft power than a cold-eyed analysis of its foreign policies.¹

According to the definition given by *Encyclopaedia Britannica*, a superpower is a state that possesses military or economic might, or both, and general influence vastly superior to that of other states. It further adds that such a state cannot be ignored on the world stage and without its cooperation, no world problem can be solved.² It is easy to acknowledge a country as a superpower due to its ubiquitous presence across the globe. To maintain such presence, which also gives power projection capability, any state would require enormous amounts of economic and military resources. Hence, these two criteria are the primary ones. However, there's a dichotomy to it. While

1. Shashi Tharoor, "Indian Strategic Power: 'Soft'", *Global Brief*, May 13, 2009, at <http://globalbrief.ca/blog/2009/05/13/soft-is-the-word/>, accessed on January 20, 2014.
2. Andre Munro, "Superpower", *Encyclopedia Britannica*, at <http://www.britannica.com/EBchecked/topic/1922499/superpower>, accessed on January 21, 2014.

almost all scholars agree on a country which is or was a superpower in the world, they do not agree on the criteria that distinguish a superpower from other world powers.

This raises some genuine questions as to why all the world powers cannot be considered superpowers. In what way can a country make itself be accepted as a superpower because the world is too small to accommodate multiple superpowers? More importantly, how would these superpowers manage their own rivalry, as they are likely to perceive each other as adversaries and the chances of them competing are much higher than of cooperating, as is being seen in the case of China and the United States.

As of now, the United States is the sole superpower of the world. But the 21st century has also witnessed the emergence of a few states as world powers such as China, Brazil, Russia, Germany, Japan and India. It is widely concurred that the next superpower is most likely to be from Asia. Among the contenders for superpower status from Asia, China undoubtedly is the strongest one. And why not—after all, China is the world's second largest economy, has the world's largest military force and is the second highest spender on defence. China's military is undergoing a full-fledged modernisation programme and its rise seems inevitable. If one follows the spending on defence as a criterion, then according to SIPRI, the top 15 countries with the highest military expenditure in 2012 are:

Table 1: Defence Expenditure of Top 15 Countries.

Rank 2012 (2011)	Country	Spending (\$ b., MER)	Change, 2003–12 (%)	Share of GDP (%) ^a World		Spending share (%)	Spending (\$ b., PPP) ^b
				2012	2003		
1 (1)	USA	682	32	4.4	3.7	39	682
2 (2)	China	[166]	175	[2.0]	[2.1]	[9.5]	[249]
3 (3)	Russia	[90.7]	113	[4.4]	[4.3]	[5.2]	[116]
4 (5)	UK	60.8	4.9	2.5	2.5	3.5	57.5
5 (6)	Japan	59.3	-3.6	1.0	1.0	3.4	46.0
Subtotal top 5		1 059				60	
6 (5)	France	58.9	-3.3	2.3	2.6	3.4	50.7
7 (8)	Saudi Arabia	56.7	111	8.9	8.7	3.2	63.9
8 (7)	India	46.1	65	2.5	2.8	2.6	119
9 (9)	Germany	[45.8]	-1.5	[1.4]	1.4	[2.6]	[42.8]
10 (11)	Italy	[34.0]	-19	1.7	2.0	1.9	31.0
Subtotal top 10		1 301				74	
11 (10)	Brazil	33.1	56	[1.5]	1.5	[1.9]	[34.4]
12 (12)	South Korea	31.7	44	2.7	2.5	1.8	44.2
13 (13)	Australia	26.2	29	1.7	1.9	1.5	16.3
14 (14)	Canada	[22.5]	36	[1.3]	1.1	[1.3]	[18.3]
15 (15)	Turkey ^c	[18.2]	-2.1	2.3	3.4	[1.0]	[25.9]
Subtotal top 15		1 432				82	
World		1 753	35	2.5	2.4	100	

[] = estimated figure; GDP = Gross Domestic Product; PPP = Purchasing Power Parity.

Source: SIPRI Yearbook 2012

The military expenditure, however, doesn't present a clear picture. While the United States spends more than \$600 billion annually on defence, China spends only around \$170 billion. This means that the US spends more than three times the amount which China does. Also the other countries are not very far behind in the list.

When it comes to the economy, the US is again number one on the list, followed by China and Japan. According to the ranking published by World Bank in 2012, the top 15 economies are:

Table 2: The 15 Biggest Economies of the World

<i>Ranking</i>	<i>Economy</i>	<i>(millions of US dollars)</i>
1	United States	16,244,600
2	China	8,227,103
3	Japan	5,959,718
4	Germany	3,428,131
5	France	2,612,878
6	United Kingdom	2,471,784
7	Brazil	2,252,664
8	Russian Federation	2,014,775
9	Italy	2,014,670
10	India	1,841,710
11	Canada	1,821,424
12	Australia	1,532,408
13	Spain	1,322,965
14	Mexico	1,178,126
15	Korea, Rep.	1,129,598

Source: Gross Domestic Product 2012 – World Bank, at databank.worldbank.org/data/download/GDP.pdf

The US consistently figures at the top position in both lists. Now consider the kind of negativity and criticism that the US has attracted in the recent past due to its emphasis on the use of hard power to secure its national interests and occupy countries in the guise of the war against terror. Further, ever since the United States' global snooping programme [PRISM] was exposed by Edward Snowden, even the friends of the United States have turned against it. The allegations of violation of the sovereignty of other countries have picked up due to the United States' drone attack missions in other countries. Even an ally such as Pakistan which is dependent on American aid to a large extent for its survival, has spoken against US drone attacks in Pakistan. Many accuse the US of practising its values selectively.

So, there is a need to ponder over whether just by emulating the US, a state can be accepted as a world power. It has been said that hard power can only make others bow to you due to fear rather than respect. Even generous economic aid cannot win the appreciation and admiration of others, as witnessed in the case with Pakistan. In the 21st century, a country can only win over others by means of soft power. But as hard power is integral to any country's interests, there is a need to combine the hard power strategy with soft power schemes to emerge as a smart power.

WHAT DOES IT ACTUALLY MEAN TO BE A SMART POWER?

Joseph Nye refined the term “smart power” in 2003, to counter the misperception that soft power or hard power alone can produce effective foreign policy results. According to Nye, power is one’s ability to affect the behaviour of others to get what one wants and he has suggested the three basic ways to do this: coercion, payment, and attraction. Hard power is the use of coercion and payment. Soft power is the ability to obtain preferred outcomes through attraction. The major elements of a country’s soft power include its beckoning culture, its continuously practised values, and its policies which must appear inclusive and legitimate. If a state can set the agenda for others or shape their preferences, it can gain superior influence without excessive use of “carrots or sticks”. But, realistically, it is not possible for a state to totally replace either hard or soft power. Thus, there is a need for smart strategies that combine the tools of both hard and soft power³.

In simple words, *smart power* is the ability to combine hard and soft power into a successful strategy that ultimately helps in achieving the ultimate foreign policy objectives.

A careful study and examination of India’s strategic culture suggests that India is far better suited to be a soft power than a hard power. Hence, for India, there cannot be a better example than Japan to learn from. India is becoming a ‘reactive’ state that once Japan was [in]famous for, which is indeed a worrying sign. While Japan’s comparatively younger leadership is trying to formulate proactive strategies, India’s policies and bilateral relations seem to have been hijacked by isolated and trivial incidents. Former diplomat Hardeep Singh Puri, writes that the last year [2013] was particularly disappointing for India’s aspirations as it failed in the management of important bilateral relations as well in keeping its neighbours in confidence over its foreign policy initiatives.⁴ It is imperative for Indian foreign policy-makers that they come out of this policy “short sightedness.”

3. Joseph S Nye, “Get Smart: Combining Hard and Soft Power”, *Foreign Affairs*, July/August 2009 Issue, at <http://www.foreignaffairs.com/articles/65163/joseph-s-nye-jr/get-smart>, accessed on January, 27 2014.

4. Hardeep S Puri, “Not Handled With Care”, *The Indian Express*, January 1, 2014, at <http://www.indianexpress.com/news/not-handled-with-care/1213960/>, accessed on February 1, 2014.

The government needs to commit more money and effort to soft power tools, including diplomacy, economic assistance and communications because the military alone cannot defend India's interests around the world. Building a positive image around the globe depends more on soft power diplomacy. Dr. Tharoor, an eminent exponent of soft power, said way back in 2011 that India has got formidable strengths in soft power but they remain underutilised. He suggested that India should exploit the capacity of its soft power in a systematic manner to achieve its objectives as it has tremendous potential.⁵

But, unfortunately, soft power diplomacy and assistance remain underfunded due to their inability to demonstrate a more 'visible' achievement of short-term and middle-term goals. Plus, a smart power strategy as a whole is never applied to the attainment of foreign policy goals. In the union budget for the year 2013-14, the defence budget was hiked by 5 percent to Rs. 203, 672 crore compared to the budget allocated to the Ministry of External Affairs (MEA) which was Rs. 11, 719 crore after a 16 percent hike. Despite this 16 percent hike, the budget fell short of the actual demand that had been made by the MEA which, therefore, meant that it would affect India's foreign development projects.⁶

JAPAN'S SOFT POWER INITIATIVES

In the last few months, Japan has emerged as one of the very few countries that are actually pursuing the smart power strategy to meet their national and foreign policy objectives. While, on the one hand, Japan is giving a boost to its military power by acquiring the most advanced weapon systems that figure in its strategy of establishing "dynamic deterrence", on the other, it is also communicating and promoting its image worldwide with its soft power initiatives. Japan's Cultural Affairs Agency and Japan Foundation have been active on this front for a long time. Recently, Japan's Prime Minister,

5. "India Should Exploit Soft Power: Tharoor", *The Economic Times*, February 18, 2011, at http://articles.economictimes.indiatimes.com/2011-02-18/news/28615384_1_soft-power-mp-shashi-tharoor-joseph-nye, accessed on February 2, 2014.
6. "Budget 2013: India's Overseas Developmental Projects Expected to Take a Hit", *IBN Live*, February 28, 2013, at <http://ibnlive.in.com/news/budget-2013-indias-overseas-developmental-projects-expected-to-take-a-hit/375726-7-255.html>, accessed on February 5, 2014.

Abe, conceptualised the “Cool Japan” initiative in June 2013 to promote Japanese culture and products abroad. Under this initiative, the Japanese government set up the “Cool Japan Fund” of \$1 billion in November 2013 to export various Japanese cuisines and delicacies, drink brands, *manga* and animes overseas.⁷ Japan is also launching its own new entertainment channel, “the Japan Channel”. The channel will be launched in Thailand in January, followed by a launch in Indonesia in February and, finally, in Cambodia in April. The channel will eventually be launched in the United States, Europe and Africa. The initiatives clearly demonstrate Japan’s resoluteness in its efforts to boost its Personal Relations (PR), while it tries to slowly break free from its pacifist stance.

CHINA’S SOFT POWER INITIATIVES

In a not so surprising move, China too has announced that it would promote its ‘cultural soft power’ to project itself as a responsible nation in order to create a positive national image of the country worldwide which so far has received high negativity.⁸ The lack of transparency is considered one of the major factors that shape China’s negative image. China is steadily increasing its support for cultural exchanges, sending doctors and teachers to work abroad, welcoming students from other nations to study in China, and paying for Chinese-language programmes abroad. China has built more than 430 Confucius Institutes—culture and language centres—around the world. And, surprisingly, 98 of them are in the United States.⁹ Experts say Beijing is trying to convince the world of its peaceful intentions and, simultaneously, is also trying to secure the resources it needs to continue its soaring economic

7. John Hofilena, “‘Cool Japan’ Initiative to Use \$1 Billion in Public Funds to Push Japanese Cultural Exports”, *Japan Daily Press*, November 25, 2013, at <http://japandailypress.com/cool-japan-initiative-to-use-1-billion-in-public-funds-to-push-japanese-cultural-exports-2540012/>, accessed on February 9, 2014.

8. “Concerned Over Negative Image, China to Project Itself as ‘Cultural Soft Power’”, *The Times of India*, January 1, 2014, at <http://timesofindia.indiatimes.com/world/china/Concerned-over-negative-image-China-to-project-itself-as-cultural-soft-power/articleshow/28245874.cms>, accessed on February 9, 2014.

9. “China Inaugurates Confucius Institute, U.S. Center, in Washington”, *Xinhuanet*, November 21, 2013, at http://news.xinhuanet.com/english/china/2013-11/21/c_132906369.htm, accessed on February 10, 2014.

growth, and isolate Taiwan.¹⁰

However, China's massive push to project its soft power has not directly translated into more supportive views of its quest for status and legitimacy. This limited appeal derives from (1) Beijing's decision to demonstrate its resolve on regional territorial disputes with military coercion; and (2) the lack of serious political reform in China. And no matter how strong its charm offensive grows, China remains an authoritarian society that shows little tolerance toward dissidents and puts down demands and protests by its own people. Most of China's influence is still security-related. It wins its influence because it can pose a threat—military, economic, or political—to many countries. China may find its expanding influence to be a double-edged sword.¹¹ Many of China's neighbours do not have a favourable view of China's intents and ambition.

INDIA'S SOFT POWER INITIATIVES

Currently, India is the country that is lagging behind in the "smart power play" among the three Asian powers in India. Compared to China and Japan, India has only 35 cultural centres abroad. The attention of the Indian strategic community has remained restricted to the hard power arena. But one must realise that one cannot make friends only by buying or selling weapons. That is just a temporary phase when the national interests of two countries converge. The one area where India has a clear advantage over China and Japan is that India's image globally has been positive, by and large. Though India's national image has received some negative publicity in the recent past, it can be restored and enhanced further by the planned and systematic usage of its soft power. Fortunately, India has got many soft power tools at its disposal such as ethnic and language diversity, literature, films, varieties of Indian cuisines and tourist destinations. The Indian Council for Cultural Relations (ICCR) has adopted a plan for establishing 15 new Indian Cultural Centres in order to expand its reach and promote India's "soft power" abroad. Under its expansion plan, the council is opening centres in India's

10. Esther Pan, "China's Soft Power Initiatives", *Council on Foreign Relations*, May 18, 2006, at <http://www.cfr.org/china/chinas-soft-power-initiative/p10715>, accessed on February 10, 2014.

11. *Ibid.*

immediate and extended neighbourhoods, in P-5 capitals, in Africa and Latin America. Military power-wise, India is building up its strength and has even offered to be a regional security provider for other countries. But, at the same time, it is equally important that India takes its neighbours into confidence about its intentions and conveys that India does not seek hegemony.

CONCLUSION

How successful a country's soft power initiatives have been can easily be ascertained by comparing the numbers of foreign tourists who visit the country. According to the Justice Ministry of Japan and Japan National Tourism Organisation, 11,250,000 foreigners visited Japan in 2013, which marked an increase of 22.7 percent over 2012 and the first time the number has surpassed 10 million.¹² This clearly shows that Abe's initiatives have indeed been very successful. With respect to India, it witnessed an increase of about 4.1 percent over 2012 in the number of foreign tourist arrivals. During 2013, 6.84 million tourists visited India.¹³ In the case of India, the tourist rate had only a marginal increase because of the negative perception among women travellers. More interestingly, China has been recording a decline in the number of foreign visitors since 2012. The decline is attributed to the severe pollution in China and the strong yuan.

In the last decade or so, humanitarian assistance in times of natural calamities has also emerged as a useful tool of diplomacy that is capable of generating immense goodwill. It is also a time when a country gets to use its military assets for humanitarian causes. India needs to step up its efforts and make good use of these tools whenever the opportunity arises. For example, during the relief operations in the Philippines after the havoc that was caused by the cyclone *Haiyan*, India, Japan and China all chipped in for disaster relief and reconstruction. But while the endeavours of India and Japan were

12. "No. of Foreign Visitors to Japan in 2013 Exceeds 10 Mil Target" *Japan Today*, January 9, 2014 at <http://www.japantoday.com/category/national/view/no-of-tourists-to-japan-in-2013-exceed-10-mil-target>, accessed on February 12, 2014.

13. "Increase of 4.10 Percent in the Foreign Tourist Arrivals (FTAs) to India in 2013", *Business Standard*, January 8, 2014, at http://www.business-standard.com/article/news-cm/increase-of-4-10-percent-in-the-foreign-tourist-arrivals-ftas-to-india-in-2013-114010800281_1.html, accessed on February 12, 2014.

appreciated, those of China received criticism, perhaps because of lack of willingness from China to help out a perceived adversary in a time of distress.¹⁴

The below par performance of India on the foreign policy front should improve, as the unfavourable outcomes of a few events do not add up to a failure of foreign policy as such. In the words of former Foreign Secretary Lalit Mansingh, "It is a failure of foreign policy management".¹⁵ The policy-makers need to formulate the policies which incorporate both hard power and soft power tools to achieve the policy objectives. India's ascendancy as a smart power has only begun and as time progresses, the maturity of diplomacy will surely increase.

According to the 2013 survey report on China's international image, China's image as a global power is gaining increasing acceptance. More than half of the survey's international respondents believed that China is a world power; fewer people inside China believed the same.¹⁶ So just as China has been taking its international image boosting mission earnestly, India must follow suit. In the 21st century, countries will be increasingly judged by soft power. So, now, when India is making steady progress as a hard power, it must give due attention to the soft power aspect of diplomacy. For this, the motto of the Indian Council on Cultural Relations (ICCR), "Taking India to the world" must be realised.

14. Hannah Beech, "China to Philippines: Here, Have a Measly \$100,000 in Aid", *Time*, November 13, 2013, at <http://world.time.com/2013/11/13/china-to-philippines-here-have-a-measly-100000-in-aid/>, accessed on February 14, 2014.

15. Ramachandran Shastri, "UPA's Long Run Ends as a Flop on Foreign Affairs Front", *DNA*, January 1, 2014, at <http://www.dnaindia.com/analysis/column-upas-long-run-ends-as-a-flop-on-foreign-affairs-front-1943612>, accessed on February 20, 2014.

16. "Annual Image Survey Confirms China's Rise as Global Power", *China.org.cn*, February 24, 2014, at http://www.china.org.cn/china/2014-02/25/content_31590192.htm, accessed on March 1, 2014.

EXPANSION OF PAKISTAN'S NUCLEAR ARSENAL

SHALINI CHAWLA

For more than two decades, Pakistan has relied on nuclear weapons to conduct its grand strategy (of indirect approach) against India. Nuclear weapons are perceived as providing a foolproof guarantee of its sovereignty and survivability. The central assumption on which Pakistan has progressed and built up its nuclear arsenal is that a credible nuclear deterrent would compensate for the inferiority of its defence forces. According to Hasan Askari Rizvi, Pakistan lacks well trained, adequately equipped and numerically sufficient armed forces vis-à-vis India.¹

The basic rationale for Pakistan acquiring nuclear weapons has been its expectations to neutralise India's perceived conventional military superiority and the way it was employed by it in the 1971 War. Former Foreign Minister Agha Shahi referred to it as the "Sword of Damocles" hanging over Pakistan's head. When stating the objectives of Pakistan's nuclear weapons, he said: "to equalise, to compensate our military imbalance that hangs like a sword of Damocles over the head of the nation which cut our country into two in 1971".

In this respect, Pakistan adopted a doctrine and strategy not very different from that pursued by the North Atlantic Treaty Organisation

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1. See Hasan Askari Rizvi, *Military, State and Society in Pakistan* (London: Macmillan, 2000).

(NATO) against the USSR. Pakistan visualised nuclear weapons as the sole guarantor of its national pride and national survival. Nuclear weapons for Pakistan were seen as a means to neutralise Indian conventional military superiority, and also a projection of its scientific and technological capabilities. According to Air Cmde Jasjit Singh Pakistan's "very rationale of going nuclear was to neutralise India's vastly superior conventional military potential. Under the nuclear umbrella, Pakistan has felt confident of prosecuting its low-cost proxy war against India."²

Pakistan's non-adherence to no first use was believed to serve the objective to deter India from responding with conventional military retaliation. Policy-makers in Pakistan seem to be convinced that they will be able to carry on, or rather accelerate, their activities in Kashmir under the broader threat of using nuclear weapons, if required, and this would constrain India's strategic moves. Although this has been the Pakistani thinking for long, it has increased tremendously with Pakistan's acquisition of nuclear weapons and announcement of the first use policy.

In the pre-nuclear test period, Pakistan's doctrine was one of ambiguity. Although, Pakistan even today does not have an officially announced doctrine, statements made by responsible policy-makers in Pakistan have clearly outlined basic elements in its nuclear doctrine. There is an unofficial code adopted by the Pakistani leadership, based on *Indo-centricity*, *credible minimum deterrence*, *strategic restraint* and *first use*. Very interestingly, and rather ironically, the code asserts on the principles of a peaceful programme revolving more around maintaining a balance against the Indian force build-up, but it includes making a first strike in response to not only a conventional attack by India but also a posed threat from India.

Nuclear weapons for Pakistan provide it a deterrence against any possible Indian retaliation in response to Pakistan sponsored terrorism. Also, policy-makers in Pakistan believe that nuclear weapons would send a strong message to the international community which would/could pressurise India not to retaliate militarily in the stressed situations and, thus, help Pakistan attain its diplomatic and political objectives.

2. Air Cmde Jasjit Singh, *Kargil 1999 : Pakistan's Fourth War for Kashmir* (New Delhi: Knowledge World, 1999), p.49.

Interestingly, Pakistan has very rationally adopted a posture of irrationality and (very often) projected a very low nuclear threshold. Islamabad believes in enhanced deterrence and irrational posturing which certainly adds to uncertainty and enhances deterrence.

THE NUCLEAR ARSENAL

Since the time of its overt nuclearisation, Pakistan has been expanding its nuclear arsenal which includes the building of two new plutonium reactors and a new reprocessing facility which would enable Pakistan to fabricate more nuclear weapons fuel.³ There has been a significant increase in the number of nuclear delivery systems, including ballistic missiles, cruise missiles and nuclear capable combat aircraft. It is estimated that Pakistan has a nuclear weapons stockpile of 90-110 nuclear warheads.⁴ The estimated figure according to the *SIPRI 2013 Yearbook* is between 100-110 nuclear warheads.

According to the International Panel on Fissile Materials (2013) at the end of 2012, Pakistan had an accumulated stockpile of about 0.15 ± 0.05 tonnes of plutonium. Pakistan's current production of plutonium, which is from the two operational plutonium production reactors, Khushab I and Khushab II, is at the rate of 12-24 kg per year, sufficient for 2-6 plutonium weapons.⁵ Two additional production reactors with a similar capacity are under construction at the site. Pakistan also produces Highly-Enriched Uranium (HEU) sufficient for 10-15 warheads per year. At the end of 2012 it had an estimated stockpile of about 3 ± 1.2 tonnes of HEU.⁶

DELIVERY SYSTEMS

Pakistan's nuclear delivery systems can be put under three categories:

- Land-based missiles.
- Cruise missiles.
- Aircraft.

3. Hans M. Kristensen and Robert S. Norris, "Pakistan's Nuclear Forces, 2011", *Bulletin of the Atomic Scientists* at <http://bos.sagepub.com/content/67/4/91.full.pdf+html>.

4. Ibid.

5. *International Panel on Fissile Materials*, Countries Pakistan, at <http://fissilematerials.org/countries/pakistan.html>.

6. Ibid.

Land-Based Missiles

In the development of its Missile programme, Pakistan has clearly followed a dual-strategy:

- Assembly of imported missiles in Pakistan from both the Semi-Knocked Down (SKD) and Completely Knocked Down (CKD) kits.⁷ This would enable a quantitative jump in the Pakistani indigenous missile production expertise.
- Indigenous fabrication of the above missiles sub-systems and propellants in a graduated manner. This was aimed to create self-reliance in missile capability over time.⁸

Pakistan's missile development programme has been primarily carried out with China's assistance and, to some extent, North Korea's, after the United States imposed sanctions on China. China has been Pakistan's predominant source of foreign technological support for its missile development efforts. Chinese missile assistance to Pakistan ranges from providing equipment and training to transferring the complete missiles. US Assistant Secretary of State Winston Lord was not wrong when he wrote a letter to Senator Robert F. Bennett stating, "The entire strategic weapons program should be stamped 'Made in China' ".⁹

Transfer of M-9 and M -11 Missiles

The development of the Chinese M series of Short Range Ballistic Missiles (SRBMs) commenced in the early 1980s and the three versions are known as the M-9, M-11 and M-18. These designations were apparently used for the export versions.¹⁰ All M series missiles use solid fuel, and have short operational preparation time. Also, they are transported by highly mobile cross-country transporters which have the capacity to launch

7. Dr Subhash Kapila "Pakistan's Ballistic Missile Arsenal: Development and Acquisition", *South Asia Analysis Group Papers*, at <http://www.southasiaanalysis.org/%5Cpapers2%5Cpaper148.html>.

8. Ibid.

9. Bill Gertz, "China Plays a Major Role in Expanding the Nuclear Club", *Washington Times*, May 29, 1998.

10. "Nuclear Weapons Database: Pakistan's Possible Nuclear Delivery Systems", at <http://www.cdi.org/nuclear/database/panukes.html>

the missiles.¹¹ Information from various sources indicates that Pakistan had negotiated the deal for the M-11 during Zia's regime.

Although Pakistani leaders have made conflicting statements regarding the receipt of the missiles, various reports provide enough evidence that Pakistan did receive the M-9 and M-11 missiles from China. The M-9 SRBMs, which are capable of carrying both nuclear and conventional warheads, were delivered to Pakistan in early 1991. The M-9 is reported to have a range of 600 km. It is a single stage missile with an inertial guidance system, which signifies that the missile is programmed before the launch and does not receive any external guidance after the launch.

Pakistan reportedly received the M-11 missiles (which the Chinese refer to as the Dong Feng-11) in 1991, when US intelligence discovered their transfer along with the accompanying transporter-erector-launchers, to Pakistan.¹² The M-11 is capable of carrying nuclear as well as conventional warheads. Pakistan received the M-11 variant as a single-stage, solid fuelled missile with a range of 300 km, carrying a 800 kg warhead.¹³

Hatf-1

Development of the Hatf-1 solid- propellant unguided rocket and ballistic missile programme started in the early 1980s and was revealed by Pakistan in early 1989. Both Hatf missiles resemble the Chinese N series, so technical assistance from China cannot be denied. Reports suggest that the Hatf-1 is a 70 km range unguided rocket, with a

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11. "Weapons of Mass Destruction: DF-11 [CSS-7] , DF-11A", at <http://www.globalsecurity.org/wmd/world/china/df-11.htm>
 12. Bill Gertz, "Missile Deception," in *Betrayal: How the Clinton Administration Undermined American Security* (Washington, DC: Regnery Publishing, Inc., 1999), p. 159, as cited in "Pakistan Profile: Missile Overview", *NTI* at http://www.nti.org/e_research/profiles/Pakistan/Missile/index.html
 13. "Although the DF-11 has a range of 300 km, the Chinese continued work on a version with a longer range. China's 50th anniversary military parade on October 1, 1999, marked the first public Chinese display of a new version of the M-11 short-range missile, the CSS-7 Mod 2, more commonly known as the M-11 follow-on. The new Mod-2 missile is about two metres longer than the Mod-1, and believed to have a longer range, a larger warhead and greater accuracy than the earlier M-11. The accuracy of these missiles will improve in the future if China is able to apply Global Positioning System (GPS) guidance technology to provide highly accurate location information for missile launchers or pre-surveyed launch sites." Cited in n. 11

length of 6.0m, a body diameter of 0.56 m and a launch weight of approximately 1,500 kg. The rocket is a single stage solid propellant system, with a payload of 500 kg that could be conventional High Explosive (HE), chemical or submunitions.¹⁴

It is believed that the Hatf-1 entered service in 1992 and the Hatf-1A in 1995. The guided Hatf-1B, a further improved version with an upgraded kit fitted to the existing missile, is believed to have entered operational service in 2004.¹⁵

Hatf-2 (Abdali)

The original version of the Hatf-1 SRBM was started in 1987, and was first deployed in 1989 as a two-stage version of the Hatf-1 missile. The Hatf-2 uses the Hatf-1 as a second stage, and has a range of 300 km with 500 kg payload.¹⁶ There are unconfirmed reports that the Hatf-2 is an upgraded version of the Hatf-1B and was developed with Chinese aid and technical assistance. The Abdali missile was first flight tested in May 2002, and appears similar in size and shape to the Argentinean Alacran SRBM and the Chinese TY-3, TY-13 and TY-14 research rockets, which confirms the Chinese assistance in the build-up of the missile.¹⁷ Due to their limited range, it is unlikely that the Abdali missiles can carry nuclear warheads.

Hatf-3 (Ghaznavi)

The programme for the Hatf-3 - Ghaznavi was initiated in 1997 in Pakistan by the National Engineering and Scientific Commission (NESCOM). The first flight test was made in May 2002.¹⁸ The other three test flights for the Ghaznavi-3 took place in October 2004, November 2004 and December 2006.¹⁹ There are reports suggesting that these missiles are operational. Technical evaluation of the missile images suggests that the Hatf-3 is a version of the M-11 or may even

14. *Jane's Strategic Weapons Systems*, Issue 48, 2008, p. 108.

15. *Ibid.*, p. 109

16. *Ibid.*

17. *Ibid.*

18. *Ibid.*, p. 111

19. S. Chandrashekar, Arvind Kumar and Rajaram Nagappa, "An assessment of Pakistan's Ballistic Missile Programme: Technical and Strategic Capability", *NIAS Study*, 2006, p.100

be a repainted M-11. Reportedly, the production facilities of these missiles have been set up with Chinese assistance.²⁰

The Ghaznavi missile is 8.5 m long, has a body diameter of 0.8 m, and a launch weight of 4,650 kg. The missile has a single stage solid propellant motor providing it a minimum range of approximately 50 km, a maximum range of 280 km, and it can carry a single warhead of 700 kg.²¹ The Ghaznavi can carry two kinds of warheads – a longer nuclear warhead and a shorter conventional warhead.

Hatf-4 (Shaheen-1)

The Hatf-4 or Shaheen-1 is believed to be a scaled up version of the M-11 missiles supplied to Pakistan in 1993. Reportedly, the Shaheen-1 was developed by the Pakistan National Development Complex (PNDC) possibly with assistance from Space and Upper Atmosphere Research Commission (SUPARCO) and the Pakistan Atomic Energy Commission (PAEC).²² The Shaheen-1 is a single stage, solid propellant missile with an inertial guided system and a maximum range of 750 km.²³ Two flight tests were made in October 2002, two in October 2003, one in December 2004, and one in November 2006. The Shaheen-1 was officially handed over to the Pakistan Army Strategic Missile Group in March 2003.²⁴

Hatf-5 (Ghauri)

Pakistan's second most crucial partner in the missile development programme has been North Korea, while Pakistan, has been extending military assistance to North Korea in return. The development programme for the Hatf-5 or Ghauri commenced in 1993 at the Khan Research Laboratories and was publicly announced in 1997. The Ghauri missile, which resembles the shape of the Russian 'Scud B' is an outcome of coordinated inputs from both North Korea and China. There were reports regarding an arrangement among Pakistan, China and North Korea whereby China would provide the

20. Ibid.

21. Ibid.

22. n.14, p. 112

23. Ibid.

24. "Pakistan Conducts Third Missile Test in 3 Weeks", *Rediff NEWS*, at <http://in.rediff.com/news/2006/dec/09hatf.htm>

soft technology and engineering for the Ghauri, and North Korea would act as an agent for the transfer of Chinese technology and provide the hardware and components from its Nodong missile programme.²⁵

The first flight test of the Ghauri, single stage, liquid propellant missile, with a range of 800-1,200 km, was in April 1998. An improved version, known as the Ghauri-2, was reportedly under development in 1998, with an enhanced range of 1,500 to 1,800 km, and was first flight tested in April 1999. The Ghauri-3 programme has been under development since 1994, with a range of 3,000 km and the first stage motor tests were reportedly done in July and September 1999.²⁶

Hatf-6 (Shaheen-2)

On March 9, 2004, Pakistan test-fired the nuclear capable Shaheen-2 ballistic missile. Samar Mubarakmand, Chairman, National Engineering and Science Commission made a statement that the missile was a two-stage rocket weighing 25 tons with a diameter of 1.4 m, length of 17.5 m, and a range of 2,500 km.²⁷ The Shaheen-2 is believed to be based upon the earlier Chinese two-stage solid propellant missile M-18, which was demonstrated in 1988. The maximum range of the Shaheen-2 missile was 2,000 km, which has now been increased to 2,500 km, sufficient to target any important part of India.²⁸

Hatf-9 (NASR)

On April 19, 2011, Pakistan tested its short range surface-to-surface multi-tube ballistic missile, the Hatf-9 (NASR). The official press release for NASR said:

[The NASR Weapon System] has been developed to add deterrence value to Pakistan's Strategic Weapons Development programme at shorter ranges. NASR, with a range of 60 km, carries nuclear

25. Joseph Bermudez, "A Salient Partner", *Jane's Defence Weekly* (Coulsdon, Surrey), May 20, 1998.

26. n 14, pp. 113-114

27. "Shaheen-II / Eagle-I / Hatf-6 / Ghaznavi, Weapons of Mass Destruction (WMD)," at <http://www.globalsecurity.org/wmd/world/pakistan/shaheen-2.htm>

28. n. 14, p. 115

warheads [emphasis added] of appropriate yield with high accuracy, [and] shoot and scoot attributes. This quick response system addresses the need to deter evolving threats.²⁹

Although, a missile of 60 km range is more likely to be a free flying rocket, Pakistan has claimed the missile to be nuclear capable, which is possible. The NASR provides Pakistan with short range missile capability in addition to the long range ballistic missiles and cruise missiles. Also, according to the Pakistani military officials, the Hatf-9 belongs to the category of Tactical Nuclear Weapons (TNWs) and is a low yield battlefield deterrent, capable of inflicting damage on armed brigades and divisions.³⁰ According to Pakistan, the Hatf-9 is its counter to India's Cold Start doctrine which envisions limited conventional response from the Indian side in response to the sub-conventional attacks on India originating from the Pakistani territory.

CRUISE MISSILES

Hatf-7 (Babur)

The Hatf-7 looks similar to the Chinese Hong Niao-3, the US RGM-109 and also has similarities with the Russian SS-N-27 Club (3M14 version) cruise missile.³¹ The total length of the missile, including the boost motor assembly, is believed to be 6.2 m, with the launch weight being around 1,200 kg; the payload is probably 450 kg, range 500 km and the warheads can be High Explosive (HE), either unitary or sub-munitions, or nuclear with a yield between 10 and 35 KT.³² Although the first flight test was reported in August 2005, the production with NESCOM in all probability started in 2006.³³

Various reports indicate that Pakistan is seriously undertaking efforts to upgrade the Babur and develop a new variant of this missile, the Babur-2, which would enhance its payload and range. It is developing an air-launched version of the Babur, which will

29. Rodney W Jones, "Pakistan's Answer to Cold Start?", *The Friday Times*, at <http://www.thefridaytimes.com/13052011/page7.shtml>

30. "Pakistan Successfully Test-Fires Nuclear Capable Hatf-9", *The Express Tribune*, April 20, 2011.

31. n.14, p 117.

32. Ibid

33. Ibid., p. 118.

reportedly be carried by F-16 and JF-17 aircraft and a sea launched version for deployment on the Agosta submarine.³⁴

Hatf-8 (Ra'ad)

In May 8, 2008, Pakistan tested a nuclear-capable, air launched cruise missile, the Hatf-8 (Ra'ad), with a range of 350 km. The first test-launch for the Ra'ad was carried out in 2007. The Hatf-8 missile has been developed exclusively for launch from aerial platforms, enabling Pakistan to achieve a greater strategic capability on land and at sea.³⁵ Although the missile was initially launched from a Pakistan Air Force (PAF) Dassault Mirage III combat aircraft, it is planned to be integrated with, and launched from, other PAF platforms like the JF-17 and may be the J-10s.

AIRCRAFT

In the 1980s, Pakistan was in full swing with its nuclear development programme, and saw aircraft as the chief means of delivering nuclear weapons. The main sources of its aircraft have been the United States, France and China.

The F-16 is a flexible design, capable of high performance in both the air superiority and ground attack roles. The flight controls are digital computer-controlled fly-by-wire, complemented by advanced navigation and avionics systems. The PAF deploys its F-16s with Squadrons 9, 11 and 4 at Sargodha Air Base, located 160 km northwest of Lahore.³⁶ The F-16 can carry up to 5,450 kg externally on one underfuselage centreline pylon and six underwing stations and has a refuelled range of more than 1,600 km. Given that the F-16 is undoubtedly the most capable Pakistani attack aircraft, it would likely be tasked with the delivery of nuclear air-to-ground munitions.

The JF-17 is designated to be a low cost, high multi-role combat aircraft to meet the tactical and strategic requirements of the Pakistan Air Force, thereby reducing the country's reliance on imports. The

34. "Pakistan Successfully Test-Fires Hatf-VII Missile", *Pak Tribune*, July 26, 2007. Hali, "Second Strike Capability", *The Nation* (Islamabad), August 16, 2006, as cited in *SIPRI Yearbook 2009* (Oxford: Oxford University Press, 2009), p. 375.

35. Iftikhar A. Khan "Cruise Missile Fired from Aerial Platform", *Dawn*, May 9, 2008, at <http://www.dawn.com/2008/05/09/top4.htm>.

36. For details, see "PAF Mushaf / PAF Sargodha 32° 03' 09"N 72° 40' 07"E" at, <http://www.globalsecurity.org/military/world/pakistan/sargodha-ab.htm>

JF-17 is co-developed by Pakistan and China and is being built by China's Chengdu Aircraft Industry Corporation (CAC) and Pakistan Aeronautical Complex (PAC), Kamra.

The FC-1 (JF-17) is fairly flexible in terms of avionics and weapon configurations. The JF-17 in service in the PAF is presumably fitted with the Italian Grifo S-7 fire-control radar. It is still unclear if the JF-17 would be tasked with the delivery of nuclear munitions.

Pakistan is also acquiring two squadrons of the Chinese J-10 which, along with the JF 17, would form the backbone of the PAF, according to the Pakistan Air Force chief.

The J-10 marks one of the most significant achievements of the Chinese aviation industry in the 1990s. For air-superiority missions, the aircraft can carry a mix of Medium Range Air-to-Air Missiles (MRAAMs) and Short-Range Air-to-Air Missiles (SRAAMs). The J-10 was designed with the surface attack capability right from inception.³⁷

Pakistan acquired 60 A-5s from China, and as of mid-1999, only 49 remained in service. Reportedly, some of the A-5s are capable of carrying nuclear bombs. But given their payload capability, the bomb would have to be quite small. The aircraft offers enhanced combat performance, particularly at low and super-low altitude.³⁸

Pakistan could also potentially use the French Mirage Vs for the nuclear-strike mission. Technically speaking, the Mirage Vs could be deployed as part of the 8th (Haider) Squadron of the 32nd Fighter Wing at the Masroor Air Base, located about 8 km west of Karachi.³⁹ They could also be deployed as part of the 25th (Eagles) Squadron of the 33rd Fighter Wing of Kamra Air Base located 65 km west of Islamabad.⁴⁰ The nuclear capable cruise missile Raad-Hatf-8 could be potentially deployed to the Mirage V squadrons in the future.

CONCLUSION

Pakistan has been expanding its nuclear arsenal and would continue to do so in the near future. Unlike India, Pakistan has made

37. "Jian-10 Multirole Fighter Aircraft", at <http://www.sinodefence.com/airforce/fighter/j10.asp>

38. "Fantan a-5, Q-5 (NANCHANG)" at <http://www.globalsecurity.org/military/world/pakistan/a-5.htm>

39. Robert S. Norris and Hans Kristensen, "Nuclear Notebook: Pakistani Nuclear Forces, 2009", *Bulletin of the Atomic Scientists*, September/October 2009, pp. 82-88.

40. Ibid..

considerable endeavour towards the acquisition of the delivery vehicles. Pakistan's missile delivery systems have been developed significantly mainly with the Chinese and North Korean assistance, and it is now in the process of rapid modernisation of its combat fleet, with a clear focus on building up the numbers as well as the quality of aircraft. Thus, it might not be incorrect to state that Pakistan is capable of a nuclear exchange if the situation arises.

Pakistan's build-up of the delivery systems and specifically, the missile build-up, like the nuclear build-up, is India-centric. Pakistan's belief in deterrence and increasing the options of delivery systems provide it with enhanced deterrence. There is a clear linkage between nuclear deterrence and ballistic missile capability. For Pakistan, the ballistic missile capability enhances its deterrence, and also its choices for the preemptive strikes, given its "first use" nuclear doctrine.

The growing nuclear arsenal, missile muscle and also the enhanced number of nuclear capable combat aircraft would increase Pakistan's offensive capabilities against India. Its reliance on nuclear weapons is likely to increase in the near future, especially, when the internal security challenges are increasingly becoming severe for the leadership.

Safety and security of the nuclear arsenal is clearly an issue of concern not only within Pakistan but for the international community given the deteriorating security situation and rising insurgency in the country. A rapidly expanding arsenal certainly poses additional challenges for the civil and military leadership in terms of safeguarding the arsenal, especially, when a large part of the arsenal is located in the region inflicted with heavy insurgency – Federally Administered Tribal Areas (FATA), Khyber Pakhtunkhwa (KPK) and Balochistan.

MILITARY IMPLICATIONS OF CHINA'S RISE

RAVINDER CHHATWAL

*If you know the enemy and know yourself, you need not fear the result of
a hundred battles.*

— Sun Tzu

INTRODUCTION

China's fast economic growth in the last two decades has led to its rapid military modernisation. The Communist Party of China controls the largest military build-up in the world and this has raised alarm bells in the region. The most recent example of this was in November 2013, when China surprised the world by unilaterally declaring its Air Defence Interception Zone (ADIZ) in the East China Sea. The new ADIZ overlaps the existing ADIZ of Japan, South Korea and Taiwan and covers the disputed Senkaku Islands (the Chinese call them Diaoyu Islands) claimed by China but administered by Japan. China's increasing assertiveness has brought the security situation in East Asia to a flashpoint. The Chinese have clearly signalled to the regional countries and India, that China is likely to aggressively assert its territorial claims. The Americans have also realised the changing

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situation and have come out with their “rebalancing strategy” to focus on the Asia–Pacific region.

While it seems that the main purpose of China’s military modernisation is to cater for the Taiwan contingency and competition with the USA, it also needs to be kept in mind that China’s rise poses serious security challenges to India. China’s repeated border incursions are attempts to intimidate India and keep tensions alive. China has supplied missile and nuclear weapons technology to Pakistan, a known adversary of India. Despite all these provocations, there is a school of thought in India that we should underplay the China threat. Perhaps, there is a feeling that China is a giant and we should not antagonise it. Is China really a giant? Surely, the People’s Liberation Army (PLA) is not a giant for the Indian armed forces. This paper analyses China’s military clout and argues that the Chinese Air Force will have limitations in launching air operations against India. The Chinese nuclear threat will not be covered. China’s Army and naval modernisation will be briefly covered but the focus will be on air aspects.

In 2013, China’s defence budget was US\$ 114.3 billion, an increase of 10.7 percent from that of the previous year¹. India’s defence budget in 2013 was \$37.4 billion. China’s budget is almost three times that of India,² and the USA’s defence budget is almost four and a half times that of China.

PLA ARMY

The PLA Army is modernising its forces and frequently practices the ability to deploy campaign level forces across long distances quickly. The PLA has focussed its modernisation efforts on transforming itself into more mechanised force and improving the army’s armoured, air defence, aviation, ground-air coordination, and Electronic Warfare (EW) capabilities. PLA forces have inducted new equipment, including the Z-10 and Z-19 attack helicopters.

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1. “China Defense Budget to Grow 10.7 pct in 2013: Report”, at http://news.xinhuanet.com/english/china/2013-03/05/c_132207943.htm , March 5, 2013, accessed on January 23, 2014.
 2. “China Hikes Defence Budget to \$115.7 Billion”, at <http://www.brahmand.com/news/China-hikes-defence-budget-to-1157-billion/10711/1/10.html>, accessed on January 23, 2014.

The army air defence has also been modernised with the induction of new equipment like the HQ-15 (a copy of the Russian TOR M-1 SA-15) Surface-to Air Missiles (SAMs), indigenous HQ-16 medium range missiles with a range of 40 km at low level and a new advanced self-propelled air defence artillery system, the PGZ-07. The PLA Army is being restructured with the development of brigades as a key operational echelon for combat in different environments and under difficult electronic warfare conditions.³ While China has the capability to mobilise almost 26 divisions against India, one needs to keep in mind that the Indian Army is well entrenched in strong defensive positions and a defensive force is very difficult to dislodge in mountainous terrain. The Indian Army today is well prepared to counter any provocation by the PLA. Unlike in 1962, when air power was not used in an offensive role, this time, the contest will be in the air, in coordination with the counter-attack capabilities of the army.

The Indian Army's plans to raise a new mountain strike corps, improve logistics infrastructure in the border and upgrade its firepower with new ultra light howitzers, and the BrahMos and Prahar missiles will enhance its capabilities to interdict the PLA.

PLA NAVY (PLAN)

The PLAN's first aircraft carrier, the *Liaoning*, was commissioned in September 2012. China's J-15 fighters (Chinese version of the Russian SU-33) have carried out trials at sea from the *Liaoning*. China has also launched a new aircraft, the J-16, for carrier operations. The carrier air wing is not likely to be operational for at least another few years. China is planning to build more indigenous aircraft carriers in the next 5 to 10 years period and the PLAN is also expanding its submarine force. The PLAN does not pose a major threat to India at present. In the long run, to have a continued presence in the Indian Ocean Region (IOR), it will need permanent bases in this area. To enhance its operational capabilities, the Indian Navy needs to replace its ageing submarine and mines counter-measures fleet. In the IOR, India's advantage is of being able to use its naval and air power from bases in the Andaman and Nicobar Islands.

3. US DoD, "Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2013".

PLAAF (PLA AIR FORCE)

Fighter Aircraft: China's air force has vastly improved in the last ten years. From a combat aircraft strength of 3,520 in 2000, the number has come down to 1,693 in 2012⁴ but the number of fourth generation fighters of the SU-27/SU-30/J-10/J-11 class has increased from 52 in 2000 to 513 in 2012. Against these, the Indian Air Force (IAF) has a strength of 655 combat aircraft out of which 384 are SU-30/MiG-29/Mirage-2000/ MiG-21 Bison aircraft, which have the capability to launch Beyond Visual Range (BVR) air-to-air missiles. The SU-30MKI of the IAF is superior to the Chinese SU-30MKK in many respects. To give an example, the SU30-MKI has a pick-up range of 210 km compared to 130 km of the SU-30MKK on a similar target.⁵ This is a big plus point because in air combat, whoever spots the other one first, is at an advantage. China has the benefit of having a large inventory and can easily replace attrition losses. By 2020, the PLAAF can be expected to have about 1,000 4th/ 5th generation fighters. India must maintain its technological lead against the PLAAF by expediting procurement of the Rafale.

Fifth Generation Stealth Fighters: China's J-20 and J-31 are the two major stealth projects which have come to light recently. The J-20 being developed by Chengdu Aircraft Corporation (CAC) first flew in January 2011 and is planned for induction in 2018. The J-31, from Shenyang Aircraft Corporation (SAC), is the other stealth aircraft which first flew in October 2012. The J-31 is smaller in size than the J-20. At present, there are no indications that the PLAAF has placed orders for the J-31. It seems that the J-20 now looks set to become a future frontline fighter in the PLAAF inventory. China is having problems in developing high performance aero-engines and is investing \$1.53 billion on aero-engine Research and Development (R&D) to cover this key capability gap.⁶ The IAF Fifth Generation Fighter Aircraft (FGFA) which is being jointly developed by Russia and India is planned for induction in 2022.

4. *The Military Balance* 2000 and 2012.

5. Detection range data is from Air Power Australia article at <http://www.ausairpower.net/APA-Flanker-Radars.html>, accessed on September 10, 2013.

6. "Aiming High : China's Air Ambitions", *Jane's Defence Weekly*, November 26, 2013, at http://www.janes360.com/images/assets/976/30976/China_aircraft_capabilities_1.pdf, accessed on January 23, 2014.

Air Defence Systems: Strengthening China's air defence capabilities is a priority for the PLAAF. In the last ten years, China has established a robust air defence system with a nationwide Integrated Air Defence System (IADS), a large inventory of advanced long range S-300 SAMs, new indigenous Airborne Warning and Control System (AWACS) KJ-2000 and Airborne Early Warning (AEW) KJ-200. The IAF will have to invest heavily in advanced Suppression / Destruction of Enemy Air Defence Systems (SEAD) / (DEAD) to penetrate the PLAAF's air defence system. China has also shown interest in acquiring Russia's newest long-range SAM, the S-400 TRIUMF, but a contract has not been signed yet.

Bombers: China's long range bombers continue to be the H-6 variants which are a Chinese copy of the Soviet era TU-16 aircraft. The PLAAF has 82 of these in its inventory and continues to make improvements in its fleet.⁷ The most important improvement is in the H-6K which carries the Chinese air launched cruise missile, the YJ-63, with a range of about 200 km+. The H-6K entered service in June 2013.

Aerial Refuellers: The PLAAF's tanker force is limited to just ten aircraft of the H-6 class. These tankers are capable of refuelling only indigenous Chinese fighters like the JH-7B, J-8s and J-10s. They cannot refuel the J-11/ SU-27/ SU-30 due to compatibility problems. Air-to-air refuelling is perhaps the most significant gap in the PLAAF's capabilities. China's new heavy transport aircraft, the Y-20, and medium turboprop, Y-9 (C-130 class), are likely to be the basis for future aerial refuelling and ISR (Intelligence, Surveillance and Reconnaissance) platforms.

Doctrine and Training Reforms: In the last decade, there have been major doctrinal changes with the people's war concept evolving into "local war under conditions of informationization." In 2004, the Central Military Commission (CMC) issued new doctrinal guidelines for the PLAAF titled "Integrated Air and Space Operations, Simultaneous Offensive and Defensive Operations." It is clear that the PLAAF has shifted from being mainly a territorial air defence force to one with equal emphasis on offensive strikes and defensive missions. Earlier, the training of China's air force was considered poor. But

7. *The Military Balance* 2012.

this is changing now with increased flying hours for pilots, realistic training and participation in international exercises. However, lack of combat experience, is a shortcoming. In 1979, against Vietnam, the PLAAF was employed in a very limited way.

CHINESE BALLISTIC AND CRUISE MISSILE THREAT

China's Second Artillery Force (SAF) is responsible for the country's strategic nuclear and conventional ballistic and cruise missiles. China has a large ballistic and cruise missile force which it is expanding in both size and types of missiles. China has made considerable progress in improving the accuracy of these missiles. The strength and type of conventional ballistic missiles in its inventory is shown in Table 1.

Table 1: China's Missile Force ⁸

System	Number of Missiles	Estimated Range	Remarks
Medium Range Ballistic Missiles (1,000 – 3,000 km)			
DF-21C	75–100	1,750 km +	
DF-21D	Not Known	1,750 km +	Anti-ship ballistic missile
Short Range Ballistic Missiles (SRBMs) (<1,000 km)			
DF-11	700-800	300 km	Total number of SRBMs is about 1,000 -1,200
DF-15	300- 400	600 km	
Cruise Missiles			
Ground Launched Cruise Missile DH-10	200 - 500	1,500 km+	
Air Launched Cruise Missile YJ-63	Not Known	200 km+ ⁹	Carried in the H-6K bomber

Source: US DoD "Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2012".

8. USA DOD "Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2012", at http://www.defense.gov/pubs/pdfs/2012_cmpr_final.pdf
9. "2010 Report to Congress of the U.S.-China Economic and Security Review Commission."

The missiles which will shoulder the role for conventional long range attacks will be the MRBM DF-21; SRBM DF-15 and DF-11; the DH-10 and YJ-63 cruise missiles.

The number of missiles required to damage a runway will be 19 for a missile with Circular Error Probable(CEP) of 150 m and four for a cruise missile with CEP of 30 m (see Table 2).

Table 2: Number of Missiles Required to Damage Runway.

	CEP	Runway per DMPI (2 hits)
Ballistic	150 m	19
Cruise	30 m	04

From this, one can make out that quite a large number of missiles will be required to keep one airfield down for 24 hours. This does not take into account the number of missiles lost due to launch failures or missed hits. If we take these losses into account, then the depletion rate will be even higher. Ballistic and cruise missiles will be a **major threat** to the IAF but they cannot take out all our airfields. The IAF has a large number of airfields in the east and west, so even if some airfields are down, operations can continue from other locations.

The best defensive strategy against China's missiles is to deter them by developing similar capabilities so that India can strike counter-force targets in China. The BrahMos cruise missile development needs to be stepped up, with longer range and precision. Similarly, we need to step up on conventionally armed Agni ballistic missiles. Meanwhile, more modern means of runway repair material in the form of aluminium mats need to be explored to keep the runway down time to minutes instead of hours.

ANALYSIS OF PAAAF CAPABILITIES AGAINST INDIA

China has two military regions opposite India, Lanzhou and Chengdu. Lanzhou covers the Xinjiang region opposite Ladakh, and Chengdu covers the Tibet region opposite eastern India. China has a large number of airfields but most of them are far away from our border. It has very few military airfields in Tibet and south Xinjiang. The airfields in Tibet are mostly at heights of more than 3,000 m. At these high altitudes, aircraft operations suffer from load penalties

due to the reduced density of air. This will be a limitation for the PLAAF considering that its tanker fleet is also limited.

The main military airfields in Tibet are Kongka Dzong, south of Lhasa, and Hopping, east of Lhasa. In Xinjiang, the military airfield is Hotan, and Kashgar is a civil airfield, quite far from us. Gargunsa, Pangta and Linzhi are dual use civil and military airfields. From the available open source imagery, it can be seen that these airfields do not have blast pens for parking of fighters in hardened concrete shelters. This means that the aircraft will have to be parked in the open, thus, exposing them to IAF counter-air strikes. Airfield infrastructure capabilities and limitations can significantly affect fighter operations. The PLAAF will have to considerably improve these airfields for sustained operations. Fighter operations require logistics and maintenance facilities. Fuel and weapons storage sites would need to be built from scratch, or dramatically expanded. A detailed analysis of airfield suitability would require more current and detailed data that cannot be obtained from open sources, but it is evident that the PLAAF at present does not have adequate facilities at its air bases in Tibet. If the PLAAF decides to upgrade all the facilities, it will take a minimum of two years, on fast track, to construct all the requirements. India will have to keep a close watch on these airfields and monitor any developments taking place there. While there are other dual use airfields in Tibet for civil and military use, there is no infrastructure for fighter operations.

Another point to note is that fighter airfields have to be located at a reasonable distance from each other so that they are mutually supporting. In the northern sector, towards Hotan, the airfields are not mutually supporting. This sector has only three airfields, namely Hotan, which falls in the first tier and Kashgar and Korla which are second tier airfields. In the central sector, there is only one airfield, Gar Gunsa, which is a first tier airfield. There are no second tier airfields in this sector. The eastern sector seems to be the most strategic sector from the PLAAF's viewpoint. This reflects where the PLA's priorities lie. It is evident that the eastern sector is where the major infrastructure development with regard to airfield construction has taken place. In this sector, a majority of the airfields are within 300 km from the India-China border. Hopping and Kongka Dzong are two

well developed military air bases in this sector. Linzhi and Pangta are also in this sector and are fully operational dual use airfields for both civil and military purposes. The analysis of the same brings out that China's airfields in western and central Tibet seem to be located for administrative reasons and not for sustained air operations.

PLAAF VULNERABILITIES TO AIR INTERDICTION

The four main highways connecting Tibet to mainland China are the Central Highway (Qinghai-Tibet); Western Highway (Xinjiang-Tibet); Eastern Highway (Sichuan-Tibet); and Yunnan-Tibet Highway. Another major communication link is the Qinghai-Tibet Railway (QTR) line. The 1,142-km, single-lane Qinghai-Tibet Railway line runs from Golmud to Lhasa. While the QTR does give the PLA a strategic communication line for quick mobilisation of troops, it is only a single line and vulnerable to air interdiction by the IAF. The PLA cannot ensure air defence of the entire line. The bridges on the Tsang Po river and PLA communication axes south of the river are also susceptible to air interdiction.

CONCLUSION

China's military modernisation and frequent provocations pose a serious security challenge to India. There is no need to underplay the China threat. We must accept the challenge. China's defence industry has made great strides in making advanced weapons for the PLA. The main weak areas are aerial refuelling and high performance aero engines. But, they are being addressed and will be overcome in the coming years. India needs to invest in R&D and improve its defence production capabilities. With the USA ready to treat India on par with its closest allies, in terms of providing advanced military technology, India needs to pursue this opportunity. It is also important for India to strengthen relations with Japan, Taiwan, Vietnam, South Korea, Australia and other regional countries. China does not worry about India's concerns about its supplying nuclear technology to Pakistan. Therefore, there is no need for us to fear China's reaction to our close ties with any country.

The IAF needs to build up its combat aircraft fleet strength by expediting the Rafale deal. It needs more long range ISR capability

to locate and track moving ground targets. The IAF's long range precision weapons inventory needs to be increased. The BrahMos air launched version will enhance the IAF's long range precision attack capability. The main advantage that the PLA has is in its second artillery's conventional capability. However, given the diversity of airfields available, the IAF operations can continue from alternate airfields. India's conventional ballistic and cruise missile inventory needs to be enhanced to counter Chinese capabilities. With the present state of airfield infrastructure in Tibet, it does not appear that the PLAAF has the capability to achieve air superiority against the IAF. The PLAAF can, no doubt, build up its airfield infrastructure for sustained air operations but this will take time. India needs to utilise this time to build up its own capabilities.

THE GLOBAL POLITICAL ECONOMY AND CHINA

RAJ MONGIA

INTRODUCTION

China has been a crucial actor in international politics since at least the 1950s. It has been a nuclear power since the 1960s, a permanent member of the United Nations Security Council since 1971. It was also pivotal actor in the times of sophisticated Cold War politics. However, the primary reason for the global community reevaluating China's importance for the future of the international system was its levitation to a major economic powerhouse since the mid-1990s.¹

If the Western world was overwhelmed with the feeling of widespread shock and anxiety due to the rise of China, it was not without any reason. It was not so long ago that China was considered almost irrelevant to the functioning of the global networks of trade, finance and production. It seems even more bewildering that despite this giant being a relative newcomer to the intensely competitive global political economy, it has attained the status of having a "made in China" stamp on most of the toys, clothing and electronic equipment being sold the world over. An increasing number of scholars argue that China has become the main engine of growth in

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1. Sadik, "From Engagement to Contention: China in the Global Political Economy", *Perceptions*, vol. XVIII, no. 1, Spring 2013, pp. 129-153.

the world economy. People have gone to the extent of propagating that it is an emerging superpower that dares to reconfigure the global system to suit its national interests. *Prima facie* supporting evidence from recent trends in the global economy appears to be spellbinding²

The Chinese economy has become the second largest national economy in the world with a Gross Domestic Product (GDP) of over US \$11trillion, according to purchasing power parity. It is predicted to overtake the US in 2050. China has already overtaken the US as the single largest recipient of non-stock shares and Foreign Direct Investment (FDI). It has massive foreign currency reserves in US dollars, thereby financing American budgets and trade deficits. Naturally, this emerging economic superpower is being perceived as the major prospective challenge to the existing global economic order in general and to the American economic interests in particular. In this context, it is intriguing to note the whispers on the evolution of the global governance system from the official G-20 platform into a *de facto* G-2 regime based on bilateral competition and cooperation between the American and Chinese Administrations.³

The reasons for China occupying a unique position among the rather large group of developing countries are not far to find. They are:

- It has a large volume of exports and trade surplus, the latter at around 10 percent of the GDP. Its massive official reserves at over US \$2.5 trillion, are largely invested in US Treasury bonds.
- Its growing trade and investment links with developed East Asia.
- Its massive import capacity, especially of intermediate goods from neighbouring countries in Asia.
- Its success in achieving reasonable stability in the financial sector since the beginning of structural reforms in 1979 and also during the global financial crisis after 2008.⁴

2. John Ikenberry, "The Rise of China and the Future of the West", *Foreign Affairs*, January-February 2008, pp.11-12.

3. Kyle Hutzeler, "The China Skeptic's Talking Points Memo", *The Yale Review of International Studies*, November 2012, at <http://yris.yira.org/essays/755>, accessed on December 15, 2013.

4. Robert André La Fleur, "China's Trading Partners and China's Trade Balance", *Asia in Focus: China*, ABC-CLIO, USA, 2010, p.153.

The recent signs of potential instability were countered by the intense efforts of Chinese monetary authorities in having relatively free capital flows and, at the same time, retaining national autonomy in monetary policy and exchange rates, thus, overcoming the crisis successfully and obviating the trilemma. However, China's unprecedented rise from the margins of the global political economy to a position of powerhouse should still be seen as work in progress. The task is to be accomplished by numerous domestic and international challenges.⁵

CHINA'S POSITION IN THE GLOBAL SYSTEM

Academic interest in China reached its apogee in the last decade. Voluminous scholarly literature appeared, exploring the Chinese model in the realm of political science, international relations, development economics and related disciplines. China's unprecedented rise in the global, political and economic systems acted as a catalyst in arousing interest in the Dragon's trajectory. Questions were raised frequently regarding its significance in the spheres of global security, international trade, global finance, international development, systems of production, global environment, etc. Rising faster than any other country since the industrial revolution, China has unexpectedly emerged on the world stage. But its intentions are still unknown, and its distance from Western style democracy and capitalism still considerable.⁶

PHASES OF SOCIO-ECONOMIC REFORM

During the Maoist era, China generally seemed to be following a policy of isolation and economic autarky. The arrival of the modernist leader Deng Xiaoping in the corridors of power in 1978 ensured a departure from this policy. However, China became a real important entity in terms of global trade and FDI flows only by 1993. The key declaration by the General Secretariat of the Chinese Communist Party making a transition to a "Socialist Market Economy", triggered a massive increase in FDI inflows. China's transition toward a

5. Reserve Bank of India, "Report on Currency and Finance", 2004. p.91.

6. Joel Wuthnow, *Chinese Diplomacy and the UN Security Council: Beyond the Veto* (London and New York: Routledge, Taylor and Francis Group, 2013), p. 89.

relatively open, market-driven economy is usually accepted to have begun in the early 1980s and went through three distinct phases.⁷

FIRST PHASE

Initially, the process consisted of a large scale industrial expansion driven by the production of mass consumer products for the domestic market. This was facilitated by a balanced pattern of growth that encouraged rising demand. Controls by the Communist Party over private activity in rural areas were released gradually. It created a burgeoning entrepreneurial non-farm sector that paved the way for fast rising incomes for some of the poorest social sectors. Strategic state policies were adopted to raise agricultural prices. This resulted in improving rural wealth levels. The undeniable ramification was double digit income growth in net real income for wide sections of the rural population from 1979 to 1984. This positive growth momentum ensured reduction of poverty on a massive scale. Income disparities and regional and socio-economic inequalities were also decreased. Rising levels of domestic demand facilitated the attainment of rapid industrialisation and associated improvement in total productivity.⁸

SECOND PHASE

With the positive trends in the mid-1980s, China entered a second phase of reform. Following the start of popular unrest in the wake of the Tiananmen Square incidents in 1989, many of the earlier rural reforms were reversed. The Chinese Communist Party-state clamped down on the rapidly growing private sector to preserve public order. This was partly reversed following Deng Xiaoping's "Southern Tour" in 1992 but the main attention of public policy and economic reforms was permanently diverted from the rural to the urban areas.⁹ The new urban industrialisation strategy was based on the premise of creation of a consumer society around metropolitan centres. This

7. Chris Bramall, *Chinese Economic Development* (New York: Routledge, Taylor and Francis group, 2009), p.317.

8. Yongnian Zheng, *Contemporary China: A History Since 1978* (John Wiley and Sons, 2013), p-5, at <http://as.wiley.com/WileyCDA/WileyTitle/productCd-EHEP002806.html> , accessed on December 25, 2013.

9. Michel Aglietta, Guo Bai, *China's Development, Capitalism and Empire* (New York: Routledge, 2012), pp.15-16.

was to be facilitated through massive infrastructure and urbanisation investments. The strategy was financed by levying heavy taxes on the rural sector. Consequently, economic growth remained high over the course of the 1990s. However, the growth was increasingly driven by the expansion in the urban areas and rising urban wages and also by high rates of capital investment.¹⁰

This strategic shift culminated in China gradually moving away from its market driven, small-scale and social welfare improving rural growth strategy of the 1980s. It headed towards a more Western-style consumption-based market society which led to exacerbation of regional and class-based inequalities in income distribution and social standards. Chinese capitalism in the 1980s followed a rags to riches pattern of capital accumulation; the capitalism of the 1990s aggravated income inequalities, reduced social opportunities available to the rural population, led to slower income growth and an investment-heavy growth pattern.¹¹

THIRD PHASE

This phase of China's economic reform process dates from 2001 when China got accession into the World Trade Organisation (WTO). The phase has been characterised by export and investment led growth. Household consumption as a percentage of GDP was falling sharply. Savings and investment rates were increasing and socio-economic inequalities were growing rapidly. The substantial decline in household consumption made China's economic growth highly dependent on exports to Western markets. It created not only an unsustainable interdependence but also an imbalance which had placed long-term growth in jeopardy. The low rates of domestic consumption and associated high saving rates may be attributed to two principal reasons:

- Chinese workers were facing an increasing burden of privatisation in the social services, for example, education, housing and health care. State provision had steadily declined and this has increased the need to save for future social costs.

10. Zhu and Kotz, "The Dependence of China's Economic Growth on Exports and Investment", *Review of Radical Political Economics*, vol. 43, no. 1, March 2011, p. 20.

11. Yasheng Huang, *Capitalism with Chinese Characteristics: Entrepreneurship and the State* (Cambridge: Cambridge University Press, 2008), pp. 109-110.

- Growing inequalities, particularly between rural and urban areas, implied that an increasing amount of China's newly created wealth is concentrated among the relatively rich segments of society. This segment conventionally had higher saving rates.¹²

It will not be out of place to emphasise that during the making of this consumer society, the socio-economic dynamics in Chinese society have gone through tremendous deterioration, with income disparities rising sharply. China's Gini coefficient increased at a staggering rate over the last 30 years, from a relatively egalitarian 0.2 to a highly unequal 0.5. This rate of change is unprecedented anywhere else in world history.¹³ It emerged that while trying to establish its international competitiveness, China has outdone even the level of socio-economic inequality in Latin America.¹⁴

If a trajectory of the state of labour in China, following the long years of fundamental economic reform, is attempted, it emerges that while the first phase of reform witnessed overall welfare levels rising for all, the momentum was not carried forward. The rural reform process was halted in the second phase in the 1990s. Consequently, China has faced serious social problems. One of them was the rise of illiteracy, especially in the rural areas. The illiterate population increased from 85 million to 114 million between 2000 and 2005.¹⁵

Job creation has slowed significantly in the domestic economy and employment opportunities have increasingly favoured the better educated and younger segments of society. The groups that are better positioned to make use of China's integration with the global economy are at an advantage. The new employment conditions have been disadvantageous for social groups in marginal areas such as the elderly and the less skilled. Moreover, growth in personal income levels has reduced considerably.

The most striking features of China's integration into the global political economy is the exceptionally positive role played by FDI

12. Peilin Li, "China's New Stage of Development", *China: An International Journal*, vol. 9, no. 1, March 2011, East Asian Institute, University of Singapore, pp.137-138.

13. *Ibid.*, p.135.

14. Yasheng Huang, *Capitalism with Chinese Characteristics: Entrepreneurship and the State* (Cambridge: Cambridge University Press, 2008), p.256.

15. *Ibid.*, pp.244-245.

flows in the expansion of domestic productive capacity. Unlike other developing countries in East Asia, China has not attracted huge amounts of money. Almost all of the FDI stock has been focussed in the productive sectors. The inflow of FDI has been in two major forms:

- Market accessing investments.
- Investments for export oriented production.

Historically, the second form has dominated the FDI inflows into China. The main reasons are cheap labour costs, controlled exchange rates and massive infrastructure investments realised by central and local administrations. The critical FDI export nexus and the strategic management of the FDI regime has been the engine of the rapid growth episode in China. The impact was felt in five ways:

- It made the annual average growth rates around 8 percent possible.
- It increased the GDP per capita in regions, focussing on export oriented production.
- It affected balance of payments and foreign currency reserves positively.
- It created new jobs, upgraded skills and raised total factor productivity.
- It increased technology transfers and encouraged the modernisation of enterprises.

Official international trade figures from the WTO amply demonstrate the deep extent of China's trade-based integration with global networks. Over recent decades, China has been transformed into a global shop floor and a significant actor in trade flows as it accounts for more than 10 percent of all global exports and more than 90 percent of its exports happen to be in the manufacturing sectors. China's manufactures have primarily been targeted at advanced markets, including the American, European and key Asian markets such as Japan, South Korea and India (Table 1)

Table 1: China's Pie of Global Exports**As of September 2012**

Share of world total exports	10.40
Breakdown in the economy's total exports	
By main commodity group (ITS)	
Agricultural products	3.4
Fuels and mining products	3.1
Manufacturing	93.3
By main destination	
European Union (27)	18.8
United States	17.1
Hong Kong, China	14.1
Japan	7.8
Republic of Korea	4.4

Source: *World Trade Organisation, Country Profiles*, at www.wto.org, accessed on January 10, 2014.

Table 2: China's Pie of Global Exports**As of September 2012**

Share of world total imports	9.46
Breakdown in the economy's total exports	
By main commodity group (ITS)	
Agricultural products	8.3
Fuels and mining products	29.6
Manufacturing	59.2
By main destination	
1. European Union (27)	12.1
2. United States	11.2
3. Hong Kong, China	9.3
4. Japan	7.2
5. Republic of Korea	7.1

Source: *World Trade Organisation, Country Profiles*, at www.wto.org, accessed on January 10, 2014.

It is interesting to note that China is the second largest importer in the world as it requires massive imports for intermediary goods and components needed in the manufacturing industry. Again, the European Union (EU), Japan, Korea and the US are the main import partners of China in that respect. These figures amply demonstrate the massive Chinese manufacturing and export-based trade capacity in the strength of the world economy around the so-called "Triad" regions consisting of the US, the EU and the developed Asia-Pacific. This also implies a profound repercussion for most of the world in the event of a radical slowdown in the Chinese economy (Table 2)

GLOBAL ROLE OF CHINA

The expectations of the Western world for the revitalisation of the world economy are understandable. China definitely has a stake in global prosperity. It is better placed to weather the global storm, as :

- its banking system has escaped the direct impact of the financial crisis;
- its public debt is modest; and
- its fiscal position is strong.

However, the assumption that China would rise to the occasion, and rescue the world economy is a little far-fetched. The tensions with its trade partners, and particularly with the Western world, would renew as the Chinese Administration would be under constant domestic pressure on poverty alleviation and income disparities' reduction. The expectation of the Western world for China to realistically act as an economic locomotive is not likely to be fulfilled.¹⁶

China has a rich historical tradition. In the 1980s, China's supreme leader Deng Xiaoping urged his compatriots to "observe developments soberly, maintain their position, meet challenges calmly, hide their capabilities, bide time (*taoguangyanghui*), remain free of ambitions and never claim leadership on a regional or global basis." Now, it is understandable that as far as global governance is concerned, China's traditional tendency has been based on

16. Andrew Fenton Cooper, Ramesh Chandra Thakur, *The Group of Twenty: G-20* (Routledge, Global Institutions, 2013), pp.111-113.

intense bilateral diplomacy to manage trade relations and promote liberalisation. In multilateral organisations, it follows the policy of keeping its head down and raises its voice only when the most vital and sensitive national interests are at stake. Most of the time, the Chinese leadership is quite content to leave it to other actors to do the running around whenever policy issues emerge on multilateral platforms. But, naturally, China has responded to the outbreak of the global economic crisis by adopting a studiously detached and non-committal posture. The Chinese leadership is of the view that the responsibility of creating a “sophisticated financial mess” through intricate financial engineering methods, lies totally with the Western world and so also, the onus for thoroughly cleaning it up.

The feasible course of action for China is just to keep its own economy stable and growing. But in the wake of the recent deterioration of the crisis, especially in euro areas, it is much harder now for China to continue taking a backseat in global financial and economic governance. The crisis is being utilised by China as an opportunity to make its strong and critical views about the current global economic dynamics heard. If the Middle Kingdom wants to maintain global stability, then deeper engagement between Beijing and the global power centres will be unavoidable in the near future.

CONCLUSION

China began its journey towards global integration by becoming the “world’s outsourcer of the first resort”. It created a niche for itself in the global division of labour as the main production site for low-tech, low-value added industries due to its unparalleled cost advantages. The real challenge for Chinese policy-makers is to promote indigenous Chinese brands on a global scale so that the bulk of the value added from the production process is kept at home. As a corollary, China needs to modernise the national production structure through technology transfers, mergers and acquisitions so that the country’s competitiveness and its position in the global pecking order may be improved.

China’s emergence as a major economic player clearly has had a major impact on the balance of power in the global political economy. The sustained economic growth of China over the last few decades

has generated massive tax resources that have so far been used to finance grandiose public investment projects, increased military and space spending and the buying up of US Treasury bonds. This has bestowed upon China, a degree of power in the international system. The purchasing power of the massive Chinese population has been increasing steadily. The consumption habits of the Chinese middle class are changing, which is commensurate with the availability of more cash in hand. On the other hand, the demands of consumers in the advanced economies, especially in Europe, has declined considerably due to the global economic crisis. These factors have proved to be a catalyst in transforming the Chinese market into one of the most promising domestic markets in the world. However, the Chinese market still does not enjoy the kind of infrastructural power that the US and EU markets have, to determine the major consumption patterns and set the dominant trends in the world economy.

3-DIMENSIONAL PRINTING AND THE FUTURE OF DEFENCE MANUFACTURING

E. DILIPRAJ

Imagine a situation in which a battleship on a patrolling operation in a pirate zone in international waters, suddenly experiences an engine failure and becomes a sitting duck. The captain of the ship is informed by the engine crew that a critical part of the engine has broken down, for which they have no spare and it would take at least two days for the supply of the spare part to reach the ship. To avoid being a vulnerable target for pirates, the captain, not wasting time, asks his crew to 'print' that particular component to refit the engine to make the ship functional in a few hours.

The above mentioned situation and the solution to the crisis may seem to be in the realm of fantasy. But the recent revolutionary development in the technology of manufacturing called "3-dimensional (3-D) printing" or "additive manufacturing" makes this case in point a reality. Accordingly, in a small space, with the use of a computer, a few digital designs and a specially designed printer, the required products can be manufactured in a short span of time instead of manufacturing in a large scale factory. Hence, this revolutionary technology has created wonders in printing products in the present- day scenario and the future.

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WHAT IS 3-D PRINTING/ ADDITIVE MANUFACTURING?

3-D printing or “additive manufacturing” is the process of layer by layer manufacturing/printing of 3-dimensional physical objects virtually of any shape from their digital models. Unlike the conventional form of manufacturing, an object which relies on removal of material with methods like cutting, drilling and scraping that are subtractive methods, the process of 3-D printing, on the other hand, only involves the additive method of adding layers of material one above the other. Therefore, in the process of 3-D printing, wastage of material is minimal that helps in cutting cost. Also, 3-D printing does not require large scale factories to manufacture an object but can be produced in a small space. Interestingly, the ability of 3-D printing to print complex parts regardless of the geometric complexity opens up new frontiers for design flexibility, and optimisation relaxes the geometric design constraints imposed by traditional manufacturing technologies.¹

Although the history of 3-D printing started way back in the 1980s, with Chuck Hull being the pioneer in the technology, the widespread commercial use of this technology gained momentum only in the 21st century.² Within a short span of time, the technology was adopted into various fields due to its high capacity and flexible nature. Today, 3-D printing is used globally in the following fields, mainly for prototyping and small-volume production:

- Construction,
- Industrial designing.
- Automobile industry.
- Aerospace industry.
- Defence production.
- Medical industry.
- Fashion industry.

This technology has reached such a level that recently, scientists claimed to have developed a 3-D concrete printer that can be used to

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1. “3-D Printing: A Potential Game Changer for Aerospace and Defence”, *Gainingaltitude*, Price Water House Coopers, 2013, at www.pwc.com/us/gainingaltitude, accessed on January 27, 2014.
 2. “3-D Printing”, at http://en.wikipedia.org/wiki/3D_printing, accessed on January 27, 2014.

print a house within 24 hours.³ More interestingly, in the UK, the BAE Systems used 3-D printed parts in one of their Tornado fighter jet and conducted a successful test flight. The parts printed include the cockpit radio cover, plastic window breather pipe and components in the landing gear.⁴ Although these are the least risky parts in the aircraft, the technology has opened new avenues in the aerospace industry.

PROMISING ASPECTS OF 3-D PRINTING

As mentioned earlier, 3-D printing, at present, is mainly used for making prototypes and for small-volume production. With this technology, the producers are enabled to skip the stage of fabrication of tools and go straight to the production of finished products. This aspect helps the producer in saving time and money to create a prototype of any product and helps in the overall development of the product. Particularly, this aspect would be of great help to the defence industries for making prototypes to their product with much less cost.

Moreover, products that are produced on a very small scale or for dedicated purposes like satellites, missiles and launch vehicles are suitable applications where 3-D printing is a boon. Since satellites, missiles and space launch vehicles need intricately designed parts and have to be produced by fabricating tools, to make the moulds by the traditional method would be very expensive, whereas printing the parts directly would be cost effective and less time consuming.

In addition to this, a product printed in a 3-D printer is much lighter than the same product produced by conventional methods even though both exhibit relatively similar quality. This aspect would be very beneficial in the aircraft manufacturing industry as for every one kg reduction in weight, fuel cost of US\$35,000 can be saved by the airlines over an aircraft's life.⁵

3. Bushey Ryan, "Researchers Are Making a 3-D Printer That Can Build a House in 24 Hours", *Business Insider*, January 9, 2014, at <http://www.businessinsider.in/Researchers-Are-Making-A-3D-Printer-That-Can-Build-A-House-In-24-Hours/articleshow/28601182.cms>, accessed on January 28, 2014.

4. "Successful Test Flight for Tornado Jet Containing BAE Parts Made on 3-D Printer", *The Telegraph*, January 5, 2014, at <http://www.telegraph.co.uk/finance/newsbysector/industry/10552462/Successful-test-flight-for-Tornado-jet-containing-BAE-parts-made-on-3D-printer.html>, accessed on January 28, 2014.

5. Catherine, Jewell, "3-D Printing and the Future of Stuff", *WIPO Magazine*, April 2013, at http://www.wipo.int/wipo_magazine/en/2013/02/article_0004.html, accessed on January 29, 2014.

The supply chain and logistics is the backbone of any country's defence forces. The ability to supply goods to the forces at the right time is the ultimate challenge. The ability of a 3-D printer to directly convert a digital design into a finished product is an aspect which attracts the defence forces to use 3-D printing in their supply chain and logistics department. For instance, if during an air strike operation, an aircraft is hit in a critical area and returns to forward base with damage, instead of declaring the aircraft unfit for battle, a 3-D printer can be used to print the required parts, refit the aircraft and ready it for the battle. Such an action would not only save time but would also act as a force multiplier.

Another important aspect of 3-D printing technology is its ability to print products of any size, irrespective of their complex geometric shape. While a whole house can be printed using this technology, it can also be used to print any small product like a coffee mug. Since making digital designs for big complex structures is a big challenge for the designers, this technology can also be used to create simple sub-assemblies of interconnected parts.

USA AND CHINA

Realising the salient features of 3-D printing technology, the global powers such as the USA and China have started incorporating the technology in various fields, including the defence sector. The Government of the USA has invested \$30 million in setting up a national 3-D printing centre in Youngstown, Ohio, for civilian purposes. For the purposes of defence, the state's Future Warfare Centre at the Space and Missile Defence Command in Alabama has been involved in developing cheaper 3-D printers which would cost less than \$700. The 3-D printers produced in this centre are supplied to the American troops in the front and are being used by the Rapid Equipping Force (REF) that has been deployed in Afghanistan and Iraq.⁶ Moreover, a study conducted by the Centre for New American Security, an American think-tank, has reported that in the future robotic warfare, the USA would use fleets of unmanned 3-D printed

6. "US Military Invests in 3-D Printing on the Frontline", *dezeen Magazine*, November 12, 2012, at <http://www.dezeen.com/2012/11/12/us-military-invests-in-3d-printing-on-the-frontline/>, accessed on January 29, 2014.

drones along with the cyber warfare tools and guided munitions.⁷ The National Aeronautics Space Agency (NASA), the nodal space agency of the USA, is also conducting research on the possibility of printing food for space missions and future space settlements, including for a future mission to the planet Mars⁸, through 3-D printing

Similarly, China started using 3-D printing technology in the military aviation industry towards the end of the 20th century and gained a lot by annexing the benefits of this technology. The Chinese aerospace industry and outer space sector have seen dramatic development in the past three decades. An important factor which helped China to keep up the momentum was its capability to produce aircraft, missiles and launch vehicles indigenously well in advance, before the expected deadlines. It is claimed by a few reports that China has used its expertise in 3-D printing technology in the production of its indigenously built fighter aircraft projects, the J-15, J-16 and J-20.⁹ The chief engineer of the J-15 project, Mr. Sun said during an interview to the Chinese news media :

After nearly 20 years of research and development [3-D printing technology in China] can produce ... products that can replace metal structures made by complicated traditional manufacturing processes.... We have applied the technology to [the aviation] industry, including sizeable titanium alloy structures and aircraft engine renovation, as well as some other high-end components.¹⁰

Therefore, it can be speculated that China might be using its expertise in 3-D printing in its missile development programmes and outer space research too. This may be one of the reasons why China is able to deliver all its aerospace projects, including the fifth generation fighter aircraft, the J-20, various missiles projects and build advanced Space Launch Vehicles (SLVs) well in advance, before the expected time.

7. Robert O. Work & Shawn, Brimley, "20YY - Preparing for War in the Robotic Age", *Centre for a New American Security*, January 2014.

8. "3-D Printing Food in Space", at http://www.nasa.gov/directorates/spacetech/home/feature_3d_food_prt.htm, accessed on February 5, 2014.

9. Minnie Chan, "3-D Printers Help China Jet Development Take Off", *South China Morning Post*, May 29, 2013, at <http://www.scmp.com/news/china/article/1248385/3-d-printers-help-china-jet-development-take>, accessed on January 31, 2014.

10. Ibid.

Fig 1: Large Titanium Alloy Fighter Jet Part Made With 3-D Printing in China.



Source: <http://mil.huanqiu.com/>

Building a successful prototype is the biggest challenge in an aerospace project. The ability of 3-D printing to convert a digital design directly into a finished product helps a country to save time and also to avoid the hassles of making the moulds for the prototype as in the traditional manufacturing process. Therefore, through this technology, China has achieved results sooner, as well as surprised the world with its advanced capabilities in the defence manufacturing sector.

DRAWBACKS AND RISKS OF 3-D PRINTING

Although 3-D printing technology seems to be promising and fascinating in its own style, the technology is also accompanied by its own drawbacks and risks. The first and foremost drawback is the high cost of making the 3-D printers. Despite the availability of cheaper versions of 3-D printers, the fact is that different products need a different size of 3-D printers for production, hence, acquiring them would incur more expense.

The next issue is the materials that can be used in the 3-D printers. At present, 3-D printers in commercial use are restricted to using a limited number of materials which include plastic, a few metals and alloys. Although, in some countries like the US and China, the

defence industries possess advanced 3-D printers that are capable of using hundreds of materials, the end products produced by these printers face the problem of structural integrity. Nevertheless, in the future, advanced melting technologies like electron beam melting can be used to melt the materials to achieve fully dense, void-free parts that, in turn, can be used to print high quality products.

Also, the widespread use of 3-D printers would increase the risk of counterfeiting products and introducing them into the market in competition to the real ones. This risk factor is much higher in the defence sector as it is more profitable. Laser imaging technology or any low cost 3-D scanner can be used by counterfeiters to reverse engineer a product and create a digital image, resulting in counterfeit products.¹¹ Any event of counterfeiting would lead to the question of Intellectual Property Rights (IPR), as 3-D printing technology deals with digital designs that are owned either by the designers or by the organisations that they belong to. Alongside, there is already an ongoing debate on the ownership of information available in the cyber world, and the issue of safeguarding the digital designs from falling into the hands of counterfeiters would become another tedious task for countries.

Moreover, as 3-D printers are Computer Aided Designs (CADs), they are easy to copy and circulate which would enhance the proliferation of weapon systems.¹² Also, since these CADs would be stored in virtual locations, they could become vulnerable targets for hackers who wish to copy, change or delete the whole information. Furthermore, states might even go to the extent of fighting cyber wars to get their hands on each other's digital designs, making cyber space an intense battleground.

In addition to the above risks and drawbacks, the threat of digital designs of weapon systems being freely available in the open source, i.e. the Internet, is another major challenge for global security. For instance, the digital designs of the AR-15 semi-automatic rifle were published in 2012 in the website, www.defdist.org, with the option to

11. "3-D Printing: A Potential Game Changer for Aerospace and Defence", *Gainingaltitude*, Price Water House Coopers, 2013, at www.pwc.com/us/gainingaltitude, accessed on February 1, 2014.

12. Jewell, n.5.

download the designs.¹³ Another website, www.defcad.com, can be accessed for digital designs of weapons and other products.¹⁴ Apart from these websites, there are numerous other pages and video hosting sites in the deep web which give guidelines and step by step instructions for building a 3-D printer at home, giving free digital designs for making various pistols and rifles. Therefore, access to such open sources of the digital designs of weapon systems would be of great interest to the non-state actors and unwanted social elements, who will, in turn, use them to terrorise the global society. In addition, the non-state actors getting their hands on digital designs of advanced weapon systems like missiles and drones could prove to be a frightening situation. Therefore, the cyber vaults which contain the digital designs can become a National Critical Information Infrastructure, and states would be forced to enhance their level of cyber security.

HOW WILL IT SERVE INDIA?

The 3-D printing technology in India is still in its nascent stage and is being used only in jewellery, fashion, food and a few other industries which are not critical to the nation state. Awareness of the significance of 3-D printing technology and its usage by the global powers has led to the popularisation of this technology in India also. As a result, the premier academic institutions of India like the National Institute of Design (NID), National Institute of Fashion Technology (NIFT) and Indian Institute of Technology (IIT) have included 3-D printing in their curriculum which would help the future generations to understand and effectively use the technology.¹⁵

Nevertheless, it is unclear as to how much this technology has made inroads into India's defence, aerospace and outer space production sectors. Being located in a geostrategic location, with a hostile neighbourhood, India is the world's largest importer of arms. Every year, a major chunk of the country's budget is spent

13. www.defdist.org, accessed on February 2, 2014.

14. www.defcad.com, accessed on February 5, 2014.

15. "3-D Printing in India", October 25 2011, at <http://3dprintingindia.com/>, accessed on February 3, 2014.

on procuring arms and advanced weapon systems, especially in the aerospace sector. While it is a long prevailing dream for India to attain self-reliance in defence production, especially in the aerospace sector, a question that arises is whether 3-D printing technology can be a solution to it. While the technology has proved fruitful for China, it can very well provide a solution for India's efforts for indigenous defence production. With the availability of expertise in the field of information technology in the country, dedicated study into 3-D printing technology would enhance the ability of the country to print complex products with various kinds of materials. The following recommendations might help India to achieve expertise in 3-D printing technology:

- A study on 3-D printing technology should be carried out by both the public and private sectors for their own benefit, either as joint research or autonomously, depending on the nature of the project.
- It is a positive sign for India as this technology is being practised in the country's premier institutions like IIT and NIFT, which will provide deeper understanding and in-depth knowledge to future generations. Furthermore, the knowledge has to be disseminated to more institutions like the Indian Institute of Science (IISc) and other premier science and technology institutions for a wider audience.
- In the defence sector, dedicated fablabs should be set up for the purpose of R&D in the field of defence production. Cooperation with Russia would be fruitful for India in this regard, as Russia is currently on a spree in setting up these fablabs. In general, a fablab is equipped with an array of digital fabrication tools that include 3-D printers, milling machines, laser cutters, vinyl cutter machines, electronics workbench, computers and programming tools, supported by open source software for the purpose of rapid prototyping.¹⁶
- These fablabs could be used as the centres of prototype production and testing. The existing digital designs in possession with the

16. "Russia Building the World's Largest Fablabs Network in Two Years", August 8, 2012, at <http://www.3ders.org/articles/20120809-russia-building-the-worlds-largest-fablabs-network-in-two-years.html>, accessed on February 4, 2014.

country can be used in the fablabs to attain expertise in making the prototypes through 3-D printing technology.

- The ability to successfully create rapid prototypes would be the first step towards self-reliance. Therefore, as the next step, India can start acquiring only the digital design, under transfer of technology, of a particular aircraft or weapon system instead of the whole weapon system. These designs can be used to produce a small volume of those weapon systems and can be put to test.
- Simultaneously, studies have to be conducted in making successful digital designs.
- Effective digital design making, printing and testing of the prototypes and small volume productions may not only enhance India's overall defence production capability but might also lead the country to indigenisation in the future.

Achieving expertise in this technology in the future would help India's drought in producing its indigenous weapons for the defence industry. In addition, through its expertise in this technology, India would no longer have to wait for decades to produce, for instance, a prototype of an aircraft; and, thereby, could print the same in a very short span of time.

SPACE DIPLOMACY AND DEFENCE: THE SENSE IN SURGING APACE

K.K. NAIR

Space capabilities are inherently transnational in character. They are also inherently flexible, versatile and ubiquitous. A single geostationary communication satellite typically covers 1/3rd of the globe, thereby normally enveloping more than one nation. The orbital patterns of polar observation satellites typically cover all places on the globe. Similarly, satellite navigation impacts the globe, as do weather satellites. Since the coverage of most space applications is global, the consumer mass covered is automatically the largest possible. The potential to serve populations well beyond national boundaries is inherent and yet goes unharnessed in most cases. More importantly, the consumer mass for space applications is growing as never before. India's national space assets serve a variety of societal and developmental needs ranging from tele-medicine, tele-education to resource mapping, hydrology, etc. No great effort is needed to extend these benign facilities to other nations (especially contiguous neighbours) who have similar developmental needs. With regards to Satellite Communications (SATCOM), beam spillages are fairly commonplace; similarly, resource mapping data can be extended

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to other nations as also weather and navigational data, etc. India's national space capabilities are now mature and serve the nation well. While national needs continue to take priority, it would be essential to broaden our perceptions and explore the possibility of extending our space application services to other nations in pursuit of the larger goal of harmonious rise and development.

Extending our capabilities and making them international in character endows a certain amount of incidental security in that it increases the complexities of selective targeting. For instance, communication satellite carrying transponders for civil, military, commercial and foreign use would be inherently difficult to target selectively. Apart from increasing the targeting complexities, it also brings in an element of collective security. Collective security, by itself would not suffice and individual security measures would also have to be introduced. Technologies for protection and vulnerability mitigation are high-end and scarce. They are also critical to survival and a variety of measures would have to be put in to develop and acquire them from abroad. These vulnerability mitigation measures and techniques, once mature, would have a market for a variety of nations and applications. The role of diplomacy in furthering the potential of our space capabilities well beyond national borders would be paramount, especially since India's space capabilities are an entirely state driven endeavour. This paper advocates the need for space diplomacy and defence to surge apace in order to comprehensively harness the potential of our national space capabilities.

EXPANDING SOCIETAL AND DEVELOPMENTAL GOALS OF SPACE BEYOND NATIONAL BOUNDARIES

Unlike the Cold War era, space applications are now increasingly profuse and proliferate across the world. Nations use them in a variety of ways, based on their unique needs and capabilities. India is amongst the few nations in the world that can boast of full spectrum space capabilities, ranging from launch to satellite systems and allied ground infrastructure¹. Apart from China, it has no rival in the Asian continent. China's capabilities are largely of a military character and

1. For details, see Home page of the *Indian Space Research Organisation*, at <http://www.isro.org/>, accessed on March 4, 2014.

have relatively less uses for civil development and commerce. On the contrary, India's space capabilities, because of their predominantly civilian and developmental focus, easily lend themselves to social and economic development. As a matter of fact, the Indian Space Research Organisation (ISRO) boasts of the largest number of civilian communication and observation satellites in the world. These have been serving a variety of societal and developmental needs for decades together.

While these activities need to continue, there is no reason to not explore and expand the possibility of making surplus space applications available to other nations which may need them. For instance, with increased and more efficient landline connectivity within India, many tele-medicine users in India have switched over to Skype and other Internet applications.² The resultant vacant capacities on our communication satellites could be suitably tweaked to serve the ends of e-health and tele-medicine, provided suitable beams and transponders are available. The ratio of medical practitioners to patients is grossly adverse not only in India but across large parts of Asia as well. Both the health consultancy and continuing medical education could be propagated across the continent and even across the globe with our existing space capabilities. The societal benefits of space could be extended well beyond national and even continental boundaries. India has pan-Africa and South Asian Association for Regional Cooperation (SAARC) tele-medicine networks. The possibility of extending the same to cover more nations needs to be explored. Beam spillages amongst our contiguous neighbours are common and the transnational character of SATCOM can be more comprehensively explored and exploited for overall development. For instance, the India beam of INSAT-3C (launched in 2002) spills over onto Sri Lanka in the south as also Nepal, Burma, etc in the north, whereas its 'C' band footprint covers the Central Asian Republics and the 'C' band wide beam covers all of Asia, parts of Europe and also Australia.³ The potential for using such communications in normal

2. Refer Nandita Vijay, "Narayan Hrudyalaya Moves out of ISRO Satellite for Tele-Medicine, Switches Over to Skype", Pharma biz.Com, (Bengaluru), July 13, 2012, accessed on March 4, 2014.

3. For satellite footprint details, see "Satbeams", at <http://www.satbeams.com/footprints?norad=32050>, accessed on March 2, 2014.

times for tele-medicine and tele-education is enormous as also for use during emergencies like disasters, etc. Certain programmes like the Disaster Management Support (DMS) programme of the Indian Space Research Organisation (ISRO) are on the anvil to provide near-real-time information support and services from imaging and communication satellites for efficient management of disasters in the country.⁴ A major target of the DMS programme during the 12th Five-Year Plan period (2012-17) will be operationalisation of the National Database for Emergency (NDEM). However, these continue to be insular in character and the possibility of extending NDEM services to an International Database for Emergency (IDEM) service on suitable terms can be mulled upon since the returns far exceed the costs.

At the same time, it is understood that there exist a variety of issues in switching over to multifarious uses and applications. However, the potential abounds, new technologies exist, enabling more flexible use, and it would be imprudent to discount the possibilities straightaway.

Apart from enabling communications across remote areas of the globe, the societal benefits of observation satellites can also be extended beyond national boundaries. Most of Asia comprises agricultural economies. The populations are vast as are the landmasses. The problems of land reclamation, town planning, resource management, etc which abound in India prevail across Asia. They exist in Africa and in many more parts of the developing world that yearn to obtain space capabilities to assist national development. Commercial capabilities are quite costly and India is uniquely placed to extend its years of experience, expertise and capabilities for addressing these issues to other nations on a reasonable *quid-pro-quo* basis.

Most literature on space is focussed on the security aspects of militarisation and weaponisation. These hog the limelight and consequently there exists little knowledge amongst the developing nations of the enormous uses of civil space applications. India has been focussed purely on the civil uses unlike most nations that are focussed on the military uses. This focus, and the capabilities and expertise could be extended across the world. Reaching out to more nations would ensure greater space use in surmounting the real

4. Refer Department of Space Report "Outcome Budget of The Department of Space, Government of India 2013-14", para 4.8, p10.

problems of 'man and society'. The vision of Dr Vikram Sarabhai is particularly relevant in this context and is briefly recounted below⁵:

There are some who question the relevance of space activities in a developing nation. To us, there is no ambiguity of purpose. We do not have the fantasy of competing with the economically advanced nations in the exploration of the moon or the planets or manned space-flight. But we are convinced that if we are to play a meaningful role nationally, and in the comity of nations, we must be second to none in the application of advanced technologies to the real problems of man and society.

Quite clearly, the vision was not meant to be confined to national territory but rather meant to extend well beyond, into the comity of nations. After having served the nation well for over four decades, the time has come to extend the services onto the comity of nations. A variety of applications exist in the civilian sphere as also for benign security applications. For instance, opium and cocaine plantations amongst innocuous vegetation are rife in Afghanistan and certain Central Asian Republics. There are enough optical and radar satellites in India's inventory to undertake a precise mapping of these illegitimate plantations and enable their respective governments to attempt their removal. The greater common good of the world gets served to a certain extent by tapping small amounts of our space capabilities.

It also needs to be borne in mind that space applications are inherently costly and complex. Only a handful of nations possess the full spectrum of space capabilities of launch, space systems and allied ground infrastructure. India is amongst those few nations and with its formidable capabilities growing, it would need to explore the possibility of putting its space capabilities to more gainful use across the world. This is particularly so since the commercial launch costs of ISRO are the lowest in the world and boast of 100 percent reliability in the past ten-year period.⁶The cost of space services is

5. Refer Home page of ISRO at <http://www.isro.org/scripts/Aboutus.aspx>, accessed on March 3, 2014.

6. Refer Report of the Federal Aviation Administration "Commercial Space Transportation:2012 Year in Review", January 2013, Appendix-1.

also amongst the lowest in the world. It makes enormous commercial sense for developing nations to opt for the cheapest and best option in the market and, conversely, it also make enormous sense for India to expand its services to other states. The efforts to reach out to other developing nations need to be institutionalised and this can only be undertaken by diplomacy.

PROTECTION AND DEFENCE OF SPACE ASSETS FOR UNINTERRUPTED NATIONAL DEVELOPMENT

Apart from institutionalising measures for reaching out, it would also be essential to institutionalise measures for the security and protection of our space assets. With eleven satellites for communication and another twelve for observation, the numbers may not appear formidable when compared to the hundreds launched by the US, Russia and now China. However, in terms of a focussed approach to civil growth and national development, a variety of purposes is served for the common populace of the nation. With nothing more than a single dedicated military satellite for communications and another three odd for military observation, our national dependence on space for military purposes is miniscule. No great crippling military dent would be suffered in case these were not available. However, overall national development, economic well-being, commerce, everyday life and a variety of problems affecting the common man at the grassroots levels would be severely affected. In our unique case, as a democratic nation, the common man runs the nation through his elected representatives in the Parliament. The perils of leaving the interests of the common man unattended are too serious to be left un contemplated or unaddressed. As of now, our space capabilities have very little inbuilt protection and security measures. It is, hence, critical to institutionalise measures for observation, protection and security of our assets in outer space.

At the same time, attempting to mitigate paranoia by weaponising space or getting into a pursuit to arrive at the outer realms of military space technology is well understood to be a self-defeating exercise. Accordingly, the issue is approached keeping the economic, technological and legislative issues in mind.

THE RECOMMENDED APPROACH

Harnessing Diplomacy for Collective Security

The inherently transnational character of space capabilities ensures that use of space is fraught with a variety of extra-territorial issues. These would demand application of nimble diplomacy to ensure continuity of space use for the nation and its friends. At the same time, uninterrupted use of space would demand the involvement of defence forces for the protection of own assets as also threat detection, characterisation, etc. Diplomacy and defence are the usual drivers of international relations across the world and the transnational character of space demands usage of both these instruments of national power in concert to further our goals. The need for incidental security would demand a comprehensive exploration of the need for partnerships with like-minded nations whose developmental needs could be accommodated on our payloads in space. Mixed payloads of domestic, commercial and foreign agencies would increase targeting complexities, legal hassles and also endow a certain amount of incidental collective security. On the other hand, as soft-kill techniques advance, it would be essential to develop or acquire protection techniques in observation satellites.

There is no option, and the protection measures would have to be incorporated sooner rather than later. This would automatically imply increased costs. One manner of offsetting the increased costs would be by increased commercial involvement with an increasing number of international players. The market for the Geographic Information System (GIS) also records exponential growth across the world. The GIS industry is expected to continue growth worldwide to US\$10.6 billion by 2015.⁷ With our formidable constellation of observation satellites, it makes enormous commercial sense to both publicise capabilities and make GIS capabilities available across the world on affordable terms. As in the case of SATCOM, observation satellites are also inherently dual use and, hence, one could provide imagery services to a variety of domestic and international users. Other applications like navigation are on the anvil. Within a span of

7. Refer Caitilin Dempsey, "GIS Industry Trends & Outlook", *GIS Lounge*, January 19, 2012, and Report of Global Industry Analysts, "GIS: A Global Outlook", January 2012.

ten years, India's space footprint would cover a variety of nations, bringing in its wake a variety of international opportunities as also challenges. The opportunities in space cooperation have been briefly spelt out, and the challenges are given below.

Surmounting the Challenges by Defence and Diplomacy

The challenges can be expected to be manifold, taxing and unconventional due to the inherently international and complex nature of space. Put briefly, the challenges would fall into the twin categories of detecting space threats and protecting assets; and mitigating these threats. Detection and characterisation of the threats would demand a credible Space Situational Awareness (SSA) apparatus. Protection and mitigation would demand a variety of operational tasks ranging from detection, cataloguing, collision avoidance to operational manoeuvres for survival, etc.

Acquisition and development of SSA capabilities comprise an extremely massive, complex and costly task involving a variety of optical and radar sensors, the related software, network systems, etc. Obtaining these capabilities would demand concerted efforts not only by elements of national defence Research and Development (R&D) agencies but also by the national diplomatic machinery. The investments and efforts are enormous and it is fairly well known that no country can single-handedly build or possess a comprehensive SSA architecture. At least no country can do it overnight or even over a decade. The US, for instance, built its capabilities over the decades. Even with its formidable SSA architecture, significant gaps remain and the US continues to be on the lookout for partners to obtain geographic advantage and to offset costs⁸. Partnerships in SSA make a lot of economic, geopolitic and strategic sense. In our unique case, we would be starting from scratch and, hence, a variety of assessments of an international nature would have to be made. For instance, the need would have to be judiciously assessed, the right mix of sensors would have to be formulated, foreign and indigenous

8. See Factsheet on SSA of the Australian government at www.dfat.gov.au/.../us/.../Space-Situational-Awareness-Partnership-fact-sheet. Also remarks of the Canadian government at National Defence and the Canadian Armed Forces, at www.forces.gc.ca/en/news/article.page?...space-situational-awareness etc, accessed on March 3, 2014.

assets would have to be balanced, etc. That apart, the costing, inventory management, transmission of SSA data to domestic and international consumers of the SSA data and a variety of other aspects would need to be purposefully thought out well in advance. All of these activities would need enormous international engagement and involvement which demands a much more active participation of national diplomacy.

The next or concurrent aspect would be operationalisation of the system. This would entail enormous efforts in terms of operational training, maintenance and repair, tasking of sensors, software formulation, etc. Some of this could be undertaken domestically, however, most would have to be obtained from foreign players. Theoretical sessions on SSA have their limitations and, at best, are an artificial experience. At present, there is little knowhow and almost nil experience in running an SSA system. Actual operations would demand meticulous planning, phase-wise preparation, and execution. All of this would demand dedicated efforts and investments in concert by the Services and the national diplomatic machinery.

With regards to satellite protection and vulnerability mitigation, a variety of technologies is available for both observation and communication satellites. In our case, a certain amount of hardening to address space weather and other natural phenomena is undertaken. But in view of the increased lethality of soft-kill measures like high power jammers, lasers and other Directed Energy Weapons (DEWs) proliferating across the world, there is an emergent need to undertake protection measures to guard against human interference and disruption. Some of these measures can be developed in-house and have potential for commercial exploitation since SATCOM insecurity is an increasingly critical issue. Some would also need to be acquired. Various nations and commercial agencies are putting in efforts to address SATCOM insecurity, and the market for the right kind of technologies to address these issues is ripe. It makes a lot of economic and security sense to tap into the market and select the best options.

On the other hand, instances of unintentional interference are on the rise. Most peace-time interference is known to be unintentional, though not harmless, and a brief categorisation has been placed as under. International agencies like the International

Telecommunication Union, are known to be using their good offices to regulate affairs and contain unintentional SATCOM interference amongst states. These mostly include attempts to bring in better practices and technologies like carrier identification of SATCOM transmissions, creation of carrier databases, etc.

Table 1

Technical and Human Issues Leading to Unintentional SATCOM Interference	
<p>Technical Issues</p> <ul style="list-style-type: none"> • Poor/sub-standard equipment • Improper installation • Insufficient coordination • Unidentified carriers • Adjacent satellite interference • Terrestrial service interference 	<p>Human Issues</p> <ul style="list-style-type: none"> • Transmission on wrong polarisation • Transmission on wrong frequency • Transmission on wrong power level • Transmission on wrong satellite

Efforts are already in place and it would augur well for India to the involved more actively to contain these kinds of insecurities which, though unintentional, have potential for harm. The point is, while the SSA measures, protection and vulnerability measures, etc are being developed and acquired, an active participation right from the beginning with international agencies like the ITU would enable us to forestall and surmount a variety of issues.

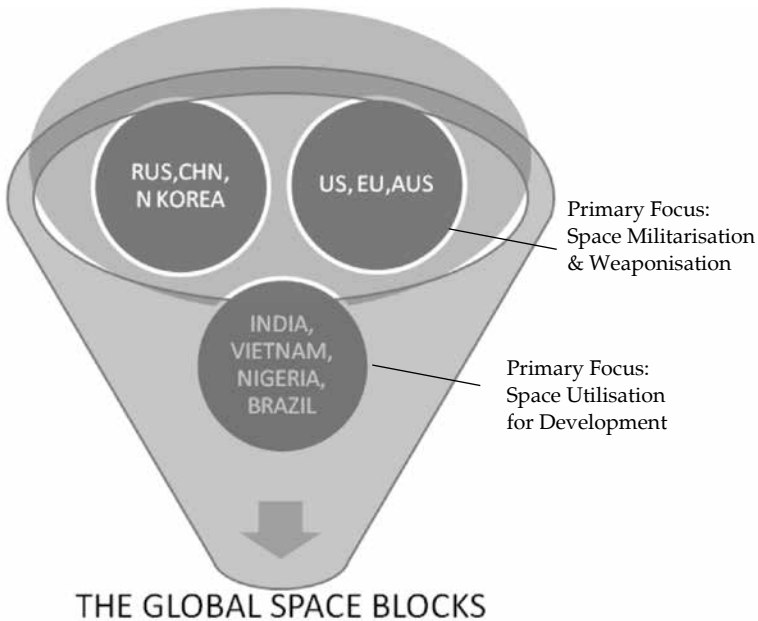
A THIRD FRONT IN SPACE

Across the world, an informal coalescing of space partners is evidenced. The categorisations are not neat and overlaps are common. These also keep varying as per national interests and issues. There also are no severe conflict issues and the national overlaps are extremely fluid and subject to change. The coalitions are basically based on the need to cooperate for greater efficiency, to offset cost and effort, to promote like interests, etc.

The vague picture is that of one block comprising states like the US, the European Union, Australia, and, to a certain extent, Japan as also South Korea. The opposite block comprises Russia, China, North Korea. The prevailing race for space militarisation and weaponisation, as also the diplomatic competition for binding and non-binding

treaties is witnessed amongst these nations. For instance, the US withdrew from the Anti-Ballistic Missile (ABM) Treaty in 2002 and Russia responded by withdrawing from the Strategic Arms Reduction Treaty (START). China conducted an Anti-Satellite (ASAT) test in 2007 and the US responded with its own in 2008. On the diplomatic front, the US and EU (European Union) proposed non-binding space codes-of-conduct and the Russia-China coalition forwarded a legally binding Prevention of the Placement of Weapons in Space Treaty (PPWT). The other nations are largely non-committal.

Fig 1: The Global Drivers of Space Militarisation, Weaponisation and Utilisation



While the above competition continues and enormous efforts are put in, developing nations attempt to obtain space capabilities to fulfill their national needs. In most cases, the needs sought to be fulfilled are in terms of SATCOM, space-based observation and, to a certain extent, navigation. India, with its formidable civil space capabilities and past four decades' experience in civil development is rightly

poised to provide a refreshing turn to the entire competition. Instead of joining the rat race on space militarisation and weaponisation, India could consider the possibility of expanding space-based developmental capabilities across the developing world. More good would be served across the world and an increased number of partners would automatically provide a large coalition of collective interest and, consequently, collective security. Vast parts of Asia and Africa could be served with our existing capabilities and reaching out to these nations in the larger interest of humanity would serve much more and better rather than putting arms in space. At a later stage, this coalition of states, using space for peaceful development, could actually be instrumental in forestalling the arms race in outer space. It would also be a step ahead in fulfilling the national vision of space playing a meaningful role in the comity of nations.

THE DEMANDS ON LEADERSHIP AND EMERGING FUTURE LEADERS

R. GHOSE

Over the past two decades, many aspects of military operations have changed profoundly,¹ with the potential for equally profound effects on things that leaders must know and do. Tangible threats have been replaced with ill-defined challenges. One of the clearest and most compelling reasons for this change has been the emergence of a new strategic environment where aggressors pose huge caution with overt challenges. Simultaneously, the focus has also changed towards military operations other than war. There are many reasons for this and the primary one is that generally the cost of counter-insurgency operations to destroy terrorist cells has tended to go beyond the budget due to the humanitarian aid involved.² As a result, considerations that were once in the periphery have now started taking centre-stage. Thus, changes have created volatile and unpredictable conditions with the demands on leaders becoming

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1. Henry A. Leonard, J. Michael Polich, Jeffrey D. Peterson, Ronald E. Sortor, S. Craig Moore, *Something Old, Something New: Army Leader Development in a Dynamic Environment* (Santa Monica: RAND, 2006), p.xii.
2. Damon V. Coletta, *Trusted Guardian: Information Sharing and the Future of the Atlantic Alliance* (Aldershot, Hampshire: Ashgate Publishing Limited, 2008), p.9.

novel in many respects and the conduct of operations more complex and varied than in the past.

The new environment calls for leaders to have different skills, greater knowledge in certain areas, and a different intellectual orientation towards command and decision-making. In the 18th century, armed forces personnel were borrowed, most often for administrative and logistical operations, and post World War II witnessed the trend wherein civilian consultants and ad hoc study groups instructed the armed forces, again in administrative and logistical activities.³ This gives reason to believe that military structures reflect industrial models of specialisation and military training serves to rapidly prepare individual attitudes, behaviours and skills which are necessary for building a modern society.⁴ Ultimately, it is an amalgamation of military training and civilian expertise that forms the pillars of foundational leadership.

FOUNDATIONS OF LEADERSHIP

Many of the attributes that the armed forces seek in officers are timeless values and these will remain at the core of the leadership. Strategic leadership like that in the armed forces reinforces and sustains a culture that promotes the evolution of professional expertise which is emphasised by the timeless values laying the foundation of stability for Service members.⁵ The enduring attributes in the timeless values would include character and integrity among other values as well as many basic technical and operational skills. Three critical aspects would have to be considered:⁶

- What the leader must *Be*;
- What the leader must *Know* (from the very general to the very specific areas of knowledge and skill, over a range of disciplines), and;
- What the leader must *Do* (the kinds of actions leaders must

3. Charles R. Srhader, *History of Operations Research in the United States Army, Vol II: 1961 - 1973* (Washington D.C.: US Government Printing Office, 2008), p.8.

4. Peter B. Mayer, "Militarism and Development in Underdeveloped Countries" in Lester R. Kurtz, ed., *Encyclopedia of Violence, Peace and Conflict* (New York: Academic Press, 1999), pp. 438-439.

5. See Don M. Snider, Lloyd J. Mathews, Gayle L. Watkins, *The Future of the Army Profession* (New York: McGraw Hill, 2002), p.495.

6. See Leonard, et. al., n. 1.

take to make their organisations accomplish their tasks and functions).

In the category of *Be* are self-discipline, initiative, judgment, self-confidence, intelligence and cultural awareness. This is because the leader faces a counter-force to the role she/he is expected to undertake, and if the role displays an attitude of superiority and condescension, then there is a tendency not to be accepted.⁷ Some attributes may well have to be developed, like cultural awareness, for this purpose. The level of development does not indicate additional findings made in various studies which suggest that a leader's attributes in the initial state of development are similar in underdeveloped, developing as well as developed countries.⁸ Intellectual acuity is always a desirable trait and will be required in different decision-making processes to deal with new challenges. Why do we refer to intellect and acuity? Because, what is true of intellect and acuity, is also true of memory and judgment.⁹ Thus, it is important to develop leaders with well-grounded intellectual and critical thinking abilities, practised intensively across a range of situations. The judgment factor has to be developed and be strong so that she/he can be in the role of the leader.

The other two elements in the leadership construct cover what the leader must *Know* and *Do* which are closely interlinked. Under the must *Know* category, successful leadership will require conceptual, inter-personal, technical and tactical skills. The leader has to believe that the leader understands their needs and has their interests at heart. Leadership is a dialogue and not a monologue.¹⁰ To enlist any support, whether of people or ideas, the leader must know the people's hopes, and vision. In the must *Do* requirements, will come the understanding of one's capabilities and limitations relative to the situation. Therefore, before acting or taking a decision, in certain sets

7. John H. Zenger, Joseph R. Folkman, *Extraordinary Leader* (New Delhi: Tata Mcgraw-Hill, 2009), p.217.

8. Mostafa Rejai and Kay Phillips, *World Military Leaders: A Comparative Analysis* (Westport: Praeger Publishers, 1996), p.13.

9. Jerry A. Fodor, *The Modularity of Mind: An Essay on Faculty Psychology* (Massachusetts: MIT Press, 1983), p.16.

10. James M. Kouzes and Barry Z. Posner. *The Leadership Challenge* (San Francisco, CA: John Wiley and Sons, Inc, 2007), p.17.

of conditions, the leader must develop the ability to adapt as well as the ability to learn new things in the changing circumstances. Now, what new things does the leader learn and is it possible to learn every new thing that is evolving in the world? Not really; the leader adapts to learn a few things. It may sound ironic, but to become a leader, one must be able to do many things well, and in order to remain a leader at the top, one must do fewer things with great excellence.¹¹

DEMANDS ON FUTURE LEADER DEVELOPMENT

Professionalism

The following essential characteristics are important for a leader :

- To be a fighter.
- To be a member of the organisation.
- To be a leader of character.

In keeping with the above and briefly abstracting from the above three key attributes necessary to be a leader, the under-mentioned also helps to explain why this construct should receive increased attention:

- A leader needs to be fighter, because society at large, recognises and values the professional's special expertise. Thus, just as people turn to physicians to solve medical problems and to lawyers to handle litigation and criminal matters, likewise the leader has to enjoy special status and authority in dealing with defence and security matters. In fact, it was the bureaucratic experts who recognised the logic and created the machinery to be led by a selected few who could show off the paces of professional expertise for getting things done at breakneck speed on a large scale¹². This connects closely with foundational matters which further confers trust and legitimacy to the leader to perform as one. It is important to note here that while the armed force's model of leadership is incorporated in professionalism (which is also expressed in the values of duty, loyalty and selfless

11. John C. Maxwell, *The 360 Degree Leader Workbook: Developing Your Influence Anywhere in the Organisation* (Nashville, Tennessee: Nelson Impact, 2006), p.54.

12. Harold James Perkin, *The Rise of Professional Society: England Since 1880* (New York: Routledge, 2002), p.190.

service), it is important to understand that for the military to be an effective instrument of national power, the understanding of duty and loyalty is consistent with the requirements of its legitimacy.¹³ The supportive traits of negotiation and diplomacy encourage relations and grant legitimacy,¹⁴ and the leader has to be consciously aware of this factor.

- A leader, as a member of an organisation exercises decisive control over activities that constitute its focus; just like the police over public places, doctors in hospitals—and each of these areas is of importance as they all matter to the country. Jurisdiction is tied to professionalism and legitimacy. With professional jurisdiction emanates responsibility because professional jurisdiction will be able to provide resource and procedural support for the exercise of responsibility,¹⁵ and successful execution of responsibility gives legitimacy.
- A leader of character is necessary as the profession enjoys considerable autonomy in key functions which give immense powers to influence and create impact, and virtually codify a body of professional knowledge, inculcating it in new members and the people under command, embedding ethical qualities, and assessing the quality of professional practice. In matters as critical as a decision on whether another human being is to live or die, a military leader has to exercise immense strength of character. The autonomy grows out of the profession's specialised expertise and strength of character, which are often impenetrable to the layman, and, therefore, the society's trust in the profession to "do the right thing" even when the public is not certain what the right thing is. In this context, we can quote the example of Adm Yamamoto Isoroku, chief of Japan's combined fleet, who planned the attack on Pearl Harbour. His career was filled with contradictions but the strength of his

13. Rudolph C. Barnes Jr, *Military Legitimacy: Might and Right in the New Millennium* (London: Frank Cass, 1996), p.115.

14. When related to military operations other than war, this aspect becomes clearly understandable and relevant.

15. Robert E. Sanders, "A Neo-Rhetorical Perspective: The Enhancement of Role Identities as Interactive and Strategic" in Stuart J Sigman, ed., *The Consequentiality of Communication* (New Jersey: Lawrence Erlbaum Associates, Inc., Publishers, 1995), p.90.

character gave him the jurisdiction to plan the impossible and most imaginative. He was able to force the entire Japanese naval establishment to back down and his planned attack knocked out almost all the battleships of the US in the Pacific fleet.¹⁶

LEADERSHIP SKILLS FOR THE CHANGING ENVIRONMENT

A number of attempts have been made at formulating leadership concepts that are adaptive. Most of these recognise a need for leaders to adapt in response to the new environment (as connected to alternate leadership¹⁷ which generally deals with situational response¹⁸), but they also place the need in the context of general attributes and skills. Derivations of traits and aspects of leadership development that need emphasis and require to be developed have been listed:¹⁹

- Mastering leadership with visualisation and specialty skills. The leader amalgamates skill-oriented visualisation to carry out the responsibility.
- A leader develops the expertise to strategise and conceptualise.
- Development of both strategic and operational training that provides the perspective to understand the limitations and boundaries of work functions.

In the above set of competencies and supporting skills conceived to operate in the modern environment, the challenges can be wide-ranging and will call for abilities to deal with:

- Non-linear planning, with requirements on the leaders to bind the workforce cohesively.
- Fluid adaptation with participating forces. The human relations model is instructive in this case where individual motivation

16. William Weir, *50 Military Leaders who Changed the World* (New Jersey: Career Press, 2007), p.207.

17. George B. Graen, *New Frontiers of Leadership* (Charlotte, North Carolina: Information Age Publishing, Inc, 2004), p.22.

18. *Ibid.* The example of project leaders as compared to formal supervisors has been cited. This is akin to military leadership where a mission can be led by one leader and another by a different leader. The long term mentoring relationship is not warranted as could be generally applicable to infantry units of the army. Rather, leadership is skill-based and can be applicable in both field and staff roles.

19. These have been mentioned related to the air force and separate instances can be derived for the other Services, as well.

with leadership can enable higher-order needs.²⁰

- Diverse cultural demographic and physical environment.
- Multiple simultaneous decision-making.
- Asymmetrical contingencies.
- Accelerated informational and operational tempo.
- Combined and interagency functioning in a widely dispersed environment.
- Emerging technical systems redundancy and situations that promise loss of information control during the process of exercising command and control, and decision-making.

INTELLECTUAL AND COGNITIVE ABILITIES IN DECISION-MAKING OF LEADERS

The contemporary environment places a heightened premium on making decisions quickly in unfamiliar situations amid a greater deal of ambiguity and uncertainty than what may have been seen in the past. It is not that such conditions did not exist before in the past, but at that time, 'recognition' decision-making was less prevalent. Dependency was on natural decision-making.²¹

The recent years have also seen renewed recognition that the modern environment calls not just for specific skills, but also for better developed intellectual abilities. This has also led to the requirement of operational research where the long-term consequences of actions can be attempted to be quantified.²² Leaders will need to know how to think about novel situations and demands, and how to devise a course of action fitted to those demands. They will also need to learn, and become confident that they can acquire new skills and knowledge quickly when they confront new challenges. These skills and attributes underscore the key ability in operational command, to make good enough decisions, and soon enough, to count.

20. Robert L.Flood, Ewart R. Carson, *Dealing with Complexity: An Introduction to the Theory and Application of Systems Science* (New York: Plenum Press, 1993), pp.79-80.

21. Rebecca M. Pliske, Michael J. McCloskey, Gary Klein, "Decision Skills Training: Facilitating Learning From Experience", in Eduardo Salas and Gary Klein, eds., *Linking Expertise and Naturalistic Decision-Making* (New Jersey: Lawrence Erlbaum Associates Inc., Publishers, 2001), pp.39-41.

22. N. K. Jaiswal, *Military Operations Research: Quantitative Decision-Making* (Massachusetts: Kluwer Academic Publishers, 1997), p.1.

This set of skills and attributes includes the main attributes that support 'recognitional' decision-making.²³ Suffice to mention here that such decision-making is related to the command and control situational aspects which form virtually the central nervous system of a work unit:

- Pattern recognition. It will involve drawing current and future events to past experiences and determining the fit.²⁴ The pattern recognition activity triggers a set of action scripts that enable a leader to consider a potential action plan by mentally simulating whether that plan will be effective. If so, he acts, If not, he considers a different option.
- Ability to gain situational understanding.²⁵ This is the ability to develop an understanding of the situation and produce effective solutions.
- Mental simulation. This faculty is closely related to the aspect of pattern recognition, as explained above. There is a certain view based on certain naturalistic models which supports the natural power of decision-making as opposed to training a leader to make decisions through mental simulation. Training and experience go hand-in-hand and, as such, when experience is counted, it may, at times, lead to sub-optimal or negative outputs.²⁶ In considering the negative impacts of experience, it could very well be counted alongwith the fact of what type of experience? Good, beneficial or just bad enough to be discounted.
- Critical thinking. Good critical thinkers do not always recognise just their own point of view, but consider, even empathise with, others' views. Empathy is not a characteristic of soft leaders, rather it is a characteristic of a smart, thoughtful and reflective leader.²⁷
- Adaptability. Team diversity will fluctuate and keep changing, making adjustments to strategies appropriately based on

23. See *Defence Analysis*, Vols 1 and 2 (London: Brassey's Defence Publishers, 1985), p.132.

24. Michael A. Roberto, *Know What You Don't Know: How Great Leaders Prevent Problems Before They Happen* (New Jersey: Pearson Education Inc., 2009), p.76.

25. Leonard, et. al., n.1., p.xviii.

26. Bruce Newsome, *Made, not Born: Why Some Soldiers are Better Than Others* (Westport: Praeger Security International, 2007), p.84.

27. Stephen Gerras, "Thinking Critically about Critical Thinking", in Mark Grandstaff and Georgia Sorenson, eds., *Strategic Leadership: The General's Art* (Vienna: Management Concepts, 2009), p.50.

the environment, a necessity.²⁸ For example, sometimes in a single mission, the role of air power will be dominant and, on occasions, land power would be more necessary. There may be a plan but enemy actions may cause it to fluctuate, as everything within a phase of the operation may not be just clock work. Traditionally, air power goes in first but, at times, it may have to hold on and let the ground component commander dictate. This does not mean that the land force commander continues to dictate; when the air component comes in, the air commander takes precedence in command.

All of the above skills are inherently cognitive processes (modes of thinking) and should be inherently present, to be developed further. In fact, intellectual capability actually refers to cognitive skills.²⁹

PROFFERED RESPONSE OF FUTURE LEADERS

Two key competencies that can be identified are self-awareness and adaptability that stand above others as enduring intellectual attributes of the leader. These can be referred to as “meta-competencies;” overarching traits that make it possible to use the more specific skills needed in the contemporary and future operating environments. The response towards these two key competencies becomes important as we understand that all of us may not become great leaders but we can become better leaders and this can be done when we release the potential within us, the potential that we all have.³⁰

Self-awareness is the understanding of one’s own capabilities, knowledge, skills, and limitations, and ‘knowing enough to know when you don’t know enough’, and must seek to learn more. Self-awareness is necessary, so that leaders can recognise when things have changed and when new information, skills, or resources are needed. Consistent with this thinking, it can be suggested that in the

28. Janet L. Sutton, C. Shawn Burke, Linda G. Pierce and Eduardo Salas, “Cultural Adaptability” in C. Shawn Burke, Linda G. Pierce and Eduardo Salas, eds., *Understanding Adaptability: A Prerequisite for Effective Performance Within Complex Environments* (Oxford: Elsevier Ltd, 2006), p.143.

29. Carol McCann and Ross Pigeau, “Research Challenges for the Human Command”, in Carol McCann and Ross Pigeau, eds., *The Human in Command: Exploring the Modern Experience* (New York: Plenum Publishers, 2000), p.393.

30. Maxwell, n.11. p.16.

context of commanding operational forces, self-awareness would extend to a comprehension of the capabilities and condition of the forces. This would be an extension of the experience where a cadet undergoes sleep deprivation and extreme hardship to get awareness of the incidental demands as well the typical ability in the transition from a cadet to a soldier and then a leader.³¹

Adaptability, along with related terms such as flexibility, refers to one's capacity to recognise changes in circumstances, learn what is needed to be effective in the new circumstances, and modify behaviour accordingly. It is not necessary that a military leader always has to set forth on a military solution. Adaptability is characterised as the ability to understand context, to recognise and seize opportunities and the ability to look at a problem or crisis and see an array of unconventional solutions. The operational dimension of a strategy need not necessarily be a military inclined one.³²

Given the proffered response that can be expected from future leaders, the single most important attribute of military leadership that any leader has to possess is integrity.³³ This will include professional integrity which will facilitate all learning and education that will assist in meeting the future demands of tomorrow's leadership. In fact, it has also been stated that we place great importance upon, and invest in great measure in, training and pay very little importance to education.³⁴ It will be education that will bring in self-awareness and adaptability in a person, and training will serve to hone the skills acquired during and after the learning process.

COMPETENCY DEVELOPMENT PROCESS

In order to forecast future leadership requirements, it is important to also gain a clear understanding within a conceptual framework. "The strengthening of leadership development for the future would depend on the degree of institutionalised professional military

31. Robert K. Gifford, "Psychological Aspects of Combat", in Thomas W. Britt, Amy B. Adler, Carl Andrew Castro, eds., *Military Life: The Psychology of Serving in Peace and Combat* (Westport: Praeger Security International, 2006), p.25.

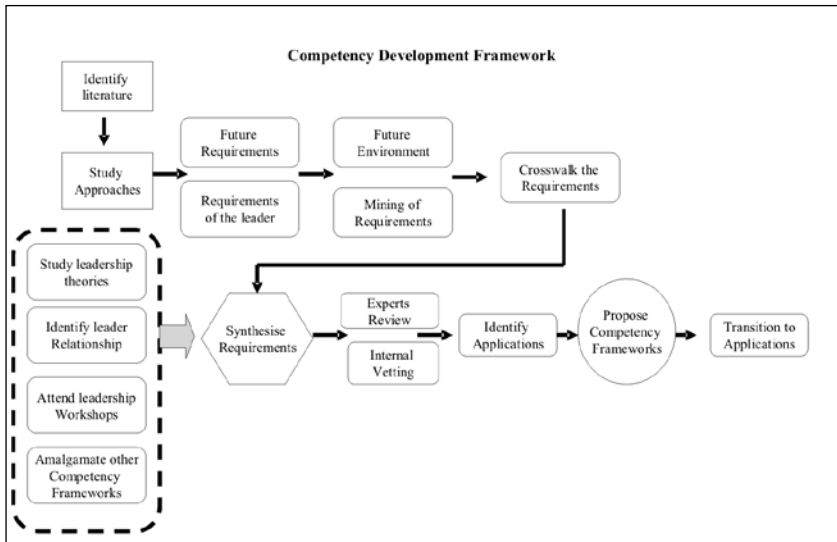
32. Robert J. Burrowes, *The Strategy of Nonviolent Defence: A Gandhian Approach* (New York: State University of New York Press, 1996), p.38.

33. Air Cmde Jasjit Singh AVSM, VrC, VM (Retd), "Demands on Future Aerospace Leaders", in Air Cmde Jasjit Singh, ed., *Military Leadership for Tomorrow* (New Delhi: Knowledge World, 2009), p.135.

34. *Ibid.*, p.136.

education that we invest in beyond what an individual pursues as his/her personal interest".³⁵ When leaders are made, they should be able to leave behind the asset of legacy,³⁶ and so the investment by both the individual and the institution.

Fig 1: Competency Development Framework



The competency development framework model (Fig 1)³⁷ demonstrates a certain process that can be undertaken with certain refinements and specific requirements of different organisations. The process is already in motion in every organisation but in the milieu of deadlines to be achieved by the hour, such initiatives tend to get crowded out. Identifying suitable literature and the relevance of a piece of biography would need emphasis. This requires attention to a very large extent at the organisational level. Understandably, to develop future leaders, the organisation also has to build and nurture a developmental framework, and not rest the process only on individual endeavour.

35. Ibid., p.136.

36. Max De Pree, *Leadership is an Art* (New York: Dell Publishing, 1989), p.13.

37. Adaptation of the leadership competency development process in Jeffery Horey, Jon J. Fallesen and others, *Competency-Based Future Leadership* (Virginia: US Army Research Institute for Social and Behavioral Sciences, 2004), p.5.

Study approaches would need to be undertaken based on both the future operational requirements as envisaged, depending on the perceived environment that will exist. A very important factor is to visualise what the requirements of future leaders would be, get these from them and also get a few extracted from various other studies and models that would have been created and implemented in other countries. Now, all the requirements cannot be catered for together. There will be interlinks and priority requirements based on country specific life skills that have to be worked upon before proceeding on a global basing platform, like military-to-military interaction, or politico-military interaction between countries. This could possibly be one factor why there is a subdued response in our country when it comes to military personnel interacting at the political level even in matters which could be strictly military. The situation may be changing but the process requires a relook, as it was an entirely different matter under colonial rule, the legacy of which may be unknowingly trudging along even today.

Once the requirements and prioritisation have been synthesised, that is, blended, they can be applied to groom future leaders. This would also require a vetting, that is, both experts' review and simultaneous feedback from the system, so that only the relevant applications are identified to be placed in the competency framework before finally proceeding to the actual application phase. This application phase has been termed as the "Transition to Applications" because the process would preferably be applied in phases or gradually to sections of graduating leaders.

The onus is on the young leaders to continue identifying studies related to leadership, and identify leader relationships. Leader relationships would imply not only handling of situations with management issues, but also identification of qualities which are similar between the graduating leader and the established one, and the use of such instituted qualities which can be made to work under the circumstances.

To improve upon the process, it will be important to attend leadership workshops and incorporate learning points from other competency frameworks in other countries which are brought into the discussion either in such learning sessions or through self-study endeavours.

SOME AIRLIFTS THAT INFLUENCED HISTORY

ASHOK K. CHORDIA

Long before the invention of the parachute and aeroplane, it is believed that Napoleon threatened England with an invasion by the French soldiers carried over the English Channel in hot air balloons.¹ The French emperor did not carry out his threat but the carriage of men, military equipment, arms and ammunition through the medium of the air shaped the outcome of many a war in the last century, and those fought in the first decade of the present century. Airlift has even steered the course of history on some occasions.

In the early years of aviation, airlift was not the focus of attention possibly because of the small size of the aircraft that restricted carriage of cargo or many passengers. Prior to World War II, airlift was seen as a kind of specialty service, capable of carrying small, precious cargoes – like diphtheria serum. During the initial years of World War II, airlift was tentative, with mixed results and was accepted with varied responses by the higher command authorities. It gave new meaning to mobility as the war progressed. Countries that had the means to airlift, used them to transport men and material expeditiously – within the country, and sometimes, behind enemy lines. The German airborne assault

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1. Chris Ellis, Mike Verier, *Elite Attack Forces: Airborne at War* (New Jersey: Chartwell Books Inc., 2007), p. 6.

on Crete (Operation Mercury, 1941) was spectacular for the wrong reasons. There were heavy losses – of nearly 13,000 troops that landed on the island, 5,140 were killed or wounded, 350 aircraft were shot down. The opposing forces perceived the success of airborne operations and the utility of airlifts for mobility differently, though experiments with the use of airborne forces, and airlifts continued. Shortage of transport aircraft, gliders, parachutes and trained personnel hampered speedy progress.

By the summer of 1944, airborne troops had been used in dozens of operations. The combined Anglo-American airborne forces mounted assaults in Sicily (July 1943), Normandy (June 1944), and across the Rhine (March 1945). Smaller landings were made in North Africa (1942) and in the Pacific (New Guinea, 1943). Some daring airborne operations of World War II and the airlifts in the China-Burma-India (CBI) Sector, and still later, during the Berlin blockade, proved that aircraft could carry bulk goods sufficient to serve armies in the field or large cities.² Briefly recounted here are some airlifts that steered the course of history.

SABOTAGE OF HEAVY WATER PLANT (NORWAY, FEBRUARY 1943): AN AIRLIFT TO THWART GERMAN NUCLEAR AMBITIONS

In the 1940s, Norsk Hydro's commercial plant at Vemork (Norway) was the only facility in the world capable of producing heavy water.³ After the surrender of Norway in May that year, the Germans started diverting the output of the factory to their nuclear facility in Germany. The Allies believed that Germany would use the heavy water to develop nuclear weapons. Britain feared that if and when Germany came up with a nuclear device, London would be the first target. Thus, stopping the Germans from making use of the heavy water assumed primary importance; putting a stop to the production was a still better idea. But the plant was located on a hilltop and was well defended. Nonetheless, Britain proceeded to destroy the heavy water plant to stymie the development of nuclear weapons by the Nazis.

2. Robert A Slayton, *Master of the Air: William Tunner and the Success of Military Airlift* (Alabama: University of Alabama Press, 2010), p. 2.

3. As a by-product of its fertiliser production.

The British Special Operations Executive (SOE) trained some members of the underground Norwegian resistance for the clandestine operation and paradropped them at night near the plant. Six more men joined the team on the ground; together, they carried out the operation with surgical precision. They destroyed the plant and returned unharmed. The paradrop of a small team of Norwegian commandos dealt a strategic blow to the Nazi intentions. The German response was quick. They repaired and revived the factory in six months and commenced production at a much higher rate. Now that the Germans had been alerted, it wasn't possible to repeat a commando raid. It took a daring daylight raid by 176 bombers to destroy the factory, along with the heavy water plant.⁴

The destruction of the heavy water plant at Vemork was a turning point, as the German success in developing nuclear weapons at that juncture would have given them at an unprecedented advantage.

OPERATION EICHE OR THE GRAN SASSO RAID (ITALY, 1943): RESCUE OF BENITO MUSSOLINI BY GERMAN PARATROOPERS

In July 1943, the Grand Council of Fascism voted a motion of no confidence against Mussolini; he was removed and put under house arrest in the Campo Imperatore Hotel, a ski resort at Campo Imperatore in Gran Sasso (Italy), in the Apennine Mountains. In September 1943, Hitler launched Operation Eiche to rescue Mussolini. In a daring airborne raid, fewer than 50 German glider-borne paratroopers (Fallschirmjäger) landed at the resort. Only one of the gliders crashed, causing minor injuries to the troops. They stormed the hotel and rescued the dictator without any bloodshed. Mussolini was flown out in a small Luftwaffe liaison aircraft. The spectacular success of the operation was a rare opportunity for propaganda for the Germans and they exploited it well. On arrival in Berlin, Mussolini was literally paraded in front of the cameras. Hitler made Mussolini the leader of the Italian Socialist Republic – the German-occupied part of Italy.

4. James D. Kiras. *Special Operations and Strategy: From World War II to the War on Terrorism* (London: Routledge, 2006), p. 1.

It is incidental that Mussolini and his followers could not consolidate this gain – Mussolini ruled only for a year and a half before he was killed on April 28, 1945. Two other rescues of heads of states wherein airlift played a significant role (discussed later in this article) had longer lasting effects on history.

OVER THE HUMP AIRLIFT (CHINA-BURMA-INDIA, APRIL 1942 – NOVEMBER 1945): AIRLIFT TO TETHER AN ENEMY

Miles away from the European Theatre and regarded as a “backwater” by many, the airlift of supplies in the China-Burma-India (CBI) Theatre, popularly known as the *Hump Airlift*, was one of the most vital operations of World War II.⁵ The fall of Rangoon to the Japanese, and the eventual blocking of the Burma Road in March 1942 had disrupted the supply lines, leaving airlift as the only option to maintain the forces in China. Failure to supply would risk substantial Chinese territory to the Japanese and, more importantly, a defeat in China would relieve a part of the more than one million strong Japanese force to cause havoc elsewhere in the Asia-Pacific region. The Allies, led by the US, undertook the challenging airlift; by November 1944, nearly 1,200 tonnes of supplies was being flown into China daily – a remarkable feat, considering the airlift resources and capabilities of that era. By the time the Japanese surrendered and the war ended, 777,000 tonnes of supplies had been flown into China.⁶

The *Hump Airlift* took place under extreme conditions of weather and terrain. Between June and December 1943, there were 155 accidents and 168 crew fatalities – these fatalities were non-inclusive of passengers. The debris of the crashed aircraft on the route earned it the unpopular epithet of “*the Aluminium Trail*.” According to Lt Gen William H. Tunner, “It was safer to take a bomber deep into Germany than to fly a transport plane over the Rockpile from one friendly nation to another.”⁷ The airlift stands out for the dogged determination of the aircrew who fought the odds and hauled tonnes

5. William T. Y. 'Blood, *Air Commandos Against Japan: Allied Special Operations in World War II Burma* (Annapolis MD: Naval Institute Press, 2008), p. vii.

6. “Airlift and Transport Operations” – published on webpage of the US “Centennial of Flight Day: December 17, 2003” available at http://www.centennialofflight.gov/essay/Air_Power/cargo/AP19.htm, p. 2, accessed on August 1, 2012.

7. Lt Gen William H. Tunner USAF, *Over the Hump* (Washington D.C.: Office of Air Force History, US AF, 1985), p. 63.

of supplies, equipment, vehicles, arms, ammunition and thousands of personnel from bases in India, across the Himalayas, to Kunming in the China. The airlift kept a good strength of the Japanese Army tethered in China, giving a breather to the Allied forces in the Asia-Pacific region.⁸

Every Japanese soldier tied down in China was one less Japanese soldier shooting at American soldiers, sailors and the Marines in the islands of the Pacific.

— Lt Gen William H. Tunner

The Orient Project (1945) immediately following the Japanese surrender was also a major airlift exercise in the China-Burma-India Sector. One of the aims of the project was to supply the remote areas of China to wean them off Communist influence. It was a peace-time airlift, devoid of operational pressures. The project was pursued half-heartedly, as domestic pressures from the American political leadership and public took away the element of urgency. The prohibitive cost of the airlift operations too may have been a reason for discontinuing them.

Tunner attributes the fall of China to the Communists to the failure of the US to establish a reliable airlift network in that country. According to him, "There is every reason to believe that had the country (China) been laced with a network of airlines, the Communists would not have won."⁹

JAMMU & KASHMIR (1947-48): AIRLIFT TO SAVE SRINAGAR

The defence of Kashmir became an Indian responsibility when on October 26, 1947, Maharaja Hari Singh signed the Instrument of Accession. At that moment, the Pathan raiders backed by the Pakistan Army were only 35 miles from Srinagar and could at any moment seize the city and the only airport in Kashmir on which Indian troops could land. A prompt airlift of troops by the IAF augmented by the civil airlines from Delhi to Srinagar enabled the Indian Army to overcome the asymmetry of time, space and numbers. The first

8. Ibid., p. 58.

9. Ibid., p. 150.

aircraft touched down within hours of the signing of the Instrument of Accession and just in time to save the Srinagar airstrip and the city from being overrun by the militiamen. But for the timely airlift, the history and the map of India might well have been quite different.¹⁰

Meagre airlift resources and their lack of capability in the hilly terrain prevented formation of a similar air-bridge to Gilgit and Skardu. Innovative efforts to airdrop rations (canisters of atta) and ammunition by the Tempests aircraft lacked accuracy. Some of the airdropped supplies landed outside Skardu fort, into the hands of the infiltrators.¹¹ The Pakistan Air Force (PAF), on the other hand, regularly supplied Gilgit by using its Dakota Squadron and six British Halifax bombers converted for supply dropping. The PAF airdropped 10,36,470 pounds of supplies to their troops at Gilgit and Skardu.¹²

THE BERLIN AIRLIFT (1948-49): AIRLIFT TO CONTAIN THE SPREAD OF COMMUNISM

After the end of World War II, the Soviet Union blocked railway, road and canal access to the sectors of Berlin under Allied control. The aim was to force the Western powers to allow the Soviet zone to start supplying Berlin with food and fuel, thereby increasing Soviet (read *Communist*) influence and control over the entire city. The only way left for the Western Allies to keep a population of nearly two million West Berliners supplied was through airlift. The Allies flew over 200,000 sorties in one year, airlifting up to 4,700 tonnes of daily necessities for the Berliners.

Inclement weather, non-availability of runways (and operating surfaces) and paucity of aircraft and Material Handling Equipment (MHA) were minor constraints, which could be overcome with ingenuity. But the obstacles that the Soviets often presented were difficult to circumvent. Soviet efforts to dissuade the Berlin airlift included¹³: flypast by fighters across the airlift corridors at short notice, firing at targets towed by their own

10. Air Mshl Bharat Kumar (Retd), *An Incredible War: IAF in Kashmir War 1947-48* (New Delhi: Knowledge World, 2007), p. xv.

11. *Ibid.*, pp. 88-89.

12. Air Cmde Jasjit Singh, *Defence from the Skies: Indian Air Force Through 75 Years* (New Delhi: Knowledge World, 2007), p. 55.

13. Turner n.7, pp. 185-186.

aircraft, MiG fighters flying past the airlift aircraft at close ranges (this led to at least one mid-air collision), placement of powerful searchlights at Gatow airfield to distract pilots, and passing of threats through German civilians that time-bombs would be smuggled into the sacks of coal. The most damaging was the *poison-pen campaign* – these were letters spreading rumours about the infidelity of wives or sweethearts of the Allied pilots. The airlift continued regardless.

The success of the Berlin airlift checked the spread of Communism further west in Europe. *Operation Vittles*, as the Berlin airlift was popularly known, delivered over 23,00,000 tonnes of cargo that saved the city from starvation and surrender.

RESCUE OF KING TRIBHUVAN BIR BIKRAM SHAH (NEPAL, 1950): AIRLIFT TO RESCUE A MONARCHY

In November 1950, there was a military revolt and coup by the Ranas in Nepal to overthrow King Tribhuvan Bir Bikram Shah. A secret mission was launched to airlift the king to a haven, in Delhi. Considering the sensitivity, the planning of the airlift took place behind closed doors. The shroud so integral to such missions was, however, pulled aside by All India Radio. It broke the news of the uprising against the monarchy with fear of an attempt on the king's life and went on to say that officers of the IAF were going to Kathmandu to fly out the royal family the next day.¹⁴ Gp Capt P.C. Lal (later chief of the Air Staff, IAF) flew to Kathmandu in a Dakota aircraft to airlift the king, along with members of the royal family. The broadcast did not affect the rescue operation because supporters of the royal family facilitated a safe passage for the entourage to the airport, followed by an unhindered take-off. King Tribhuvan returned to Nepal as a monarch in February 1951 and ruled until his natural death in 1955.

This rescue operation paved the way for the strategic Indo-Nepalese Treaty of Friendship and strong people-to-people bonds between the two countries, which have stood the test of time.

14. Air Chief Mshl P.C. Lal, edited by Ela Lal, *My Years with the IAF* (New Delhi: Lancer International, 1986), pp. 74-75

TANGAIL (DECEMBER 1971): A PARADROP THAT CONTRIBUTED TO THE BIRTH OF A NATION

Aerial delivery of troops (a paradrop or an air landing), besides fulfilling the operational need of mobility, goes a long way in overwhelming an adversary. Numbers also matter; they inspire awe and demoralise the enemy at the same time. A large force, or an illusion thereof, creates the impression of asymmetry and intimidates an adversary. The actual number paraded as a part of the airborne assault (Tangail, 1971) was 748 troops¹⁵ but the very reputed BBC broadcast that India had paraded 5,000 troops.¹⁶ Many believe that the *misinformation* about the (large) number of troops paraded followed by the rocket attack by the IAF's MiGs on the Governor's House in Dacca, demoralised the Pakistan Army. The Indian paratroopers chased the retreating Pakistani columns and occupied Tangail. The airborne assault cut off the northern approach to Dhaka and delayed the concentration of Pakistani forces. The aerial delivery of the battalion group speeded up the surrender of the Pakistan Army and the liberation of Bangladesh.¹⁷

An airborne operation, in this case, contributed to the birth of a nation.

OPERATION CACTUS¹⁸ (NOVEMBER 1988): AN AIRLIFT TO THWART A COUP

An attempt to overthrow President Maumoon Abdul Gayoom of the Maldives led by some Maldivians and their Sri Lankan counterparts in November 1988, nearly succeeded when Abdulla Luthuffee, a Maldivian businessman, managed to land an 80-member People's Liberation Organisation of Tamil Eelam (PLOTE) team on the beaches. President Gayoom requested the then Indian Prime Minister, Rajiv Gandhi for military assistance. In a lightning response, the IAF airlifted paratroopers to the island nation to counter the rebels.

15. K.C. Praval, *India's Paratroopers: A History of the Parachute Regiment of India* (Delhi: Vanity Books, 1993), p. 3.

16. Maj Gen P K Chakravorty (Retd), "The Indo-Pak Bangladesh Liberation War, 1971", *India Strategic*, December 2011, at http://www.indiastrategic.in/topstories1291_Indo-Pak_Bangladesh_liberation_war_1971.htm, accessed on October 25, 2013.

17. "1971 War: A Show of Para Prowess"; *Sainik Samachar*, at <http://mod.nic.in/samachar/jan01-03/html/ch5.htm>, accessed March 18, 2011

18. Author's first hand experience during Operation Cactus.

The task force was handicapped in some ways: there were no maps for guidance; only photocopies of pages of tourist magazines. None, but the Indian high commissioner (also on board the aircraft) knew anything about the islands. There was absolute uncertainty about the security of the runway at Hulule. To maintain secrecy and an element of surprise, the aircraft landed with bare minimum landing aids and communication with the Air Traffic Control (ATC). On landing, the troops commandeered speedboats available at Hulule to approach Malé. The rebels were forced to beat a hasty retreat when they saw the aircraft landing followed by troop movement. They took some hostages on a hijacked Maldivian vessel and sailed amid firing by Indian troops and headed for the high seas. After a determined chase, the INS *Godavari* caught up with the fleeing vessel. A tough stance by the Indian Navy (IN) and the Maldivians authorities present on board the INS *Godavari*, and a direct hit on to the hijacked vessel, forced the rebels to give up. The rebels had overestimated the strength of the Indian troops at 1,600 as against the actual number (below 600). The outcome would have been different had they either gained control of the airfield or had fired at the landing aircraft. Jointness and synergy among the Indian armed forces enabled them to rescue the president and restore a legitimate government.

Gayoom's rescue influenced the history of the Maldives in a big way – he remained at the helm for two long decades until he was replaced through a democratic process in November 2008.

THE PATH AHEAD

The airlifts recounted here are some of the many that steered history. One thing that stands out is that it is the ingenuity and dogged determination of the magnificent men involved that led to success in each case. The airlift platforms of today are capable of much more than those of the past. It is difficult to evaluate their impact on future airlifts because sometimes the pace at which a particular technology matures is so fast that it gets outdated even before it is dovetailed with tactics and strategy. Quite often, the rate of change scores over the quantum of change. Therefore, a good policy would be to use the technology of the day to maximum advantage by reforging tactics on

the basis of realities, as has been done in the past. Tactics supported by the technology of the day can more than make up for asymmetry of any nature.

At any given time, whatever works is the best.

LITMUS TEST OF NEWS MEDIA'S ROLE: CASE STUDY EDWARD SNOWDEN

KRITI SINGH

In continuation of the case study on Edward Snowden, the first part of the paper is an attempt to analyse the role of the media and whether or not the media was able to do justice to its roles in Snowden's case. Generally, the role of the media cannot be confined to set boundaries. Due to its unfathomable reach and impact, the roles of the media in society keep on metamorphosing with the changing times, needs, situations and events. In a layman words, the media has been identified with the roles of informer, observer, educator, persuader, and catalyst for social change, development, etc. In view of the limited scope¹ of the paper, three of the media's prominent roles have been discussed in depth. These are: the media as a watch-dog, agenda setter and gatekeeper. The latter part of the article will discuss the Johannesburg Principles on National Security, Freedom of Expression and Access to Information and will analyse this case study from the aforesaid perspective.

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1. The scope of the study is confined to the media reports of the month June and July 2013 predominantly.

MEDIA'S ROLE AND REPORTING IN SNOWDEN CASE

Discussion on the role of the media in society has too often been characterised by the assumption that the present-day media arrangements are unavoidable, due to limited awareness of the range of possibilities for the media's structure, content, and influence, and by the questionable and erroneous ideas about the "lessons" of media history. In recent decades, the burgeoning scholarly literature has provided the basis for a sound historical perspective on media and society.² However, in simple words, we can say that the role of the media in society has been contentious since the beginning of the mass-circulation press and the film industry in the 1890s.³ This part of the paper will try to examine a few accepted roles identified with the media and then it will verify whether the current case lived up to those defined functions. Also, given the limited scope of the paper, only three major roles have been discussed in detail here:

- **Media as Watchdog:** The media role defined in this paper is in the backdrop of a democratic set up. Traditionally, in this set up one of the prominent role assigned to media is that of the "Watchdog." This role is considered as one of the four pillars or fourth estate for any democratic society to flourish. In this function media is considered to be an alert watchdog that will raise an alarm if some danger is progressing towards the society. The key assumption of the media as a watchdog is that it speaks for the people, represents the interests of the people, and serves as checks on the government.⁴

Emphasising on the above role of the media, Professor Jane E. Kirtley of Media Ethics and Law, University of Minnesota, says, "To journalists, it is self-evident that investigative reporting informs the public, exposes corruption, and rights wrongs."⁵ One of the

2. Lyn Gorman, David McLean, *Media and Society Into the 21st Century: A Historical Introduction* (UK: John Wiley & Sons, 2009), p.1.

3. Ibid., p 3.

4. Abdul, "The Role of Media in National Development," at <http://indianstrategicknowledgeonline.com/web/43abdul.pdf>.

5. Virginia Whitehouse, "Understanding Media Watchdogs", *Global Issues, Media and Ethics*, vol. 6, No. 1, April 2001, Link : <http://www.4uth.gov.ua/usa/english/media/ijge0401/gj05.htm>

prerequisites for greater understanding of watchdog journalism is to demystify the press, help the public to understand what the press is supposed to do and why the sweeping writ of “freedom of the press” is in the First Amendment.⁶

The media reporting in the case of Snowden seconds the views presented above. Journalist Glenn Greenwald and the newspaper *The Guardian* have done justice to the assigned role of the media as a watchdog by exposing the wrongdoings of the National Security Agency (NSA) and the US government. Reinforcing the views of Bill Kovach that “watchdog journalism at its best, helps alert a community to changing circumstances affecting their lives,” the media’s role in Snowden’s case alerted not only US citizens but also citizens across the globe about how, in the disguise of national security, the rights of fellow citizens and people across the globe are being violated. The media reporting also highlighted the drift in the way US has used the weapon of the “War Against Terrorism” not only against the spots from where terrorism is originating but also against its own people, allies and, in short, against the whole globe.

- **Media as Agenda Setter:** Back in 1922, American newspaper commentator and author Walter Lippman, first expressed the idea that the mass media shapes public perception with images. His notion was based on the public’s limited first-hand knowledge of the real world, and it created the foundation for what has come to be known as agenda setting.⁷ However, as a theory, the Agenda Setting Theory was first introduced in 1972 in the *Public Opinion Quarterly* by Dr. Maxwell McCombs and Donald Shaw. This theory was developed as a study on the 1968 US presidential election in which Democratic incumbent Lyndon B. Johnson was ousted by US Republican challenger Richard Nixon. Known as the “Chapel Hill Study,” their theory, also known as the Agenda Setting Function of the Mass Media, suggested that the media sets the public agenda by telling people what to think about, although not exactly what

6. Murrey Marder, “1998: This is Watchdog Journalism,” *Nieman Reports* 1998, at <http://nieman.harvard.edu/reports/article/100536/1998-This-Is-Watchdog-Journalism.aspx>

7. Literature Review. Agenda-Setting Theory, http://www.ou.edu/deptcomm/dodjcc/groups/02B2/Literature_Review.html.url

to think.⁸ According to Maxwell McCombs, “ In choosing and displaying news, editors, newsroom staff, and broadcasters play an important part in shaping political reality. Readers learn not only about a given issue but also how much importance to attach to that issue from the amount of information in a news story and its position.”

A lot of emphasis is given to the role of media, which according to the agenda-setting theory is quite substantial and powerful, the reason being that it is a key instrument in seeking and shaping public attention. Underlying the importance of this role, Bernard Cohen said, “It may not be successful much of the time in telling people what to think, but it is stunningly successful in telling its readers what to think about.”⁹

In the Snowden case, to some extent, the media was able to tell ‘its readers what to think about.’ It brought to the table a relevant issue which not only governs our today but also our tomorrow. It highlights how gradually in the name of saving our so-called civil societies, we are violating the other prevailing societies, not only depriving our own citizens of their rights, but also invading the basic rights of citizens of other countries. But one noteworthy thing in this entire incident is the clash of agendas of the media itself. On the one hand, one section of the media, like *The Guardian*, was putting forth the revelations by Snowden of serious agendas like the project PRISM mass surveillance, the Obama Administration’s double standards not only with its own citizens but also with allies, the invasion of privacy, violation of human rights, and so on. On the other, there was another section of the news media which was running counter-agendas like the debate on Snowden’s status being a whistleblower or a traitor, the most minute details of his life, the second by second reporting of his asylum application status, his location, details about his laptop and its content, scenario building of what could have happened to him or what could happen to him in Russia, how the Russian secret agencies would get information out of him, and so on. At this point, it is worth

8. Amber M. Freeland, *An Overview of Agenda Setting Theory in Mass Communications* (University of North Texas, 2012), p. 2..

9. Stanley Baran and Dennis Davis, *Mass Communication Theory: Foundation, Ferment, and Future* (Boston: Cengage Learning, 2011), p. 294.

mentioning that one can see how the media agendas shifted, from an understanding of the problem from a macroscopic level, it later on stooped to the micro level. Also, it points out how a section of the media lost its grip on this sensitive and vital issue. In short, the power of the news media to set a nation's agenda, to focus public attention on a few key public issues, is an immense and well-documented influence.¹⁰

- **Media as Gatekeeper:** This significant theory originated shortly after World War II. It is considered as one of the original theories emitting from the field of mass communication. Gatekeeping is fundamentally a descriptive theory, with a normative bent that offers little, if any predictive power. Its chief value lies in summarising the various forces that come into play, as the news people make the decisions about what messages will be selected for presentation to their audience. It provides a framework that researchers can use, and does little else.¹¹ Gatekeeping is the process of culling and crafting countless bits of information into the limited number of messages that reach people each day, and it is the centre of the media's role in modern public life. People rely on mediators to transform information about billions of events into a manageable subset of media messages. On the face of it, narrowing so many potential messages to so few seems an impossible task, but there is a lengthy and long established process that makes it happen, day in and day out. The process determines not only which information is selected, but also what the content and nature of such messages, will be.¹²

In the Snowden case, the extent of gatekeeping done by the media cannot be determined. But given the gravity of the situation and the intensity of these revelations, the new media initiated the expose in a controlled manner. The story kept unfolding bit by bit, and the intensity of this mass surveillance programme was gradually disclosed to the readers. There have been tremendous

10. Ibid.

11. Chris Roberts, "Gatekeeping Theory: An Evolution", presented August 2005. <http://41.89.160.5/chisimba/usrfiles/context/ins218/canvases/gatekeeping.pdf>.

12. Pamela J. Shoemaker and Timothy Vos, *Gatekeeping Theory* (New York: Routledge, 2009), p.1.

efforts by various government agencies, especially in the US, to gag the media from further revealing the truth. However, the news reports of this given timeframe clearly show that the news media kept on churning out the news reports despite the steadily mounting pressure. Another thing that deserves a mention here was the op-ed columns of various newspapers, which became, more or less, the battlefield, writing for and against Edward Snowden. In this regard, this paper will consider two different articles by two different writers of two different newspapers, which will show how different news media manage the content by different ways and means, which are as follows.

Peter Beaumont's Views on Snowden (Against)

Peter Beaumont is the foreign affairs editor of the *Observer*. In an article written by him which was in response to Snowden's press conference at Sheremetyevo airport, Russia, on July 12, 2013, the writer debates on Snowden's "reluctant appeal" for temporary asylum in Russia. Firstly, the very idea of opting for Russia, in the view of the writer, is "deeply uncomfortable". Secondly, in his opinion, Russia, "being the first to stand against human rights violations" suggests a dangerous moral relativism. Thirdly, he criticises Snowden's action of leaking the NSA documents which were based on the foundation of human rights and privacy. Criticising Snowden, Beaumont writes, "Instead, of providing a public relations coup for Putin, Snowden has provided cover for a gross and serial human rights-violating state."¹³

*Glenn Greenwald's Views on Snowden (For)*¹⁴

Glenn Greenwald is a columnist on civil liberties and US national security issues for *The Guardian*¹⁵ and in the recent times, has to his credit two main news scoops: one, the story on the top-secret United States Foreign Intelligence Surveillance Court (FISC) order on Verizon

13 "Can Edward Snowden Cite Human Rights and Still Applaud Putin?" *The Guardian*, July 13, 2013, at <http://www.guardian.co.uk/commentisfree/2013/jul/13/edward-snowden-anna-politkovskaya>)

14 Glenn Greenwald, "On the Espionage Act Charges Against Edward Snowden", June 22, 2013 at <http://www.theguardian.com/commentisfree/2013/jun/22/snowden-espionage-charges>

15 See, "Glenn Greenwald Profile," *The Guardian* at <http://www.theguardian.com/profile/glenn-greenwald>.

to provide details to the NSA; and, the second, covering the series of revelations by Snowden. In one of the articles for *The Guardian*, he defends Snowden and puts forward a very crucial question, which is, "Who is actually bringing 'injury to America': those who are secretly building a massive surveillance system or those who inform citizens that it's been done?" He also discusses the espionage charges framed against Snowden and questions not only the reasoning behind these charges but also asks for justification regarding the prosecution of leakers under the Espionage Act during Obama's regime. It is to be noted that in Obama's regime, seven such cases are ongoing, while there were only three before his time. The writer has also defended Snowden's action by viewing this entire event through the lens of civil disobedience.

JOHANNESBURG PRINCIPLES ON NATIONAL SECURITY, FREEDOM OF EXPRESSION AND ACCESS TO INFORMATION

The Johannesburg Principles on National Security, Freedom of Expression and Access to Information were adopted on October 1, 1995. The principles were adopted by a group of experts in international law, national security, and human rights convened by 'Article 19¹⁶', of the International Centre Against Censorship, in collaboration with the Centre for Applied Legal Studies of the University of the Witwatersrand, in Johannesburg. The foundation of these principles lies in international and regional law and standards relating to the protection of human rights, evolving state practice (as reflected, *inter alia*, in judgments of national courts), and the general principles of law recognised by the community of nations. These principles have been endorsed by the sessions of the United Nations Commission on Human Rights.¹⁷ In totality there are 25 principles, however, the relevant principle to this paper have been discussed below.

In order to understand the Snowden case better, we will juxtapose it with the vital parameters of the Johannesburg Principles. Although these comprise a long document, in this

16. Article 19 is a London based non-governmental, charitable organisation.

17. Mr. Abid Hussain, the UN Special Rapporteur on Freedom of Opinion and Expression, Reports – 1996, 1998, 1999 and 2001 sessions of the United Nations Commission on Human Rights.

particular case, we will highlight only points which are relevant to it. First, we will analyse the preamble and then we will move forward with the principles. The observations for the preamble are as follows:

- The preamble “reaffirms the belief that freedom of expression and freedom of information are vital to a democratic society and are essential for its progress and welfare and for the enjoyment of other human rights and fundamental freedoms.” In the case of the Snowden revelations, he disclosed information which was “vital to a democratic society” as the act of the government to collect information about its civilians as well as those of foreign nations was detrimental to not only human rights but also the right to privacy of the people. And when these two important rights are breached or challenged, it can put the democratic set-up in jeopardy.
- The preamble clearly states that it is “keenly aware that some of the most serious violations of human rights and fundamental freedoms are justified by governments as necessary to protect national security.” In this case, the Obama government has come down heavily on Snowden and violated his human rights and fundamental freedoms like revoking his passport and leaving him stranded at the Moscow airport, in the name of national security. This clearly indicates how a powerful government has used the shield of national security to violate not only Snowden’s fundamental and human rights but also the rights of those millions of people whose privacy has been violated in the name of US national security.
- The preamble “bears in mind that it is imperative, if people are to be able to monitor the conduct of their government and to participate fully in a democratic society, that they have access to government-held information.” In this case, these revelations, which comprised government-held information, have enabled the common citizens of the US to see the conduct of their government, an exercise vital for the sustenance of a democratic set-up.

Now coming to the principles which are relevant for an understanding of this entire case:

- Principle 1: Freedom of Opinion, Expression and Information (under General Principle), part (d), “No restriction on freedom of expression or information on the ground of national security may be imposed unless the government can demonstrate that the restriction is prescribed by law and is necessary in a democratic society to protect a legitimate national security interest. The burden of demonstrating the validity of the restriction rests with the government.” In the case of Snowden, the US Administration was unable to defend its stand of why it is trying to gag or reject Snowden’s revelations, on the ground of national security. US NSA Director Keith Alexander defended the broad surveillance programmes as necessary to prevent another terrorist attack and accused Snowden of causing irreversible and significant damage to the US and its allies.¹⁸The Western news content gradually became more and more inclined to information about Snowden’s whereabouts rather than concentrating on the sensitive issues revealed by him. Also, the US government did not demonstrate the “validity of its restriction” on Snowden as the battle shifted from violation of human rights to whether Snowden is a whistleblower or a traitor.
- Principle 2: Legitimate National Security Interest, part (a), “A restriction sought to be justified on the ground of national security is not legitimate unless its genuine purpose and demonstrable effect is to protect a country’s existence or its territorial integrity against the use or threat of force, or its capacity to respond to the use or threat of force, whether from an external source, such as a military threat, or an internal source, such as incitement to violent overthrow of the government.” In this case, the US Administration was unable to justify its stand on the ground of national security and clarify how these revelations affected the US’ existence or its territorial integrity against the use or threat of force. On the contrary, they revealed how US snooping was a hidden threat not only to its own citizens but also to its allies.

18. “NSA Director: Edward Snowden has Caused Irreversible Damage to US”, June 23, 2013, <http://www.theguardian.com/world/2013/jun/23/nsa-director-snowden-hong-kong> .

- Principle 2: Legitimate National Security Interest, part (b), "In particular, a restriction sought to be justified on the ground of national security is not legitimate if its genuine purpose or demonstrable effect is to protect interests unrelated to national security, including, for example, to protect a government from embarrassment or exposure of wrongdoing, or to conceal information about the functioning of its public institutions, or to entrench a particular ideology, or to suppress industrial unrest." In the case of Snowden, the Obama Administration's reaction falls in this category as most of the Administration's statements were either to protect itself from embarrassment, from its own citizen as well as allies, or to conceal information about the functioning of its intelligence collecting unit, the NSA.
- Principle 11: General Rule on Access to Information (under the category of Restrictions on Freedom of Information), "Everyone has the right to obtain information from public authorities, including information relating to national security. No restriction on this right may be imposed on the ground of national security unless the government can demonstrate that the restriction is prescribed by law and is necessary in a democratic society to protect a legitimate national security interest."
- Principle 13: Public Interest in Disclosure (under the category of Restrictions on Freedom of Information), "In all laws and decisions concerning the right to obtain information, the public interest in knowing the information shall be a primary consideration." In this case, the information was leaked in the public interest only.
- Principle 16: Information Obtained Through Public Service (under the category of Restrictions on Freedom of Information), "No person may be subjected to any detriment on national security grounds for disclosing information that he or she learned by virtue of government service if the public interest in knowing the information outweighs the harm from disclosure." In this case also, Snowden got this information by virtue of being working for the NSA as a contract employee.

And the disclosures which he made were in the public interest and overshadowed the reasoning of secrecy in the disguise of national security. The same belief resonated in one of the Snowden's press conferences where, while justifying his stand, he said, "I believe in the principle declared at Nuremberg in 1945: 'Individuals have international duties which transcend the national obligations of obedience.' Therefore, individual citizens have the duty to violate domestic laws to prevent crimes against peace and humanity from occurring."¹⁹

- Principle 17: Information in the Public Domain (under the category of Restrictions on Freedom of Information), "Once information has been made generally available, by whatever means, whether or not lawful, any justification for trying to stop further publication will be overridden by the public's right to know." In this case, we have seen that the US Army Network Enterprise Technology Command (NETCOM) censored access to *The Guardian* newspaper's website throughout the US Army. The move was to stop the information from flowing. This action of the Obama Administration was a case of blatant defiance of the Johannesburg principles.

To conclude, one can say that the media has tried to live up to the role assigned to it. But, one has to also consider the fact that the media's role in any given society, primarily depends on how the society intends to utilise the media. Also, one cannot deny the fact that later media reports started showing variations in their stand and once again exhibited how society uses the media for its own gratification. In addition, the Snowden's incident has emerged as another battleground between the White House and the US news media in a history of a bitter relationship of events like the Pentagon Papers, the Watergate scandal, etc. The expose done by the US news media has refreshed the public memories and reinforces the view that "presidents can also lie" to the country.

19 Statement by Edward Snowden to human rights groups at Moscow's Sheremetyevo Airport, Friday, July 12, 2013. The human rights organisations included Amnesty International and Human Rights Watch.

NOTES FOR CONTRIBUTORS

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