

## **CENTRE FOR ADVANCED STRATEGIC STUDIES**

The Centre for Advanced Strategic Studies (CASS), Pune was registered on 21st September, 1992 under the Society's Registration Act, 1860, and as a Charitable Public Trust on 28th October, 1992, under the Bombay Charitable Public Trust Act of 1950. The Department of Scientific and Industrial Research, Ministry of Science and Technology, Government of India has accorded recognition to the Centre as a Scientific and Industrial Research Institution. The Centre has also been granted exemption U/S 80G of the Income Tax Act, 1961, which gives fifty percent exemption to the donors.

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# CASS Journal

## Volume 3, No. 1, January–March 2016

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MK MangalMurty, IFS (Retd)  
President, CASS

VII



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## Message

The last year saw some bold initiatives in Foreign Policy by our Prime Minister and a beginning in 'Make in India' in Defence production. While our relations with most countries seemed better as compared to before, tensions and ups and downs continued with our neighbours Pakistan and Nepal. We are still struggling to find a proper response to cross border terrorism from Pakistan. It would seem that we shall have to develop capabilities of inflicting similar pain on Pakistan if it does not curb the terrorist outfits which it itself had earlier sponsored. It is a very interesting topic for our Defence and Strategic experts to think about and offer suggestions.

In the Internal scene, our main democratic institution, the parliament, has failed to deliver on national issues. The emphasis has been on settling old scores and bickering for political gain.

Fringe elements have been allowed to vitiate the communal atmosphere and no further quarter should be given to them in the coming year.

The macro economic indicators in our economy have improved but economic growth has not fully reflected this. The pace of reform needs to be speeded up. At the same time, the steps taken in the right direction have to be given due credit.

CASS has been quite active during the last year. The Journal has acquired further prestige and greater circulation.

I would like to take this opportunity to wish our readers and members of CASS a very happy, healthy and fruitful New Year.

(MK MangalMurty)  
IFS (Retd)

1<sup>st</sup> January 2016







Air Marshal BN Gokhale (Retd)  
PVSM, AVSM, VM  
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## Editor's Note

*“New Year is not about changing the Dates but Direction;  
It is not about changing the Calendar but Commitment;  
It is not about changing the Actions but Attitudes;  
It is not about changing the Fruit but Faith, Force and Focus;  
May you Commit and Create the best New year ever!”*

*– Anonymous*

As we start the third year of CASS Quarterly Journal with this January 2016 issue, let me wish all the authors, subscribers and the readers a very Happy New Year. It has been quite a task to not only start the Journal but to keep the momentum going and I must thank all of you for the kind support.

2015 has been a difficult year for the world at large and equally for India. India has suffered from large-scale drought on one hand and cyclonic disasters on the other. While the world economy has taken a hit somewhat, the Paris accord on Climate Change is a welcome step for the planets future. Drop in oil price and quest for alternate energy sources are welcome steps for India. The country needs to find right balance between curbing carbon emissions while trying to provide for increasing energy demand. With ISIS spreading the wings of terrorism, attack in Paris and in the US, there is an urgent need for all the countries to share intelligence.

## X *CASS Journal*

This issue contains articles on wide variety of subjects by various experts. ACM Naik writes about Leadership citing examples from his own career and experience. There is an article by Brig Palsokar on much debated AFSPA. While it has been removed in Tripura last year, there is ever growing demand for its removal from J&K and also from other states of North East.

While the Chinese economy is showing signs of strain, her military buildup does not show any signs of slowing down. She is embarking on an aircraft carrier, new stealth fighter bomber and the recent Chinese White Paper indicates her ambition to play a role globally, with expeditionary capability. Shri Jayadev Ranade analyses Chinese policies and signaling. There is also an article on the Chinese soft power by Ms Gunjan Singh. In this context, Col Guptaray in his article analyses military Balance for India and how it affects India's aspirations in the region. Eight years after 26/11, Brig Hemant Mahjan reflects on the current state of Coastal Security and what can be done for better preparedness.

There is an article by Air Marshal Kukreja on our relations with Myanmar in view of the recent elections, which has ended years of Military rule in that country. While India focuses on the look East policy there is a need to strengthen the infrastructure in our North Eastern states. Maj Gen Pawar writes on the challenges being faced in building suitable infrastructure in the North East.

There are also articles in this Quarterly issue on Security of Nuclear sites as well as on the rationale of possessing Nuclear Weapons by Munish Sharma and Animesh Roul.

Thank you once again for your support and readership.

Jai Hind.



(Bhushan Gokhale)  
Air Marshal (Retd)  
Director, CASS

Date: 1<sup>st</sup> January 2016

## Leadership In The 21st Century

*Air chief Marshal PV Naik (Retd)*

### INTRODUCTION

My first Reproof came from Mally Wollen, my Station Commander. Those days censorship of personal mail was on and my inland letter came in for random checking. This letter I wrote to a long lost friend. Mainly about where all I had been for training in glorious detail and that I was posted to 30 Sqn at Tezpur to fly MiG-21s. I was so proud. I was the first Pilot Officer on MiGs. The year was 1970 and I was the first casualty of censorship. My next Reproof was much later, while undergoing FIS, for a minor difference of opinion with a waiter. I became CAS after 40 years of service. These 40 years, besides pinpricks like Reproofs, also included a SR( Severe Reprimand) and an Adverse, both as a Flt Lt QFI at Bidar. Made it by the skin of my teeth to Group Captain rank. As AVM when I got posted as DG AFNHB, some of my very good friends stopped talking to me because they thought I was written off. I am listing all these occurrences here so that any youngster reading this and finding himself in similar grief, does not give up hope. Someone is always up there displaying great qualities of leadership.

The moment you take over as the Chief, after the festivities and the congratulations are over, the first thing that strikes you is that there is no one above you. No one to go to for advice, no one to protect you. The busy work schedule starts immediately. Add to it the hectic social schedule and it is daunting. Sometimes it seems like a game of French

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Cricket where you do not know where the next threat is coming from and you recall the poem by the Welsh poet WH Davies, "What is this life, if full of care/ We have no time to stand and stare..."

All days are not as bad. I remember, after about a month in office, enjoying a less hectic day, sitting with a media person who was interviewing me. One of the questions she asked me was on my views on Leadership in the 21<sup>st</sup> century. I sent her away with some wishy-washy answer but it started me thinking. The usual cobweb removing routine, what is Leadership, what are leadership qualities, what has changed in the 21<sup>st</sup> century? Do the qualities change? Here I quote from Field Marshal Sam Manekshaw's famous talk to the Staff College, "The Director General of Infantry wanted me to talk about leadership in the 21<sup>st</sup> century. Ladies and gentlemen, leadership does not change. The attributes of leadership have come down the years. All that happens is that greater emphasis is placed on certain attributes of leadership as countries advance and technological developments take place."

### TRADITIONAL LEADERSHIP

We had our heroes in our younger days. Baba Katre, 'Kaala' Sandhu, the man who got airborne in a Gnat and threw a challenge to PAF on R/T to come and get him. Johnny Green the legend. Sikki the man who said, "You cannot keep a good man down". Minhi, who lectured us when we were Plt Offrs, "Learn to blow your own trumpet because, in Service, nobody is going to blow it for you." My own, especially beloved Dushyant, a man ahead of his times. All great leaders but with vastly different styles of leadership. Despite the styles, the basic attributes were, by and large similar.

Traditionally, Professional Knowledge occupies pride of place. There is no substitute for professional excellence. You have to strive hard and there is no shortcut for hard work. Technology changes in leaps and bounds and you have to keep current. You not only have to know your job but your subordinates have to know that you know. The second vital attribute is honesty. It means not only in money dealings, but honesty in judging your friends; honesty in self appraisal, honesty in offering advice. Courage is vital for a leader. Physical courage needs to be omnipresent and is more important for young officers while as you grow in service, moral courage, the courage to stand up for what is right, the courage of

your convictions, takes more prominence. Fairness, impartial dealings, Patience, Integrity all required attributes. The aim here is not really to explain Leadership Qualities to this august readership but to list out major attributes and see their relevance in the 21<sup>st</sup> century. Next in order of appearance are Discipline and Loyalty. If you are disciplined on the ground, you are disciplined in the air. Old adage, by and large true. The 'Bird' variety are some exceptions that prove the rule. Loyalty is something to be earned, not demanded. Loyalty begets loyalty and is a very important attribute.

Perhaps the most vital Leadership attribute is Decision Making. As a leader if you dither in taking decisions, you will lose both in war and peace. Balanced decision making is a combination of all the above attributes tempered by experience. It really kills you to take a difficult decision, but if you do not take it many more are likely to be killed. Decisions are generally time critical. Military decisions are almost always taken under conditions of uncertainty. You never have the luxury of all inputs availability. At times it is better to take a quick decision than not take a decision at all. Wrong decisions can be corrected with benefit of hindsight but taking no decision is a zero sum game. I remember one of the toughest decisions I took as CAS was to ground our fleet of HPT – 32 ac the ac used for Basic Training. We had no time. We had no ac. The Course was half way. QFIs and pupils had lost faith in the HPT- 32, it should have been grounded years ago. There were implications on FIS courses churning out urgently required QFIs. The only option we had was the HJT Kiran. They were running out of life. No spares were available. If we pulled out Kirans, we would have to ground the Suryakirans the pride and joy of the IAF. These were some of the considerations. I took a day over it. Luckily the PSOs and the field were with me. The results are there for all to see. Trg has improved manifold with superfast induction of Pilatus ac from Sweden and the Suryakirans are likely to take to the skies again.

### **21<sup>ST</sup> CENTURY – CHANGES?**

The 21<sup>st</sup> century came onto us a decade and a half ago. Has it created such a different environment that we have to change the basic tenets of leadership which have stood the test of time for centuries? We first need to see what has changed.

The Nature of War has changed. Future wars are going to be in multiple domains with nukes on top and asymmetric warfare at the bottom. They are going to be short, crisp and 24 x 7. There is likely to be no respite and the consumption of resources is going to be heavy. The enemy as well as the war aims are not going to be clearly defined. Technology and leadership will determine the winner. It will demand domain dominance rather than mere domain control. Use of space and RPA (Remotely Piloted Aircraft) will proliferate. The battlefield will be much more transparent leading to much more frequent encounters with the media.

Traditionally, military leadership has been hierarchical and authoritarian. Initially this was to ensure accurate and fast transmission of orders. The job of the military leader, putting it very, very simply was to exert power over others and use weapons to pursue a well-defined goal of destroying an enemy target. So, shall we say, a 20<sup>th</sup> century leader had to be decisive; techno savvy and goal oriented. The 21<sup>st</sup> century leader sees that the entire environment has changed, along with the very nature of the enemy. We still see the military maintain hierarchical structures. But these are no more required for effective communication. Rapid strides in information and communication technology enable the highest leader to be in instant communication with his lowest outpost with a click of the mouse.

Present and future wars are likely to be different from those in the past. Wars used to be between nation states. The borders were clear, so also the aims and objectives. One of the major objectives was capture of territory. Today, in Limited conflicts, territory is still taken, but as a currency to be used for bargaining at the negotiation table. Wars are not allowed to last long today because of the involvement of the entire world. The Global Village effect. Take the case of the Al Qaida or the Jihad in ISIS or the trouble in Kashmir. The enemy is fleeting, elusive, he is not clearly defined. His aims and objectives cannot be discerned easily. As opposed to hierarchical he has a flat organisational structure with very effective communication using COTS (Commercially off the Shelf) technology and social media. Under such conditions, leaders not only need intel on the enemy but to understand the social 'geography' of the region, how to interact with locals and how to tap social media for max effect. Every weapon has to be chosen keeping collateral damage in mind.

Human factors, too, have undergone a transformation in the last decade in our milieu. Once upon a time, Services was a glorious profession. People joined for adventure, for Izzat, rather than the lucre. Today's generation wants a fast buck. Myriad options are available to youngsters today, all more lucrative than the military. Hence the intake is no more 'top of the line'. However, new entrants today are more aware, informed and educated. Their aspirations are different. The leader will have to sensitise himself to this change. The old adage "CO saabka order" will not suffice. The new kids on the block are techno savvy. They are weaned on social media. Leaders will have to adapt.

### **TRAINING FOR LEADERSHIP**

Come to think of it, when do you dwell on leadership? In the IAF we have a fairly well structured plan for Flying Leadership. 2Ac Ldr, 4 Ac Ldr, etc. That is not what I meant. In the early part of a flyer's career, we do not deal too much with men except those directly linked to flying and operations. Transport and chopper pilots are better off as they have ORs as aircrew. Ground Duty offrs are most exposed to leadership right from the beginning. I remember, even in Staff College we had only a leadership capsule conducted by CDM. I commanded a Sqn without any formal training on leadership. Most of us were able to cope if you had a sense of values, a dash of integrity, a bit of common sense and, of course, if you were ex NDA. I know I shall be lambasted by many for the last statement but I am a great believer in NDA. As a Flt Cdr you are exposed to leadership and then, of course, as a CO. Most of the time you follow your gut instinct and generally it stands you in good stead.

The IAF, since then, has laid stress on Leadership Trg. I remember capsules for Flt Cdrs, COs, AOCs I am sure we have in place a viable training programme for leadership. My submission is that it needs to be reviewed. We need to institutionalise leadership training at Operational, Senior and Strategic levels. Today's problem is leadership's hesitation to believe that juniors can think clearly, and in some cases, at junior levels, failure to think clearly in situations requiring sound judgement. Tomorrow's leaders of military operations must be chosen on quality and not quantity. They must be constantly exposed to challenging situations, taken out of their comfort zones. The Trg should expose people to war games, tactical problem solving and live situations rather than adopt the

assembly line approach. Leaders need to be identified early and groomed carefully to shoulder higher responsibility.

### MY VIEW

While I subscribe to FM Manekshaw's view that leadership attributes only need to be extended to cope with the 21<sup>st</sup> century, I do seriously believe that leaders definitely need to learn a few new skills to cope effectively. I feel the most important thing is to be yourself. Do not affect mannerisms. This way you can be authentic in dealing with people as well as in use of your authority. You must make your values known clearly. What your priorities are, and what you believe in.

You yourself must be ready to lead. You must be confident to do so. You must have staying power because it is tough and lonely at the top. Remember that as a leader you are under constant scrutiny. Mostly curiosity but there would be some who wait for you to make a slip. You must judge when to talk, when to listen and when to decide. You need to stick with your decisions. At the same time you should be fair enough to accept the blame if you take a wrong decision. The trick is to take the right decisions most of the time.

As a leader you have to work hard to win the respect and acceptance of your group. You need not go out of your way. If you respect them you will get respect. If you are loyal to them it will beget loyalty. Be impartial and you can be as tough as you want. Delegation is a vital aspect of leadership. Delegation, however, does not mean abdication of your responsibility. Responsible delegation is what we must strive for. You need to be a good judge of people so that you can build a strong team. Look for trustworthy people. Avoid 'yes' men and women.

To be a good leader you need to be a good communicator. Today you must be au fait with technology. You must be comfortable with social media so that you can use its power. You cannot be a leader without a vision. It should be in sync with the organisational goals. You must be able to enunciate it clearly for your group to understand.

Finally, I always recommend going with your instinct when in doubt. After all this 'gut' feeling has developed through years of your experience. When in doubt there is no harm in discussing a problem with trusted people. My experience is that if your 'gut' detects a bad smell, there is generally a problem and you need to be careful. Please do not develop a



zero error syndrome. Mistakes will happen. No one is perfect. You are a leader, so behave like one.

### CONCLUSION

The 21st century has just begun a decade and a half ago. Despite the short time we have seen some intrinsic changes. Some feel that the very nature of war has changed. Some say that the nature and the identity of the enemy has changed. Both are right. As students of the art of war, both have enormous implications for us. Technology has progressed in leaps and bounds, rendering many established practices and concepts redundant.

The economic situation has changed. At the same time many more lucrative avenues have opened up for the younger generation. Technology and easy access to social media have made the new generation more aware of the world and life in general. This has, to some extent, affected the basic motivators. As a corollary, therefore, it has affected some parameters of leadership, too.

Personally I agree with FM Manekshaw that the basic attributes of leadership which have come down over the years do not change. All that happens is that as the countries progress and as technology kicks in, the emphasis on some attributes shifts. However, I must go for some value addition to this hypothesis by adding that leadership in the 21st century needs to learn some new skills and be able to exploit advances in technology. Leaders also need to understand the social 'geography' to connect better to the environment in which they may need to operate in.

Leadership training needs to be reviewed. Institutionalised training needs to be conducted for today's and tomorrow's leaders at the Operational, Senior and Strategic levels. Training programmes should be realistic, taking people out of their comfort zone, to try and replicate the stresses they are likely to face in real life. Leaders need to become transformational rather than transactional.

Good leaders do not affect mannerisms. They interact easily because they are themselves. So be yourself. Make your values and vision clear. Master technology. Exploit the power of the social media. Be loyal to beget loyalty. Be honest in the truest sense of the word. Do not fall into the trap of the Zero Error Syndrome. Be big enough to accept

blame for mistakes and learn from them. By all means be strict so long as you are fair and impartial. Be courageous. Do not shy away from taking hard decisions. Build a strong team. Responsible delegation is vital. Participative decision making also is a great help. Then one day you will get up in the morning and find the sun is shining and life is beautiful and “you have the time to stand and stare.”

### **AIR CHIEF MARSHAL PV NAIK (RETD)**



Air Chief Marshal PV Naik, PVSM VSM was born on 22 July 1949 and commissioned into the Indian Air Force on 21 June 1969. After initial schooling in the Sainik School, Satara, he graduated with the 33 course from the National Defence Academy.

In a distinguished career spanning forty years, the Chairman COSC and CAS has flown a wide variety of combat and trainer aircraft. After initial training on the HT-2, he has flown the Vampire and the Hunter, and has had extensive operational experience on all variants of the MiG-21. He is a Qualified Flying Instructor with vast instructional experience and a Fighter Combat Leader from the prestigious Tactics and Air Combat Development Establishment (TACDE). He was selected as one of the first eight pilots to convert to the MiG-23 BN in the erstwhile USSR, and was responsible for its induction into the IAF. Besides commanding a front line fighter squadron, he has commanded an important fighter base and air force station at Bidar. He has been the Directing Staff at TACDE and the Defence Services Staff College.

During his career, the Air Chief Marshal held numerous important staff appointments in different headquarters. He was the Senior Air Staff Officer at HQ Western Air Command, the Air Officer Commanding-in-Chief of Central Air Command and the Vice Chief of Air Staff, prior to his appointment as the Chief of the Air Staff. He also took over as the Chairman, Chiefs of Staff Committee on 01 April 2010.

The Air Chief Marshal is a graduate of the Defence Services Staff College, and an alumnus of the National Defence College. He is a recipient of the Param Vishisht Seva Medal and Vishisht Seva Medal.

## Revisiting the AFSPA Debate

*Brig. R. R. Palsokar (Retd)*

### INTRODUCTION

Two headlines in a prominent national daily and a tragic incident involving the death of a Colonel in the fight against terrorism in Kashmir expose the dilemma of the arguments against the Armed Forces Special Powers Act. One headline screams, 'Meghalaya HC asks Centre to impose AFSPA in Garo Hills' – Cites Killings, Kidnappings in Region. The other headline is more intriguing, 'Supreme Court can even call Army to protect Madras HC' – Lawyers can't hold Court to Ransom.<sup>1</sup> The incident mentioned refers to the tragic death of Colonel Santosh Mahadik who laid down his life while fighting terrorists in Kashmir on 17<sup>th</sup> November 2015. The newspaper headlines in particular mock the centrality of the arguments of those who have been demanding that AFSPA is draconian, misused by the Army and the earlier it is repealed the better. The death of Colonel Mahadik only serves to remind the country of the dangers our jawans and officers face on a daily basis in protecting the integrity of the country against armed militants. The anguish of the Supreme Court suggesting that it can if necessary call upon the Army 'to protect the Institution and its dignity', surely dismisses the complaints of the anti-AFSPA lobby. There is an obvious contradiction here. On the one hand, do we or do we not want the Army to restore law and order

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1 The Times of India, New Delhi, Thursday, November 5, 2015, p.10.

where the civil administration is unable to do so and on the other, at a time when the Army itself has been complaining in its own understated way that it is called out to carry out duties which are the responsibility and prerogative of the police or the armed police such as protecting the sanctity of a High Court. There are also enough examples to show that no disaster relief can be complete without the armed forces deploying in support, even to rescue a child that has fallen into a bore well. At the time of writing, uniformed men of all three Services are actively engaged in conjunction with other disaster management teams in tackling the unprecedented floods in Chennai.

Despite the sensationalism of newspaper headlines, there is a major issue that needs to be debated. It is this, 'How should a nation having thrown off colonial yoke, born in the turmoil of partition, as diverse in every respect as India, protect its sovereignty from armed threats within and without its borders, without recourse to providing special legal protection to its soldiers, even after almost seventy years of independence'.

This paper will argue that despite its seeming necessity, in essence, the Armed Forces Special Powers Act is due for a review. It will also argue that there is merit on both sides of the argument, for and against AFSPA and it will suggest that it is time to search for a *via media* to satisfy both, the civil society as well as the armed forces, the army in particular. It is acknowledged that the army has suffered grievously in protecting the country's unity against the depredations of militants and insurgents, aided and abetted by enemies outside and inside the country. Therefore, if the Army has to operate without protection of AFSPA, the concerns of the military have to be taken into account before a final decision is taken.

### THE HISTORY OF AFSPA

During the British period and more so during the Second World War there were a number of restrictions imposed on the population by the colonial government. The war years saw a flurry of Defence of India Rules to prevent 'subversion' of the people from loyalty to the Raj. It will be recalled that the freedom movement was peaking from 1942 onwards and the British Empire was stretched to the limit both internally and externally. That is now history but an important principle was learned by

the politicians of a soon to be free India that there would be times when it would be necessary to curb civil freedoms for defence of sovereignty of the country. The horrors of partition had hardly died down when there were calls for secession from various sectors of the Northeast. When the situation merited stronger measures including the use of force, “The Assam Disturbed Areas Act” was enacted in 1955 to provide a legal framework for security forces to deal with the Naga insurgency. The Armed Forces Special Powers Act was enacted in 1958, to give legal authority to the Army in acting against militants. Salient features of the Act are reproduced at Annexure A.<sup>2</sup> When the Army was inducted soon thereafter, the then Army Chief in a Special Order of the Day exhorted his troops, “... you are not to fight the people of the area but to protect them (from disruptive elements) ... you must therefore do everything possible to win their confidence and respect ...” It is a sad commentary that more than half a century later AFSPA still remains in force in the North-East and the clamour for its revocation has come from events in Kashmir where it was imposed in 1990. It is sadder still that according to various human rights organizations and some motivated propaganda, despite untold sacrifices the Army seems to have lost the ‘confidence and respect’ of the people. If the Act is revoked, how it will affect the security of the country?

The legal framework for law and order within the country is provided by the Indian Penal Code of 1860. It still remains in force though it has been amended a number of times after Independence. But its background is worth recalling. The first Indian Law Commission was established in 1834 under the chairmanship of Thomas Babington Macaulay who is remembered more for teaching English to Indians so that they could be useful as clerks to the British Empire! After many readings, discussions and supplements, the Code was finally adopted in 1860. Macaulay who died in 1858 did not live to see his major work come into force. The Penal Code served the colonial government its purpose after the mutiny (or the first war of independence) of 1857. However, the IPC applied only to British India and the numerous princely states then in existence had their own penal codes. For example, the state of Jammu and Kashmir had its own Ranbir Penal Code which is still in force today.

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2 It should be noted that the Annexure is NOT a legal document and extracts are reproduced for information and discussion purposes only.

There is a tendency among lay persons to look at militancy or separatism as a law and order problem. However, the constitutional responsibility of the government to uphold the integrity of the country does not allow it to look at insurgencies and secessionism purely as a law and order problem. It is the Constitution that provides that India will be a Union of States (Art. 1) and it has no provision to cede territory (Sub-clause 3). Art. 51A enjoins all citizens 'to uphold and protect the sovereignty, unity and integrity of India'. So any demand for separation cannot be accepted and is to be resisted. Look now at the security aspects. Our executive machinery at the district level has always had the authority to use force, requisitioning troops if necessary, to restore law and order. So whenever the armed forces operate, they are acting in aid of civil authority and once the situation is brought under control, the civil administration reassumes responsibility. Thus even when AFSPA is in force, the Army is actually and in effect acting in aid of civil authority. If the government at any time decides that the assistance of the Army is not required, it can always notify repeal of AFSPA as the State of Tripura has recently done. In the most contentious example where armed action is a common occurrence, if the government machinery in Kashmir is prepared to assume responsibility, the Army would only be happy to go back to their task of protecting the line of control. But this is oversimplifying the problem. There are two main areas in the country where AFSPA remains in force, Kashmir and certain areas of the Northeast. The conditions in both areas are so different that we cannot apply the same yardstick to decide where AFSPA is necessary and where it is not. This differentiation goes to the heart of the matter. In Kashmir, Pakistani interference actively aids and abets militancy as well as separatism. In the Northeast conditions have changed over the years as has been evident in the states of Mizoram and Tripura where militancy has subsided and in other parts such as segments of Assam, Manipur and Nagaland where local factors rather than external interference keeps the violence simmering.

#### **THE PROS AND CONS OF AFSPA**

A cursory glance at Annexure A reveals that once the government declares an area to be 'disturbed' the Armed Forces Special Powers Act comes into force. It allows the use of force, to cause death if necessary,

destroy any fortified position, arrest without warrant any person who has or is about to commit a cognizable offence and enter and search without warrant any premise to make such an arrest. The Act also provides that arrested persons be made over to the police – ‘with least possible delay’. Finally and most controversial of all (for human rights activists), it provides legal protection to those acting under the powers of the Act who can be proceeded against only with the previous sanction of the Central Government.

This Act has enabled the Army to neutralize militants in the Northeast since 1958 and in the state of Jammu and Kashmir since 1990. No one will deny that it has allowed the armed forces to be successful and it will also not be denied that the provisions of the Act are undeniably severe. However, the severity of the Act is mitigated by those applying it viz. the armed forces, the Army in particular and in increasing instances para-military forces and the armed police. The casualties suffered by the security forces are testimony to this fact and the recent death of Col. Santosh Mahadik in Kashmir is only the most recent and tragic example. Fact remains that we would not have been able to ‘defeat’ the machinations of our enemies both in the east and the west without the freedom of action and protection that this Act provides.

What about the misuse of the Act, which is a common complaint of its critics and opponents? The Army is more concerned than anyone else about its misuse and excesses. Every complaint is investigated and the guilty punished. The recent conviction of a Colonel and his fellow soldiers in the infamous Machhil incident is a case in point. But it is also the Army’s experience that almost 98% of the complaints (yes, the figure is correct) are bogus or motivated. Then there is the issue of human rights. The declaration of an area as ‘disturbed’ does curb the freedoms of the populace and thus is a very cogent reason for not applying AFSPA.

### **ROLE OF THE ARMY**

It will be readily acknowledged that the Army has been fairly successful in defeating secessionists in the Northeast and in the state of Jammu and Kashmir since 1958 and 1990, respectively and it could not have done so without the protection provided by AFSPA. It has been a long and weary road from the early 1990s in Kashmir when the question was not ‘if’ but ‘when’ our western neighbour would be able to detach

Kashmir from the union of states that is India. Public memory is always short, and it is now conveniently forgotten that it was only the Army that stood between the enemy and disintegration of the state of Jammu and Kashmir.

It is my considered opinion that by continuing with AFSPA after the main threat has been neutralized by the Army the civil administration sheds its responsibility of governance to the actions of the military and thereby washes its hands off the problem except to criticize when expedient. The civil administration uses the army as a shield to hide behind and the earlier they take back the responsibility for governance including law and order, the better. We need not forget that some years back, the Chief Secretary of Chhattisgarh wanted a serving Major General under his command to coordinate anti-Naxal operations (so that he could play at being a General and had a convenient military scapegoat to blame?). Fortunately this was not agreed to. Recall that at the time of Independence, the Chief Secretary of a State, the IG Police and the Army Area Commander were all of the same rank; in fact the latter two wore the same badges of rank. In today's topsy turvy concept of seniority the army's field commanders seem to have become subordinate to officers very much junior to them, both civil and police. But the Army is not blameless. More than one commentator has remarked upon the emphasis on kills and weapons recoveries in the fight against militants to enhance career prospects of field commanders. There are enough senior officers who will not allow this, but a few bad sheep besmirch the fair name of the entire Army. I was personally witness (many years ago) wherein a unit had manufactured a story to hide the loss of a weapon. A year later this weapon was found in a remote village with a deserter, so the whole story collapsed. Disciplinary action was taken against the Commanding Officer and others, but the Brigade and Divisional Commanders who had condoned this nonsense in the first place, got away scot free. This is unacceptable.

#### **THE STATE RESPONSE – EXAMPLES OF MIZORAM AND TRIPURA**

At a time when AFSPA and its continuation is hotly debated, it might be instructive to look at two positive examples where armed insurgencies were resolved – the word 'defeated' is not used advisedly. It is worth remembering that the struggle even armed, is against our own



people, so there is no victory or defeat, only resolution, compromise and restoration of the rule of law to bring back the dissatisfied elements into the mainstream of society. The current and popular example is that of Tripura where the Chief Minister asked for the repeal of AFSPA and has successfully overseen the transition to normalcy. But the example of Mizoram is even more instructive and will be discussed first.

Without going into too much of the history of isolation of tribal areas of the Northeast by the British colonial administration, it needs to be said that the various restrictions imposed by the British and the active spread of Christianity by missionaries among the tribals made the locals feel that they were not a part of mainstream India. A number of such factors contributed to this feeling of separateness. However, after Independence, the Sixth Schedule of the Constitution (amended several times since) specifically provided for the protection of the rights of tribals. In Mizoram there had been a latent feeling that the state administration was not giving adequate attention to local demands and problems. A common example cited is the 'Mautam' or the death of bamboos leading to rat infestation and subsequent famine. This phenomenon occurs every fifty years and its outbreak was expected in 1959. The then district administration on the advice of a single expert dismissed the likelihood of a famine and its subsequent occurrence led to serious unrest. However, true armed insurgency broke out on 28 February 1966 when the militants captured the Aizawl treasury and fired upon an Indian Air Force aircraft carrying the Army and Air Force C in Cs of Eastern Commands of the two Services. Subsequently the adjoining militant positions were strafed and counter-insurgency measures undertaken.<sup>3</sup> Some spirited and far sighted military and civic action by senior army commanders (Field Marshal Sam Manekshaw and Lieut. General Matthew Thomas are names that merits mention)

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<sup>3</sup> This was the only time in Independent India's history that armed air action has been taken against militants or insurgents within the country. To put this in perspective, the British colonial government never hesitated to use machine guns from the air against rebellious tribesmen on the North West Frontier Province, or against marauding crowds on the border during riots following partition and against crowds agitating for freedom in the erstwhile state of Bihar. Even today, the Pakistan Army uses armed helicopters and air action against Taliban tribesmen in the Khyber Pakhtunwa province. So the restraint of the armed forces in using disproportionate force is only to be lauded.

the insurgency was brought under control. In June 1986, it finally ended with the establishment of an elected government in which the Mizo National Front, which had been in the forefront of the armed struggle, participated. A few reasons can be underscored, strict and effective action against armed militants, long term policies for the upliftment of the people, an honoured and respected place for the leaders of the militants and a spirit of compromise. Today the state of Mizoram may have many complaints and demands like the rest of the country, but recourse to arms is not an option.

The case of Tripura is different due to the dynamic and singular personality of its chief minister, Manik Sarkar. He is a member of CPI (M) and Chief Minister of the state since 1998. As a true party worker he donates his chief minister's salary to the party and till recently was getting Rs.5000 per month for personal expenses. Some months back the party in a fit of uncharacteristic generosity increased this to Rs.10,000. Asked how he manages, he disingenuously replied that his wife, a retired government servant, gets a pension and that in any case their needs are few. With such an enlightened head of government, it is no wonder that he was able to talk to the leaders of insurgents and sway public opinion against violence. AFSPA had been imposed in February 1997 with two separatist groups, National Liberation Front of Tripura (NLFT) and All Tripura Tiger Force (ATTF), fighting for secession. Ever since AFSPA was imposed, as per its provisions, it was reviewed and extended every six months. Generally in most cases this tends to be a mechanical exercise, however, under the chief minister's guidance and leadership, the area under AFSPA was progressively reduced till it was finally denotified in May 2015. It was due to the ever improving security situation that in the 2014 Lok Sabha elections, the state recorded 84% voter turnout.

The main point to note in both these cases is that insurgency was progressively tackled and reduced. The army often thinks that one last push will lead to collapse of insurgents. It does not happen so and requires patience, political and military action and above all a genuine desire for the well being of the people as the central theme of all measures.

#### **THE MECHANICS OF IMPLEMENTATION OF AFSPA**

It bears repetition that our executive machinery at the district level has always had the authority to use force, requisitioning troops if

necessary, to restore law and order. So whenever the armed forces operate even under AFSPA, they are acting in aid of civil authority. It follows that once the situation is brought under control, the civil administration reassumes responsibility. As stated earlier, if the government machinery in Kashmir is prepared to assume responsibility, the Army would only be happy to go back to their task of defending the country's borders. However, it must also be acknowledged that it is easy enough for a military man to blame the civil administration and the police. There are specific difficulties there too. It is a given that the responsibility for maintaining law and order rests in State governments, specifically provided in Items 1 and 2 of List II, the State List, Seventh Schedule of the Constitution. A common criticism is that there is no accountability of members of the state legislature, except when they have to periodically face elections. As a result populism rules over pragmatism. While this may be politically advantageous, it can play havoc with the security situation; so the wheel comes a full circle and the army is required to be deployed with stringent powers of AFSPA and the situation remains unresolved, particularly where insurgency existed or where it has been largely neutralized but incidents of violence keep the volatility index high. The dilemma of the police is even more piquant. Two senior and wise policemen recently put the problem succinctly. One said that the police were expected to deal with modern terrorism or militancy with 19<sup>th</sup> Century laws, 20<sup>th</sup> Century police force and 21<sup>st</sup> Century criminals or militants using sophisticated arms, intelligence and methods. Responding to a suggestion that one man's terrorist is another man's freedom fighter, the reply was acerbic – to the police protecting the populace, 'a terrorist is a terrorist is a terrorist!' There is no room for compromise. So in effect we have all arms of the government working towards a common goal using different approaches because of dissimilar backgrounds. Thus there is little coordination which results in wasted effort. A suggestion has been made, that may be in certain areas we could follow the Sri Lankan example when they were combating the LTTE separatism. During the civil war there was a district control council consisting of the Government Agent (like our Deputy Commissioner), Superintendent of Police and the local Army commander. The chairman of this council was called the District Coordinating Officer, who could be any one of the three depending on the situation. At stake is the effectiveness of control and not seniority. In

our case we have egos and friction, hardly a recipe for smooth functioning for operations against militants.

While it is quite easy to declare an area disturbed because of some violent incident(s) and the public clamour that follows, it is not so easy to take responsibility to de-notify AFSPA. Unfortunately, there are far too many areas where AFSPA is invoked rather mechanically – its imposition in Assam due to Bodo violence is the most recent case. So how should it be decided whether an area should be declared ‘Disturbed’ and subsequently declared militancy free. Fact is that all agencies involved in combating militants bring their own agenda and method to the table. The politician is interested in capturing political power – that is understandable, but as the example of the chief minister of Tripura shows that unless political leadership actually has the interests of the people at heart, matters are unlikely to be resolved satisfactorily. The civil servants and the police work in their own silos and the army has its own ethos and compulsions. Therefore, unless all of them work in cohesion, there is likely to be little progress. Senior readers will recall that it is the police and politicians who defeated militancy in Punjab, with the Army providing a supporting role. That is how it should really be.

Experience tells us that the civil administration is usually unwilling to resume responsibility till forced to do so. Is another way possible? Yes, use AFSPA in selected areas and for restricted periods of time. For example, certain areas along the LOC or the international border along its entire length could have AFSPA permanently in force. In other areas let the police (with army in support) seek and impose AFSPA for a limited period of time. Agreed that AFSPA must be reviewed, but this can happen if all government agencies, political, civil, police and the military work in unison. Otherwise we will only keep floundering. In sum, there are no easy answers.

### CONCLUSION

In conclusion, the main point is that the AFSPA which was introduced almost six decades ago needs to be reviewed in terms of the area of its implementation, the period for which it can remain effective and the restoration of law and order through the state machinery i.e. administration and police. Our politicians have to understand this and it is the responsibility of military brass and the Defence ministry along

with the Home Ministry to take the initiative in this regard. It is only coordinated effort across the entire spectrum of society that will defeat militancy and obviate the need for AFSPA.

**NOTES:**

- This article draws upon an earlier article written by the author in the Indian Express in November 2014.
- Chadha, Col. Vivek, “India’s Counterinsurgency Campaign in Mizoram” in Sumit Ganguly and David Fidler, ed. *India and Counterinsurgency – Lessons Learned*; Routledge, 2009.
- The author would also like to acknowledge his gratitude to Shri M.N. Buch, former Chief Secretary Madhya Pradesh, for his clear exposition of the problem in a Seminar in the then College of Combat, almost quarter of a century ago. (Combat Papers, Number 3, Seminar – Low Intensity Conflict, March 1992.)

Various sources from the internet including Wikipedia.

**ANNEXURE ‘A’**

**THE ARMED FORCES (SPECIAL POWERS) ACT, 1958 (28 OF 1958)**

**[11TH SEPTEMBER, 1958]**

**(THIS DOES NOT PURPORT TO BE A LEGAL DOCUMENT BUT IS  
REPRODUCED FOR INFORMATION PURPOSES ONLY)**

An Act to enable certain special powers to be conferred upon members of the armed forces in disturbed areas in the State of \*\*\*\*\*

Be it enacted by Parliament in Ninth Year of the republic of India as follows:-

**1.Short title and extent**

- (1) This act may be called **\*\*[The armed Forces (Special Powers) Act, 1958]. \*\*\***
- (2) It extends to the whole of the State of \*\*\*\*\*

**Definitions: In this Act, unless the context otherwise requires**

- (a) “armed forces’ means the military forces and the air forces operating as land forces, and includes other armed forces of the Union so operating;
- (b) ‘disturbed area’ means an area which is for the time being declared by notification under section 3 to be a disturbed area’;
- (c) all other words and expressions used herein, but not defined and defined in the Air Force Act, 1950 (45 of 1950), or the army Act, 1950 (46 of 1950) shall have the meanings respectively to them in those Acts.

**Powers to declare areas to be disturbed areas**

If, in relation to any state or Union Territory to which this act extends, the Governor of that State or the administrator of that Union Territory or the Central Government, in either case, if of the opinion that the whole or any part of such State of Union territory, as the case may be, is in such a disturbed or dangerous condition that the use of armed forces in aid of the civil power is necessary, the Governor of that State or the Administrator of that Union Territory or the Central Government, as the case may be , may by notification in the Official Gazette, declare the whole or such part of such State or Union territory to be a disturbed area.

**Special Powers of the armed forces**

Any commissioned officer, warrant officer, non-commissioned officer or any other person of equivalent rank in the armed forces may, in a disturbed area,-

if he is of opinion that it is necessary so to do for the maintenance of public order, after giving such due warning as he may consider necessary, fire upon or otherwise use force, even to the causing of death, against any person who is acting in contravention of any law or order for the time being in force in the disturbed area prohibiting the assembly of five or more persons or the carrying of weapons or of things capable of being used as weapons or of fire-arms, ammunition or explosive substances;

if he is of opinion that it is necessary so to do, destroy any arms dump, prepared or fortified position or shelter from which armed attacks are made or are likely to be made or are attempted to be made, or any

structure used as a training camp for armed volunteers or utilized as a hide-out by armed gangs or absconders wanted for any offence;

arrest, without warrant, any person who has committed a cognizable offence or against whom a reasonable suspicion exists that he has committed or is about to commit a cognizable offence and may use such force as may be necessary to effect the arrest;

enter and search without warrant any premises to make any such arrest as aforesaid or to recover any person believed to be wrongfully restrained or confined or any property reasonably suspected to be stolen property or any arms, ammunition or explosive substances believed to be unlawfully kept in such premises, and may for that purpose use such force as may be necessary.

#### **Arrested persons to be made over to the police**

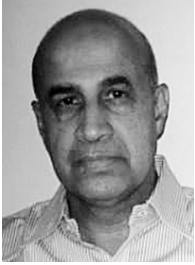
Any person arrested and taken into custody under this Act shall be made over to the officer in charge of the nearest police station with the least possible delay, together with a report of the circumstances occasioning the arrest.

#### **Protection to persons acting under Act**

No prosecution, suit or other legal proceeding shall be instituted, except with the previous sanction of the Central Government, against any person in respect of anything done or purported to be done in exercise of the powers conferred by this Act.

*(This does not purport to be a legal document but is reproduced for information purposes only)*

**BRIG. R. R. PALSOKAR (RETD)**



Brig. R. R. Palsokar, a life member of CASS, is an Infantry officer who served with the IPKF in Sri Lanka and commanded a Brigade in the Mullaittivu sector in Vanni in the Northern Province. His Brigade saw some of the heaviest fighting in the citadel of the LTTE, in the very same area where the LTTE chose to make its final stand. His book on his experience as a Brigade Commander in Sri Lanka, 'Ours Not to Reason Why' is a first-hand account of those tumultuous days.

He is also a prolific author who writes in both English and Marathi and his articles on national security and international affairs appear regularly in Marathi and English newspapers and periodicals. He holds a M.Sc. from Madras University, M.S. from US Army's Command and General Staff College, Fort Leavenworth, Kansas and a *psc* from the Army Staff College at Camberley, UK. He retired in early 1993 and is settled in Pune.



## Xi Jinping And China's Major Military Reforms - 2015

*Shri Jayadeva Ranade*

Chinese President Xi Jinping's public announcement downsizing the People's Liberation Army (PLA) at the grand military parade on September 3, 2015, was a major event. It signaled that the final stages of reform and reorganization of the PLA would begin now that internal consensus had been reached. Despite the transparently thin attempt to package the 300,000-personnel troop reduction as a move towards promoting peace, the troop reduction is actually part of a long-planned effort to streamline and strengthen the PLA and fashion it into a hi-tech, lethal, 'informationised' force capable of defending China's national interests at home and abroad while expanding China's strategic space.

These reforms have direct implications for India and countries in the region, with whom China has territorial disputes or who have borders with it. They will undoubtedly monitor the reforms closely.

Plans for military reforms and restructuring were finalised earlier and downsizing the PLA is part of the final phase. After the release for internal circulation of the 'PLA's Development Outline for Cultivating Armed Forces Talent before the Year 2020', (referred to only as the 'Outline'), which spelt out plans for restructuring the PLA, official documents described the five year (2011-2015) period as "crucial" in the PLA's development. The plans received a substantive push when the Chinese Communist Party (CCP)'s Third Plenum, which was held in November 2013, approved proposals for major organisational

restructuring and technological upgradation of the PLA. Within days after the Third Plenum, CMC Vice Chairman and former PLA Air Force (PLAAF) Commander Xu Qiliang asserted that the reforms will be implemented, that non-combatant personnel would be “eliminated”, and that the reforms will enable the PLA to “win wars”.

On March 15, 2014, China’s authoritative official news agency Xinhua announced the creation of a new ‘Small Leading Group for Deepening Reform of National Defense and the Military’. It was set up as a subcommittee of the Central Military Commission (CMC) under the chairmanship of Xi Jinping assisted by two Deputy Chairmen who were also the Vice Chairmen of the CMC namely, General Fan Changlong and General Xu Qiliang. Names of the other members have not yet been disclosed, but outspoken General Liu Yuan, a high-ranking ‘princeling’ close to Xi Jinping and Political Commissar of the PLA’s General Logistics Department (GLD), is probably one member.

Implementation of the reforms has been delayed by institutional resistance and the PLA’s downsizing is now expected to be completed only by 2017. Among the factors prompting resistance were reports that consequent to the reorganization of Military Regions (MR) and PLA Headquarters in Beijing, a number of Generals and senior officers would be rendered redundant and transferred to Beijing. This meant loss of authority and perquisites, such as housing, which they currently enjoy. The different services also resisted downsizing of their personnel strengths and reduction in their share of the budget.

At least two signed articles in the Liberation Army Daily (LAD) on September 9, 2015, publicized the existence of resistance to reforms inside the PLA. The first article cautioned that implementation of the reforms would be difficult and “would require an assault on fortified positions to change mindsets and root out vested interests, and that the difficulties would be unprecedented.” Advocating their implementation, which it asserted were essential, the article observed that “if these reforms failed, measures still to come would be nothing more than an empty sheet of paper”. Reiterating that implementing military reforms would be difficult, another article in the same paper said that as reforms begin to be implemented “there could be significant structural contradictions and an accumulation of institutional obstacles”. Its author, Ma Depao, was associated with the Academy of Military Sciences (AMS) till 2006,

but is now probably with the PLA Daily.

In this backdrop, the presence on the podium of Hu Jintao and Jiang Zemin, Chinese President and Chairman of the Central Military Commission (CMC) Xi Jinping's two immediate predecessors, was significant. Their presence next to Xi Jinping was intended as assurance – to domestic and foreign audiences -- of support for Xi Jinping and his plans to reform and restructure the PLA. Jiang Zemin's presence was particularly significant since a large number of the PLA Generals and senior officers under arrest, or under investigation, on charges of corruption are closely associated with Jiang Zemin or his protégés. Rumours were also circulating for some months in official circles in Beijing that Jiang Zemin was either already under house arrest, or likely to be detained soon.

A compromise regarding military reforms was undoubtedly reached before Xi Jinping announced the downsizing of the PLA on September 3, 2015. In addition to support for the reforms from his fellow 'princelings' and loyalists in senior echelons of the PLA, support would additionally have come from the younger more professional officers. Resistance would have been diluted by the vigorous campaign against corruption launched by the Central Discipline Inspection Commission (CDIC) in the PLA and efforts at 'education' by the PLA's General Political Department (GPD), with both efforts facilitated by the 40 per cent hike in salaries and allowances awarded to PLA personnel last year.

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

Separately, Chinese military officers commenting on the Wen Wei

Po report on background to Jane's, said the central authorities were working out targets for future downsizing, but big cuts are unlikely. Reductions, they said, could be expected in 2-3 years. However, they would not affect the PLA's capabilities as it would extensively use Information Technology and science and technology for advanced modern weaponry. PLA personnel would be better educated, better trained and more proficient. These comments as well as appearance of the report in the *Wen Wei Po* together with excerpts from the 'PLA's Development Outline for Cultivating Armed Forces Talent before the Year 2020', provided insights into the PLA's restructuring plans.

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

After a meeting of the CMC on September 10, 2015, the two Vice Chairmen of the CMC, General Fan Changlong and General Xu Qiliang, travelled to all seven Military Regions (MR) to explain the reform plans to middle and low-ranking military officers. Simultaneously, senior officers of the PLA's four principal general departments -- General Staff Department (GSD), General Political Department (GPD), General Logistics Department (GLD) and General Armaments Department (GAD) -- the PLA Air Force (PLAAF), PLA Navy (PLAN), Second Artillery Force (SAF) and People's Armed Police Force (PAPF) were instructed to express support for the reforms.

The proposed reforms, described as the most extensive and wide-ranging till now, are likely to introduce changes in the rank structure to bring them on par with international practice. Reports indicate that the new Theatre Commanders would be of lower rank than the present MR Commanders to reduce their political influence and Senior Colonels are

to be designated as Brigadier General. The ranks of Second Lieutenant and Lieutenant will be readjusted with possible introduction of a rank of Lieutenant Commander.

Certain it is that the PLA's four principal General Departments (GSD, GPD, GLD and GAD) and the Ministry of National Defence (MND) will be restructured. Equally certain it is that non-combat units and administrative staff will be cut and units with older weapons and equipment will be targeted for demobilisation. This could result in the demobilisation of a number of Group Armies (GA) whose inventories have a preponderance of older systems. The GAs being accorded lower priority by the PLA – evidenced by their not having Special Forces and Army Aviation Brigades/Regiments -- could similarly be earmarked for demobilization.

Based on official reports, which state that Beijing perceives less external threat from the northern sector, analysts assess that three GAs from this area would be demobilised. These are likely to be: 27th GA, Beijing MR; 40th GA, Shenyang MR; and 47th GA, Lanzhou MR. If the cuts are deeper then possibly the 14th GA in the Chengdu MR and 20th GA in Jinan MR could be demobilised. Chinese media reports indicate that the PLA troop strength in the southern sector — southwest facing India and the southeast responsible for a Taiwan crisis, as well as the South China Sea and Vietnam — would not experience major cuts.

Reports suggest the restructuring will result in the establishment of four or five Theatre Joint Commands. There have been indications in China's official media since at least 2011 and in the official Defence White Papers issued since 2013, that the PLA is contemplating switching to Theatre Commands and discarding the present system of Military Regions (MR). The increasing number of long-range, trans-MR Integrated Joint Operations (IJO) being conducted by the PLA, particularly since 2007 have been a pointer.

Based on Chinese media and other reports, the following outline of the proposed restructuring of the PLA emerges.

- i) The existing 7 MRs will be replaced by 4 Theatre Joint Commands. These will be a Northeast Theatre Command created by merging the Shenyang and Beijing MRs; a Northwest Theatre Command centered on the Lanzhou MR; a Southwest Theatre Command

- consisting of Chengdu MR; and a Southeast Theatre Command formed by merging the Guangzhou, Nanjing and Jinan MRs; or
- ii) That the 7 MRs will be consolidated into 5 Theatre Joint Commands. In this case the Theatre Commands would be: a Northeast Theatre Command comprising Shenyang and Beijing MRs; Northwest Theatre Command consisting of Lanzhou MR; Southwest Theatre Command comprising Chengdu MR; and a Southeast Theatre Command that incorporates the Guangzhou and Nanjing MRs. This version claims that there will also be a Reserve Joint Command based on Jinan MR, which will provide forces to other Theaters as required and perform other allotted tasks. Yet another option being mentioned is that the Beijing and Shenyang MRs will be merged into a separate Joint Command with responsibility for defense of the capital and protection of the border with North Korea. In such a case, the Southeast Theatre Command will include the Nanjing, Guangzhou and Jinan MRs. This version provides for one additional Command thereby implying that fewer troops/units would be demobilised.
  - iii) Surprisingly, the reports claim that the Theater Joint Commands would not directly command troops, which will be under the individual PLAA, PLAN, PLAAF commands in each Theatre except in times of war. In times of war the troops will be placed under a Joint Command which is to be established in each Theatre.
  - iv) The personnel strength of the PLA ground forces, for the past few years being officially referred to as PLAA, will be reduced to 360,000. China's Defence White Paper issued in 2013 had disclosed the PLAA's troop strength as 850,000.
  - v) Both versions state that the personnel strengths of the PLAN and PLAAF will increase but make no mention of the secretive strategic force viz. Second Artillery. This could be because the strength of the Second Artillery has increased by 10,000 personnel over the past year.
  - vi) In the reorganization of the PLA's 4 General Departments, the GSD will be upgraded and include high-ranking officers from all service branches. It will be a higher echelon organization than the other General Departments. It will be entrusted with planning functions and provide advice to the Chairman of the CMC and be modeled

on the US Joint Chiefs of Staff. Also, the GLD and GAD will be merged into one GLD.

- vii) The PAPP will be transformed into a National Guard and will additionally absorb a considerable number of the demobilized PLA personnel.
- viii) The number of military academies will be reduced from the present 150 to 29.

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

Meanwhile, the US-based Chinese news service Boxun reported that restructuring of the existing 150 military academies has already begun under the supervision of General Liu Yuan, Political Commissar of the PLA's General Logistics Department (GLD) and close associate of Xi Jinping. General Liu Yuan, who is the son of former Chinese President Liu Shaoqi and a ranking 'princeling', supports the military reforms pushed by Xi Jinping and has publicly spoken out against corruption in the PLA. Boxun said the 150 academies are to be reduced and merged into 29 academies, with the remaining being transferred to the local civilian administration. Only military academies catering solely to the PLA, like the Army Non-Commissioned Officer Academy, the Officer College, Staff and Command College, Logistics College, Military Engineering College, Armaments and Equipment College and Strategic Artillery Academy are to be retained.

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

The reform and restructuring of the PLA essentially orients the

Theatre Joint Commands as per their primary task. It is intended to concentrate firepower and troops trained for a specific type of warfare within a single Theatre for ease of rapid deployment. Land and sea warfare forces are to be grouped separately. For example, the Shenyang and Beijing MRs to be merged into the Northeast Theatre Command and the Jinan, Nanjing and Guangzhou MRs to be absorbed in the Southeast Theatre Command have a mainly maritime role. The primary objective of these Theatre Joint Commands will be to enable China to establish dominance over the East China Sea and South China Sea and stand up to a US-Japan alliance. Reports suggest that by 2020, the Theatres will be reinforced by three aircraft carrier combat groups with the existing aircraft carrier 'Liaoning' deployed in the East China Sea, and the other two aircraft carriers in the South China Sea. The time-frame for creation of the Theatre Joint Commands is five years.

The backdrop for these military reforms is the assessment of China's political and military leaders of the international situation and environment around China. Significant for India is the PLA spokesman's statement to the Beijing-owned Hongkong-based newspaper *Wen Wei Po* on May 27, 2011. Stating that the strength of 2.3 million is appropriate for the PLA, he justified it because of the "vastness of Chinese territory, the difficulties of the tasks required for defending maritime interests and the endless number of national development interests which are putting new requirements on army building". The spokesman added that "China is currently facing an unsafe world and increasing uncertainty. The West is recovering while the East is anxious and the North is stable while the South is tense, dangerous situation on China's borders is increasing. There is also the possibility that the actions by outsiders will bring about complex changes."

The annual conference on the 'Global Military Situation' organized by the PLA's prestigious Academy of Military Sciences (AMS) on January 9, 2015, also discussed the regional security situation in the Asia-Pacific, Europe and the Middle East. It was attended by over 150 senior PLA officers and experts including from the CMC, the four General departments, NDU and the Commandant and Political Commissar of the AMS. The conference concluded that 'unprecedented changes are taking place in the global military situation; military force in international relations is more widely used; and the situation in the



Asia-Pacific has worsened’.

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

For India it is pertinent that both versions of the restructuring proposals mention that Lanzhou and Chengdu MRs, which are oriented for military operations against India, will be retained as reinforced, independent Theatre Commands. While safeguarding Chinese investments in the northern areas of Pakistan could be a factor for the Lanzhou Theatre Command, the indication is clearly that China will maintain an ‘offensive’ posture towards India.

**JAYADEVA RANADE**



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His foreign assignments have included Hong Kong, Beijing and his last foreign posting, prior to retirement in late 2008, was as Minister in the Indian Embassy in Washington.

Mr Ranade is the author of the book 'China Unveiled: Insights into Chinese Strategic Thinking', released in January 2013. He contributes to many mainstream national newspapers, magazines and leading publications, mostly on strategic and security issues relating to China, Tibet and East Asia, his chosen fields of specialization. Chapters contributed by him on specialized aspects relating to China have been published in thirteen books.

He is often requested by leading TV news channels to comment on issues of national interest. He is invited to international conferences and seminars in India and abroad to speak on China/East Asia and other subjects, including relating to Intelligence.

## Neighbourhood Watch : Focus Myanmar

*Air Mshl Dhiraj Kukreja (Retd)*

*“The times have changed,  
the people have changed”*

*Aung San Suu Kyi.*

*(On her sweeping victory in the Myanmar polls)*

### INTRODUCTION

Myanmar has been in the international news in the recent years, with the present military rulers making some bold moves to initiate democracy in the country and hence, break the self-imposed isolation. On 08 Nov 2015, the country went in for electing a new Parliament. Ms Aung San Suu Kyi, as the head of the National League for Democracy Party (NLD), has attained a historic majority, making it possible for the Party to form the country's first, truly civilian government in more than five decades. Despite President Thein Sein, the present President, vowing for a smooth transition, there are apprehensions, and it would be only in February next year, to see whether the promise is kept. Even after the formation of the new Parliament, would the Army, which has for long tried to suppress the movement for democracy and keep itself in power, permit it? Ms Suu Kyi face challenges, not just within her country, but also in maintaining a fine balance of relations with the two largest neighbours, namely, China and India.

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**CHALLENGES FOR MS AUNG SAN SUU KYI**

Ms Suu Kyi was fighting not just an election; she was also carrying the hopes and aspirations of hundreds of thousands of her fellow citizens with her. For her to be of any use in Parliament, her Party had not just to win, but it had to gain a majority to form a government. It is for the first time that the Army has permitted elections for a democratic change as per a new Constitution farcically framed and adopted in 2008, with caveats to deny her victory and assume office as President. The complex structure of the system has set aside 25 per cent of the parliamentary seats in permanence for military nominees, just enough to block constitutional changes! The Commander-in-Chief (C-in-C) of the military is answerable to none, not even the President! The Parliament elects three vice-presidents, of which one has to be from the Army; of these three vice-presidents, one would be further elected as the President. The military, as per the Constitution, would control the three critical posts in the Cabinet of Ministers, Defence, Home, and Border Affairs. Another clause affects Ms Suu Kyi directly; the clause bars from the presidency anyone whose spouse or children are foreign citizens. Ms Suu Kyi's deceased husband, Michael Aris, was a British academic, while her two sons were born in Britain and hold British passports. The lady has thus, a tightrope to walk, not just with the Constitution, but with other issues too.

Ms Suu Kyi cannot afford to alienate the military and would have to maintain an affable equation with it, lest the C-in-C declare a 'national emergency' and assume power. She, in one of her recent utterances, had put forward an idea of a new model of governance, with her nominee as President while she would be, to all intents and purposes, the actual leader, acting 'above the President'! Such a model to follow, in the opinion of the author, would not be an ideal model.

Myanmar's current ruling party has given its full guarantee that it will hand over power as planned to NLD. The outgoing President, Mr Thein Sein has reportedly had a long meeting with Ms Suu Kyi, at her behest, who is also expected to meet with the commander-in-chief of Myanmar's military. These meetings would probably give some assurance to the NLD, which had won in a similar fashion in 1990, the last time it contested a general election, that the ruling junta would not annul the results.

Whatever implicit power-sharing arrangement the NLD and the military forge, it would be put to test most visibly in the contest to either re-elect or replace Mr Thein Sein, the man credited with initiating Myanmar's reform process. This task would be the first responsibility of the new Parliament, as each House would have to nominate a candidate and the military would pick a third. The winner would then chosen by a vote in the Parliament, with the two losing candidates going on to serve as vice presidents. With its majority in Parliament, the NLD would have the power to name the next President and one deputy, unilaterally.

This President, if a non-military nominee, could be a major thorn in the military's side, especially if backed by enough of a majority to table constitutional changes. While with 25 per cent of seats, the military would continue to retain the power to block such changes, doing so would be risky, as it would highlight its continuing role, in an apparently new democratic system.

Myanmar's economy lacks the institutions, governing experience, and legacy of stability to shrug off a turbulent transfer of power, especially if the military gets the feeling of being reined in, or entrapped into some form of retrenchment. The country can ill-afford a protracted fight that prevents the new government, or its successors, from building Myanmar's nascent regulatory framework, financial institutions, and infrastructure. On the other hand, if the country's Generals work to ensure a smooth transition, as they have vowed to do, they will, in all probability, secure sanctions relief to be in prime position to reap the rewards of Myanmar's liberalization. This would be despite the continued conflict and human rights issues in the periphery, which could make it an uneven process.

Another major task would be to get the ethnic groups, which have been for long fighting the army, together into the mainstream. On 15 October 2015, after a nearly two-year effort by the President, eight of the 15 ethnic groups signed a ceasefire agreement. While agreeing to maintain the territorial integrity of Myanmar, the groups have not laid down their arms. (The National Security Advisor of India witnessed this accord, among others. Notably, the Nationalist Socialist Council of Nagaland, led by SS Khaplang, stayed away from signing the accord). The new Government would have to resume the talks and find a new road map to take the ethnic groups along, while being attentive of the

military's concerns for any move towards federalism, as had been long promised by Ms Suu Kyi's father, Aung San. The Muslim community of Myanmar, known as the Rohingya, has been stripped of their nationality and disenfranchised. The new Government would have to find ways to instil in them a sense of equality as citizens of Myanmar, and include them into the mainstream.

Nobody knows how much latitude the Army would give the NLD, despite its majority in both Houses; at the time of writing, the NLD had won 390 seats on the total 664. Many had not believed that the NLD would do so well, least of all, the ethnic groups. Many minority voters view the NLD as another elitist party of Burmans, the majority ethnics comprising 68 per cent of the country's population. An analysis of the voting pattern shows that the minority voters believed in the NLD to change Myanmar, by defeating the Generals and bringing an improvement in their lives. Even so they remain wary, whether Ms Suu Kyi would really be able to change the Army-dominated political system that has been in place for five decades, and whether the NLD takes the interests of the ethnic groups to heart. Ms Suu Kyi must seek to stop the internal wars and foster a spirit of inclusiveness.

Myanmar's location in the Indian Ocean is important not just for India, but to China as well; it is located in the right pincer of China's reach into this area, leading China to increase economic and defence relations with it. China has developed oil and gas pipelines connecting ports, which it is aiding in developing, in Myanmar to mainland China. As a counter to the increasing interest of USA in Myanmar, it has also created a powerful proxy in the Eastern Shan State, arming the United Wa State Army with machine guns, shoulder-fired air defence missiles and even missile-fitted helicopters.

Not just the internal issues that would take up much of the time of the new incumbents in governance; they would also have to deal with issues of maintaining a relationship with the major neighbours of the country, China and India, and the rest of the world. It may not be a priority task for the new Government, but it would definitely need to spell out a strategy.

#### CHALLENGES FOR INDIA

The election results reflect the long pent-up frustrations of the

general populace of Myanmar, closeted away from the rest of the world under decades of high-handed, and often brutal, military rule and consequent economic deprivation. Myanmar is resource-rich, yet one of the most economically backward nations of the world. The road ahead is full of challenges for the newly elected, for the people of Myanmar and the other nations of the world. India, though having re-established its historical, geographical, and cultural ties with the military junta of Myanmar, will also have to recalibrate its relationship to maximise its returns, now that a democratically elected government will replace the military rulers.

The fact that Myanmar is strategically located for India, cannot be disregarded; with a shared land border of over 1600 kms and maritime waters in the Andaman Sea and the Bay of Bengal, it is India's gateway to SE Asia. Myanmar also shares a long border with China in the North, which is contiguous with the disputed frontier between India and China. India's geographical affinity with Myanmar is in its NE Region (NER), with the States of Manipur, Mizoram, and Nagaland, occupying centre-stage. Unlike any other SE Asian nation, Myanmar is the only country that has land and sea-frontiers with India. Its geographical proximity has also given rise to demographic commonalities with the Indian NER. With the geographical and demographic homogeneity, Myanmar, hence, becomes a natural choice for India to develop as a corridor with China as well as other SE Asian nations.

India's strong democratic values have worldwide recognition and it champions the propagation of democracy globally. However, in the last two decades or so, realpolitik guided India's policy towards Myanmar, to tackle cross-border insurgency and the increasing influence of China, as the primary challenges. There was wide ranging cooperation between the two nations, irrespective whether it was the military rulers or the sham democratically elected military government. This did lead Ms Suu Kyi to maintain a studied distance from India in her statements and international forums. The last few years, however, have seen a flurry of high-level visits from both India and Myanmar, laying the foundation for strong political ties. The Indian PM's visit in April 2012, after a gap of 25 years, was seen as a re-establishment of formal relations with Ms Suu Kyi. India has also engaged Myanmar in diverse fields since then; it has provided both technical and financial assistance for developmental

projects in infrastructure, human resource development, and institutional capacity-building.

The military-to-military relations between the two nations gained traction with the visit of General BC Joshi, the then COAS, in 1994. Further impetus was imparted with the visit of Gen VP Malik, the then COAS, in 2000. Bilateral annual border meetings, supply of military hardware and visits of delegations became a regular feature thereafter. Maritime security was another important feature discussed during the visit of the Indian PM in 2012. India wants Myanmar to take action against the insurgents from the North-Eastern States so that they do not find sanctuary inside its territory. The Myanmar Army has been extending unprecedented support in this regard. The military cooperation has continued to expand from then on, though mainly away from the public glare.

Apart from interacting with each other on security issues, the two nations need each other for cross-border trade too. Myanmar has an abundance of natural resources, which include timber, minerals and precious stones and the world's tenth largest gas reserve; its soil is very conducive to rice production and other food products. There is, thus, every economic reason for India to develop its relations with Myanmar. However, some factors have been inhibiting the growth of trade between the two countries. Items imported from third countries to Myanmar find their way to India. Genuine traders are harassed for money by the numerous insurgent groups. These groups, combined with the rebels of Myanmar, create frequent law and order problems in the border area. The general public feels threatened by the large security contingents of both nations, deployed to ensure safe cross-border trade. Notwithstanding these issues, India and Myanmar are moving ahead with increasing the trade from the present 22 agricultural items. India has also prepared the blue-print for the Kaladan multi-nodal transport project that will connect the Kolkata port with Sittwe port, in Myanmar, by sea; it will then link Sittwe to Lashio in Myanmar, via Kaladan river-boat route, and then from Lashio onto Mizoram, by road transport. It needs to be ensured that this and other projects for improvement of ports and roads must be completed with specified time-lines.

India energy major, ONGC Videsh Ltd, holds a 30% stake in Myanmar's offshore gas blocks. Its efforts, however, to buy and transport



the gas through Bangladesh in a tripartite pact (India-Myanmar-Bangladesh) did not succeed due to additional demands raised by the then Bangladesh Government under Ms Khaleda Zia. Myanmar, in the meantime, agreed to sell its gas to China instead. India needs to pursue this avenue, not just to meet its energy needs, but also to counter China's influence in Myanmar.

The bi-lateral trade got a boost ever since Myanmar's admission into the ASEAN in 1996; the balance of trade at present, however, is heavily tilted in favour of Myanmar. Increased trade with Myanmar, more so across the land border, would be an assurance to it that India's trade basket is more complementary rather than competitive, while it would help in promoting growth and prosperity in our own NER.

### ROAD AHEAD

For addressing India's security interests, the emergence of a strong and modern Myanmar is essential. India should, therefore, work towards Myanmar's growth; there is need of Indian expertise in the fields of agro-tech industries, metallurgical industries, oil and gas exploration, setting up of refineries, communication infrastructure development, science and technology, IT and higher education and hotel and tourism industry. Economic cooperation, hence, is in India's interests.

Apart from the economic and infrastructure development support that India is providing, it must also continue to engage the Myanmar Armed Forces, considering that India shares a long land and maritime border. Intelligence sharing, training, and joint exercises are but a few spheres of cooperation that are available for mutual benefit of both nations' armed forces and national security. From a low-key interaction initiated a few years ago, India needs to pursue with vigour, lest the initiative is lost.

India and Myanmar are members of the ASEAN Defence Ministers Meeting (ADMM), a forum where shared defence and security concerns are discussed and joint exercises conducted on realistic scenarios, especially in asymmetric security situations. The primary aim of such interaction is to provide training and cooperation in humanitarian assistance, disaster relief, maritime security, counter-terrorism, and peacekeeping operations.

### CONCLUDING REMARKS

Myanmar holds the key to India's "Look East" and now "Act East" Policy. India, therefore, should proactively engage the new Myanmar leadership, to boost its relations in all spheres. It is an onerous task, easier said than done; there are some unanswered questions, answers to which would be found only in the coming months, when the NLD, under Ms Suu Kyi, gets into the serious business of running a country.

- Does Ms Suu Kyi and her NLD Party have the experience or capacity to provide good governance? After five decades of authoritarian rule, the next phase of transition will pose severe challenges. The Party will have to forge new power-sharing agreements, which do not alienate the minorities, and most importantly, the Army.
- Notwithstanding the majority in Parliament, the Army would continue to hold 25 per cent of the seats. What will then be the relationship between Ms Suu Kyi and the Army leadership? Will the NLD Party, with its majority, initiate a move for an immediate amendment of the Constitution?

It will take a lot of wisdom, prudence, and judiciousness, on the part of Ms Suu Kyi and her NLD Party, not just to resolve problems at home, but to engage the international community as well, to prove that the democratic experiment is not just a 'flash in the pan' movement.

From the Indian perspective, there is a wide scope of enhancement of bilateral ties, including in the defence portfolio. India, however, has to prepare for some political games that Ms Suu Kyi may play. Notwithstanding her goodwill towards India, she may just treat India as a secondary power in Myanmar's external relations; this could mean the country may take whatever it wants from India, but may not reciprocate in equal measure by giving it a prominent role in its political, economic, and defence development.

There is every possibility that Myanmar may cosy up to China, more than it would to India. Upset with the Generals, China had hosted Ms Suu Kyi in the run-up to the elections. While with the Generals, India was sure of its position, having played its cards well, with Ms Suu Kyi, India is not so sure and will have to recalibrate its strategy. Myanmar has moved into uncharted and uncertain territory, its historic display of democratic unity notwithstanding.

The world, India more so, awaits its next move.

**AIR MARSHAL DHIRAJ KUKREJA, PVSM AVSM VSM (RETD)**



Air Marshal Dhiraj Kukreja, PVSM AVSM VSM, retired as the AOC-in-C of Training Command, IAF on 29 February 2012. A pilot by profession, he has flown various fighter and transport aircraft (MiG21, MiG 23, AN 32, IL 76, Do-228).

The Air Marshal, in his long stint in the Air Force of about 40 years, has held many operational and staff appointments. Prior to taking over as the AOC-in-C, he was the Deputy Chief - Doctrines, Organisation and Training, and later Operations, in HQ IDS. The officer has commanded a premier transport squadron in the Northern Sector, Air Force Station, Yelahanka - the main transport training base of the IAF, and the Air Force Academy at Hyderabad.

He is the first Air Force officer to have undergone an International Fellowship at the National Defence University, Washington DC, USA while simultaneously pursuing a post graduate course in 'National Security Strategy' from National War College, USA. A member of think- tanks, he is a prolific writer with more than 125 articles on matters of national security and other contemporary topics, published in various defence journals; he is also an invitee to many seminars on national security and related issues.

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## “Challenges of Infrastructure Development in the North East”

*Major General Vijay P Pawar (Retd)*

### INTRODUCTION

When we talk of the NE it is the eight ( 8 ) states that we consider, namely - Meghalaya, Tripura, Manipur, Mizoram, Nagaland, Arunachal, Assam and Sikkim. These states have many things in common like vast natural resources and enormous potential to develop like the rest of the country. Yet this ‘Mini India’, divergent



due to different cultural, linguistic, historic and religious background, is different. The total area is approximately 9 % of India and it is connected by the narrow Siliguri corridor to the rest of India making communications long and difficult. For years the area has remained under developed with gross under utilization of its economic potential, leading to insurgency and law and order problems. Developing infrastructure has seen urgency of late but has been bogged down in the multiple challenges posed by this ‘remote’ region, complex in so many ways.

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### VULNERABILITY DUE TO LACK OF INFRASTRUCTURE

The development in the NE has been stunted by its remoteness coupled with a myopic vision that the borders were more secure if left under developed as it will dissuade any intruder - Only in October / November 2015 the Walong Advanced Landing Ground ( ALG ) in Arunachal Pradesh was inaugurated; decision to reconstruct the ALG was taken in 2013 and it was made operational in a record time of 21 months. The ALG was last used during 1962 operations and thereafter remained abandoned for a long time - is an example. This has been countered by exactly the opposite across the borders where China has developed the Tibetan Autonomous Region (TAR) into a logistic base capable of launching a major offensive. They have developed over 51000 Kms of Highways, about 1000 kms of laterals, a railway network to Lhasa poised to connect to Sikkim and 15 new airfields three for civil aviation, the rest with military implications. All this with a permanent Optical Fibre Network and strong communications enables a logistic base in TAR that can handle 2.23 million Tons of cargo, still growing, projected to handle 3.1 Trillion tons of cargo by 2020. A threat in being now indisputably exists along the Northern borders.

Coupled with this is the internal threat which has been fueled by the lack of infrastructure and economic development. Insurgency is at its maximum in Manipur and it continues to simmer in all the NE states of India. It is said that out of the 65 terror organizations in India, 57 are Northeast-based and of that 34 are based in Manipur. The deadliest attack on the Indian Army recently resulting in the deaths of 20 soldiers of the 6 Dogra regiment, took place in Manipur's Chandel District bordering Myanmar. The Insurgency has seen support from factions in Myanmar, China and Bangladesh as also by Pakistan in an indirect manner. Lack of infrastructure in the NE is clearly now a huge disadvantage and a threat to security, that needs to be addressed. Insurgency by itself is one of the major challenges to Infra Development in a region which has so many other challenges – today the insurgency is also coming in the way of using the newly created prominent Highway from Golaghat in Assam to Imphal in Manipur. It was Highway No 39 earlier ,now NH 102 and recently renamed to AH 1 ( Asian Highway 1 ).

Broadly, infrastructure has been limited to the age old rail and road connectivity through the Siliguri corridor and its extension which

has seen very slow progress. The airports have been limited, lack night landing facilities and facilities for aircrafts to park overnight. This further restricts the traffic. What we immediately need in this region is a massive upgrade roughly estimated at –

- i) 11000 km of roads in the next 5 years
- ii) Rail line 2500 Kms ( new 965 Kms)
- iii) Power projects – 60,000 MW
- iv) Air ports , Advanced Landing Grounds (ALGs)
- v) Local Infra structures for industry and housing.
- vi) Adequate military infrastructure to counter security threats.

Expenditure on Infrastructure has to be ongoing as it is costly and takes time to develop. More important, it has to be efficiently utilized to optimize the outcome and achieve long term results.

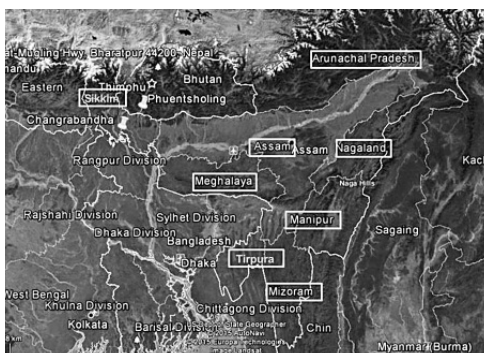
#### **CHALLENGES TO DEVELOPMENT OF INFRASTRUCTURE**

The lack of basic infrastructure to start and progress works is a major difficulty in the Region. Not everything can be pumped in from the main land. Today Bitumen is transported from Haldia to the NE by road. Adequate construction machinery is not readily available in the region. Engineers and skilled labour have to be imported. Connectivity hinders move of both manpower and construction material. The only railway line, the single highway from West to East, and lack of well spread air bases remains an issue.

Even aggregate, sand and river bed material that is available in abundance is at a premium for construction due to various local reasons; a mix of delayed licenses, environmental clearances and control of private quarries by groups making rates for these materials unpredictable if not unaffordable. It is easy to see that no construction can proceed smoothly with these basic materials being difficult to lay hands on. This needs to be addressed urgently by the respective state governments, identifying areas for mining, construction material and regulating its supply at predictable rates and creating easy access to construction equipment locally. This focus on ‘basic infrastructure towards creating larger infrastructure’ is urgently required.

The Engineering Challenges in the region are many. The riverine terrain requires extensive bridging, it is prone to flooding and requires deep foundations and raised embankments. Soil for raising embankments

is also to be carted over long distances. The mighty Brahmaputra slices the NE in two making crossings few and far between. This increases movement time for move of men and material across the river. In an operational scenario it lengthens logistic lines and makes these a weak link. Bridges across the mighty river are itself a major engineering challenge.



Innovative alternatives like the Hover Barge that can negotiate sandy patches, water bodies and marshy ground carrying loads up to a 1000 ton needs to be explored. These Barges are not to be mistaken for Hovercrafts which are lighter, expensive and not cost effective for transportation of loads.

Moving closer to the borders are hilly tracts which pose additional challenges. The Himalayas are young fold mountains that face the brunt of the monsoons on the Indian side, one of the most challenging combinations of high altitude and slide prone hill faces, made more vulnerable by heavy monsoons. Often this is compared with the areas where the Chinese have developed infrastructure, without understanding the difference. The Tibetan plateau is far more stable compared to the Himalayas which are comparatively a heap of rubble thrown up more recently. The Tibetan plateau is sheltered from the monsoons and once on the plateau the going is far easier. Construction in the Himalayas take more time, needs extensive protection works and a courageous work force.

Deployment of both men and equipment along these hills require adequate air lift capability. Heavy lift helicopters like the Sky Crane can be





hugely beneficial for both civil and military infrastructure in this terrain. India has just two aging MI 26, for the whole nation; a concerning state of affairs. Efforts to procure the Chinoks from US may change this.

Along the Eastern Borders are the Purvanchal or Eastern Ranges, relatively lower hills but affected by very heavy rainfall and mud slides where whole hill faces can simply disappear overnight after heavy rains, a nightmare to engineers planning permanent infrastructure such as roads and rails. And where ever the road and the rail run along the same hill side, one is a threat to the



other unless cleverly engineered. The route from Silchar to Manipur along the Barak River is one such segment where the road and new rail route are progressing hazardously along the same hill slopes.

While the Northern regions have rock, the Southern states of Tirpura and Mizoram have a problem finding stone. It has to come across from Bangladesh or from the interiors with long haulage. Techniques of soil stabilization offer part of the answer. Sand is also a costly commodity in Manipur and it could be cheaper to get it across the border from Burma for construction along the borders there.

The engineer's problems are not just technical. The insurgency makes physical safety also an issue. This combined with the health hazards is a disincentive which has to be compensated adequately by allowances to the work force. Cases of extortion make contractors vulnerable and vary and they seek guarantees for their projects to be financially viable.

Coupled with this are the normal problems all over in regard to infra development namely land acquisition in all the states, especially in the Purvanchal Ranges where the locals own the land. Environmental clearance needs to be dealt with more pragmatically and quickly. Promises of single window clearances are more on paper. Contracts awarded have to key in all the local factors in preparing Detailed Project Reports (DPRs), for if these are poorly prepared, it leads to cost and time over

runs. The need of the hour in the construction industry is to be able to give timely decisions and compensate them for unforeseen situations. Timely decisions can salvage a lot of time and cost overruns. This is a grey area universally and needs attention.

### AN INTEGRATED APPROACH

The NE is not all problems. If one adapts to its demands, one could actually save. The riverine terrain can be exploited by planning weirs and dams on the small and mighty rivers like the Chinese 'Sang Dam' that has increased defence potential of their area and a network of water ways, the cheapest mode of transport. Kolkata and Guwahati are actually connected by inland waterways, a life line before independence. Opening this and operating it can make trade to and from the NE much more cost effective.

We have a large number of Construction Agencies operating in the NE – Border Roads Organisation (BRO), Military Engineering services (MES), Central Public Works Department (CPWD), State Public Works Department (PWD) were amongst the first to work in this region. The National Highway Authority of India (NHAI) and NHIDCL are more active now. The railways have increased their commitment and activities are promoted by the Confederation of Indian Industries (CII) and other similar agencies. A number of Power Projects are also in various stages of implementation. All of them face the challenges mentioned herein and need to work together. Of these one of the most successful models has been of the Border Roads that can be credited for initial connectivity in all the NE states and in Bhutan, with the locals ever grateful for this.

Recent efforts to augment the BRO efforts by civilian contractors cannot be at the cost of their ability to work departmentally for that would leave no emergency response to natural calamities or the ability to support the army during operations. Efforts should be to use the BRO for maximum effect and share their experience with all the other construction agencies, creating synergy.

This synergy is not just between road construction agencies but all Infra development projects, be it power, buildings, irrigation or Highways, for all use the same engineering - building materials, similar plant and equipment and one is dependent on the other. The power

projects require roads to carry their equipment, the industry requires power and the Highways require support from the local industry to be able to work efficiently.

Directorate of North East Region (DONER) is an appropriate agency to coordinate all the activities, even maintain an inventory of all the plant and equipment deployed by various agencies so that they can be encouraged to share and save rather than individual projects have inventories lying idle from time to time.

### CONCLUSION

About a year back, our Foreign Minister while in Myanmar and subsequently in Vietnam rightly said that the states of the NE can help us to look East and can be the launch pads for the ‘Act East Policy’ and can become gateway to the ASEAN. Infrastructure in the region will facilitate that and with it would come economic prosperity and a check on insurgent activities. All this has to happen simultaneously.

Security will be greatly enhanced with improved infrastructure and the economic development and enhanced security will in the long run more than pay for the investment in infrastructure.

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#### **MAJOR GENERAL VIJAY P PAWAR, AVSM, VSM**



Major General Vijay P Pawar, AVSM, VSM (Retired), an alumni of NDA Kharakvasala, served in the Indian Army for 41 years. He was assigned into the Corps of Engineers ( Madras Sappers) where he worked with his troops to achieve outstanding fetes in the most difficult terrains of the North and the North East. He has taken part in active operations in Northern and Western frontiers. He commanded his engineer unit in J & K during the Peak of insurgency (1990 – 93) in the areas of Siachen, Leh Ladakh, Kargil and the Kupwara sectors to achieve the best during the times. While serving he was able to attend all the important courses of instruction like the Higher Command and the National Defence Courses. He has held, during service, important assignments of Instructor at NDA Khadakvasala, Brigade Major of an active formation, Colonel Administration of a Division on the Western Border, Commander an Engineer Brigade in Deserts, Chief Engineer with the Air force, Commandant of MEG & Center at Bangalore, Provost Marshal of the Indian Army and Major General In charge Administration in Northern Command. On retirement he has continued to work in the Corporate sector for over 10 years in different capacities. He has to his credit large number of awards and decorations.

## Power Balance 2015 - 25: India's Role

*Lt Col M K Gupta Ray (Retd)*

### POWER EQUATION: HISTORICAL REVIEW

Every 500 years or so, balance of world power shifts its center of gravity. Till about 700 AD India had a good centrifugal force. It had strong powerful rulers controlling the entire subcontinent extending up to Afghanistan. Though Indian rulers never had good naval power but had good trading relation with various countries in east and west.

800 AD onwards the situation started changing. India was subjected to invasions after invasions. While India had very powerful regional armies under various local kingdoms it lacked in two aspects: one, she did not have a national strategy to create confederate army joining all the local powerful kings and implement it in case of foreign invasion; two her military tactics and weaponries did not advance with the change of times, leading to course changing historical defeats.

From the era of 1300 AD the center of gravity shifted to Europe. Europe developed powerful navy. Initially their quest for treasure and urge to expand the trade had taken them to various countries, where they, though had initially went as trader, had ultimately settled down making these as their colonies. They by their characteristics and economic pressure were out bound. But India, perhaps, with their inward mindset and total complacency with abundance did not care to venture out to create colonies.

The cause of decline of Asian Powers was nothing but lack of military prowess.

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During eighteen and nineteenth century military prowess was Europe centric. There were periods of constant wars, fought in Europe; some of those changed the course of history, when there was relative peace in Asian continent. But from 20<sup>th</sup> century, the events moved faster. There were two great wars. The fruit of industrial revolution was being shared by larger number of countries. Social, political and financial awareness were developing almost globally; so was raising armies. People became aware of their individual rights and power equation changed. Power of European countries to influence and control the world affair diminished to non-existence. Two great powers raised their presence: Russia and America. Hot-war mostly gave way to cold-war barring few localized battles and the center of gravity again started shifting. It became bipolar with America and Russia controlling the world scenario. Europe started losing its grips. Reasons are many, but the main cause was the strategic equation was changing. Countries with limited population, resources and industry had to give way to bigger countries with greater resources in international scenario. There was a shift in the causes of the power race. Erstwhile causes, e.g., land, wealth and trade gave way to political, ideological and commercial causes. The world divided between ideologies of haves and have-nots. Based on this ideological difference, like minded countries grouped themselves and created power blocks with either America or Russia based on capitalist and Marxist/Socialist theory. It gave a bipolar character and both the blocks tried to expand their influence over the rest of the countries and ensure hegemony. Highly destructive nature of weapons avoided physical confrontation thus gave way to cold war. This resulted into rapid building of highly destructive weapons to act as shields from the other nation-group – thus cold war emerged.

However, towards the end of the 20th century, even bipolar power center, mostly due to economic pressure and apparent ideology failure, crumbled: leading to end of the cold war. End of cold war had led to fundamental restructuring. This situation has created power vacuum. Ideological rivalries have given way to economic rivalry. Powerful countries are trying to control world economy even to an extent of interfering into other nation's resources.

### SECURITY ENVIRONMENT IN COMING DAYS

There are lots of uncertainties about the future prospect of international security. Present one-point power base led by USA will not provide strategic alliance as before. This situation will drive the major countries to develop and create their respective power base due to their conflicting interests. Various countries and unions of countries would start scrambling to fill power vacuum. Foremost countries, beside undisputed USA, are resurgent Russia, China, India and European Union, which are emerging as main future partners of power blocks. They are in the process of defining their role in the new world order. For the other developing nations there is also new pressure on economic, security and nuclear field. They are likely to create regional group for economic and security reason.

The situation has further changed from conventional conflict to terrorism with religious fanaticism taking grip in the world peace scenario. This has proliferated basically with Russian Invasion in Afghanistan in West Asia which is now growing as a world phenomenon. The Russian involvement ended but not religious fanaticism. This struggle gave birth to Al Qaeda and various other religious power-blocks, small or big, who are trying to dominate their own area. It gave birth to the concept of Jihadists. Those days, enormous supply of arms and logistical help were available to these groups fighting against USSR. Since the Russian withdrawal, troops of these groups had started to fight among them to create respective niche area.

West Asia got gradually engulfed into local turmoil giving way to group fanaticism. USA showed special interest into this area by helping choice groups thus creating power blocks and considered to be the main cause of present destabilization of in West Asia. It took the advantage of crumbling Russia and wanted to create hegemony specially to have control on oil. The revolution in Iran and removal of Shah of Iran, a moderate face, transferred the power in the hands of fundamentalists. In the mean time the war 'Desert Storm' started looming in the horizon. Elimination of Saddam Hussein led to disintegration of Iraq and created a power vacuum. Pro Saddam elements became bitter fighter against US and allied force. Practically there is no governance in west Asia.

This has led to the creation among others of Osama Bin Laden led Al-Qaeda, Taliban, Tehrik-i-Taliban Pakistan, Hezbollah, Kurdistan's Worker's

Party, Hamas, ai-Nusra Front and the most menacing outfit, ISIL or ISIS, which have given religious fanaticism an international colour. By now they have carved out substantial territory from Iraq and Syria to establish their own dictate. They are so ruthless that even Al-Qaeda and large number of renowned Muslim organizations are distancing themselves. But they are reaching out to international arena and have made strike-possibility at anywhere and everywhere. To be able to strike, unhindered sleeping cells are being created all over the targeted countries including India.

Their recent ghastly attack in France is likely to unite all the sane countries of the world to fight against them. This has already created union between Russia and France in their joint attack against ISIS strongholds. But USA and Russia are not united in their choice of support in Syria. While USSR is supporting ruler Assad of Syria and supporting him with force, USA is totally against him for his ruthless suppression of the opposition parties countering Assad's cruel suppression. Recent downing of Russian fighter plane by the Turkish Air Force has further vitiated the situation and the relation between USA and Russia has further strained. It is high time that they forget their internal differences of opinions and unite to concentrate on the real problem. All countries of the world will have to be united to rid this off in order to stop any such ghastly attack on the humanity in future and make the world peaceful.

Under this circumstances India, by virtue of her proximity and internal communal situation, get dragged into that. Thanks to her neighbor Pakistan India is deeply involved in militant activities: suffered lots of strikes from them. Frustrated ISIS, after being struck hard from joint force of USA, European countries and Russia, is very likely to strain its gun to India. They are already threatening India. They have a soft base in Pakistan.

Under this scenario what part India is going to play. Very recently on 23 Nov 2015 Prime Minister Narendra Modi, in Indonesia, called for creation of world power to fight against the great menace to humanity. What will be the level of participation by the Indian Forces in this world power and under whose command this force will fight may become a point of debate. But India has to adopt an effective strategy, both individually and globally, to ensure national security against such invisible destructive forces.



### SECURITY ENVIRONMENT AROUND INDIA

At present there are continuous involvements of external powers in west, south and south-east Asia. These areas, especially next door West Asia, are facing constant violence creating disturbed situations which is inimical to local peace and progress including India. India will have to suffer the consequences. Pakistanis creating perpetual threat to include conventional, nuclear and militant. It has become hub of most of the militant activities and shelter for notorious militant leaders. Osama bin Laden was found hiding here. Its army is constantly causing border disputes and cease-fire violation creating a volatile situation likely to escalate into full-scale war any time. Nuclear capability as obtaining with them has made the situation very vulnerable.

Beside the threat from West, India is also not comfortable with northern neighbour China. There is a long boundary, across the entire Himalayan Ranges with age old border disputes which started from British era still unresolved, though large part of the boundary is shielded by Nepal and Bhutan. There are occasional border stand offs which disturb the local peace. The major disputed areas are Arunachal Pradesh which is controlled by India, Aksai China controlled by China, area around it is mostly controlled by India and Trans Karakoram tract is mostly controlled by China.

Immediate neighbours like Bangladesh and Myanmar, though are not a direct military threat to India, but act as hubs at times for the militants from eastern India to take refuge and shelter to either to regroup themselves or convalesce after they are struck hard by the Indian security forces. Fortunately with the change of government of Myanmar and attitude of Bangladesh situation might improve. Major border disputes with Bangladesh have been resolved.

The relation between Indian and Nepal, since the 1950 Indo-Nepal Treaty of Friendship and Peace, has been passing through very rough weather. From special relation that India and Nepal used to enjoy, situation went to take such a dip that India enforced economic blockade and Nepal started leaning towards China. Change of guard in Nepal from monarchy to Marxist lien government created its own effect. There is some territorial dispute with Nepal regarding Kalapani area in Darchula District, Nepal and Pithoragarh District in India. But one may keep it in mind that Nepal and Bhutan act as buffer between India and China.

Good neighbourly relation will be to our tremendous advantage.

In near future the entire world power is likely to be divided in five power blocks viz. USA, Russia, European Union, China and India with their respective satellite countries, primarily regional, based on their strategic location, military and economic lien. They are strategically well placed and have intrinsic capability to become so. Out of them USA is already a super power for many years, Russia though had lost that status for some time but would gradually regain its position very soon. Russia controls maximum number of nuclear warheads. China is surging ahead with its increasing economic and military power. It boasts to maintain the largest army in the world with increasing budget allocation to make it more modernize. Its area of influence is growing due to its aggressive policy and increasing share in world market. It is fighting in both economic and military fronts. It is making other powers to sit up and think. India is the most affected country vying for regional hegemony.

India is also a growing world power. Her greatest strength is her strategic location which compels her to get strong and work as an international power, to be able to keep the regional peace. Or else some other power, particularly China would fill in the vacuum. In that case India will be strangulated.

It is in position to influence one of the busiest trade route of the world: Indian Ocean. It is the meeting point of East and West. India must be able to keep this entire area under her influence. That will only be possible once she attains economic development, political maturity, military power and nuclear security. India with its size, resources, skill available is increasingly seen as a potential world power. It has a stable central government with reasonably good industrial and agricultural progress. It has the distinction of having a third largest pool of trained and scientific manpower as well as army in the world. The expansion and diversification of industrial capacity has made important strides. Her industrial capability is gradually providing good base for indigenization of all those products including weapons those are being imported at a high cost and making India vulnerable and dependent on the foreign countries which also supply the same warheads to the adversaries of India: thus a strategic breach.

It has a great responsibility in keeping sea-routes of Indian Ocean, Arabian Sea and Bay of Bengal safe and under control. It is clear

that India is slated to play an increasingly larger role in regional and international arena. Its growing population with increasingly better economic condition is attracting all the economic giants of the world. Its military might is a matter of watch by all the powers both as a military market and military power. It is one of the important partners of UN peace-keeping force. However, its future as a credible global power will depend on how it deals with the present transitory phase with her buoyant leadership. The Indian leaders need to be more matured with bigger vision while implementing its national policies, with interest of the country at the forefront, with vigour and single mind. India's power and status projection must essentially depend upon its national security based on political maturity, economic stability, infrastructural development and military power. Military power is generally outcome of the former three. The asymmetrical power structure in South, South East and West Asia ensures India's centrality as a regional power.

#### **MARITIME POWER**

Before I dwell on Maritime security let me start with the concepts of Navy General of US, (Alfred Thayer Mahan: Sept 27 1840 – Dec 1 1914) who is being studied by politicians, military strategists and thinkers of many countries including China and Japan. He was great exponent of application of strategic naval power for ultimate victory. The history has proved that in major wars navy in right combination with army and air force would fetch you the victory.

The Mahan believed that national greatness was inextricably associated with the sea, with its commercial usage in peace and its control in war. His goal was to discover the laws of history that determined who controlled the seas. The primary mission of a navy was to secure the command of the sea. This not only permitted the maintenance of sea communications for one's own ships while denying their use to the enemy but also, if necessary, provided the means for close supervision of neutral trade. This control of the sea could not be achieved by destruction of commerce but only by destroying or neutralizing the enemy fleet. This called for concentration of naval forces composed of capital ships, not unduly large but numerous, well manned with crews thoroughly trained, and operating under the principle that the best defense is an aggressive offense.

Navy's part in securing victory was not fully understood by French public opinion in 1918, but a synthesis of old and new ideas arose from the lessons of the war, especially by admiral Raoul Castex (1878–1968), from 1927 to 1935, who synthesized in his five-volume *Théories Stratégiques* the classical and materialist schools of naval theory. He reversed Mahan's theory that command of the sea precedes maritime communications and foresaw the enlarged roles of aircraft and submarines in naval warfare. Castex enlarged strategic theory to include nonmilitary factors (policy, geography, coalitions, public opinion, and constraints) and internal factors (economy of force, offense and defense, communications, operational plans, morale and command) to conceive a general strategy to attain final victory.

With this we may analyse our maritime power within the confines of Arabian Sea, Bay of Bengal and Indian Ocean. First taste of superiority in maritime security was felt in 1971 War when Indian Navy succeeded in totally blocking both commercial and naval movement of Pakistan. All ships of various countries carrying contraband were impounded and arrested. That helped to a great extent to win the war. However, India was greatly helped by Russian Navy when American and British navy wanted to threaten India in favour of Pakistan. But situation has changed immensely. Indian Ocean has presence of all powerful nations in which US has major presence. But rising China is gradually trying exerting its hegemony and challenging US Navy. To protect itself, China is creating 1<sup>st</sup> and 2<sup>nd</sup> rings of islands along west and east line from Korea/Yellow Sea in the north to, Philippines/Malaysia in the south. It is directly challenging the US Navy from operating around this area. China is coming out of its coast-guard mentality and developing into a Blue Water navy and vying with USA in controlling the area connecting Indian Ocean, East China Sea, South China Sea Philippine Sea through which vital transit routes of the world economy run. China is putting more emphasis on developing its naval fleet than its once favorite land army.

Proximity of India to Indian Ocean and its inherent security reason must make India aware of its responsibility and build its maritime power accordingly. It may not allow USA, China and Japan to dominate the area and allow Indian Ocean to become a colony of China.

Other operations that Indian defense forces specially navy will have

to undertake are against sea pirating, drug trafficking and in favour of amphibious or air-borne operation in support of satellite countries in the neighbourhood.

### **FUTURE STRATEGY**

Keeping the above situation in view, India needs to work out its future strategy and building up her defence Forces in keeping with 2025 world scenario in order to keep her own interest safe and ensure hegemony over her area of influence to include, west, east and south-east Asia, Indian Ocean with African coast in the west and Indonesia and Malaysia in South East, extended up to Western coast of Australia and other littoral countries. For this India has to develop itself politically, financially and militarily.

With this background we need to undertake all-round developments to get India at the pedestal of world power by 2025. Whereas political maturity, administrative honesty, industrial and infrastructural developments are very much essential to become a global power, we are primarily going to discuss as to what would be the security situation and military objectives in 2025 and requirement of military strength to achieve and sustain that.

What all we would have to fight against would be:

- a. Conventional wars against neighbouring country/countries may be against single or multiple forces (worst scenario). However, even if one front opens, threat from the other front cannot be ruled out.
- b. Low-intensity war along the border.
- c. War against militants alone or as a partner of a group or world body.
- d. Power projection across the sea to help a neighbouring country, protect economic interest or guard sea-lanes.
- e. Launch amphibious operation to keep hold on strategic points.
- f. Creating adequate ring of bases in the Indian Ocean to thwart physical contact or delay the same with the main land.
- g. Fight against pirates or drug traffickers.
- h. Continuous Surveillance along and beyond the border.
- i. Tight control along the border.
- j. Upgrading internal and external intelligence.
- k. To be a part of global force.

First of all we shall try to analyse as to what would be the scenario by the time we reach 2025 based on the present trend and possible future situation. At present the West Asia is on a boiling pot starting from our immediate neighbourhood to right across entire Middle East touching Mediterranean Sea. We have disputable claims in northern border, enforcing right over sea lanes in Southeast Asia. Last but not the least rising militant situation which is fast spreading across the globe. These problems are likely to proliferate and not diminish. We need to grow good bilateral relations with all the Asian and East African countries to have greater acceptability by them. This entails creating regional unions with these countries. These unions besides becoming economy hubs would also work as military bases. This calls for astute foreign and economic policies followed by establishing real patronizing attitude by India without hurting the ego or creating Big Brother effect at the same time care to be taken not to be exploited. Every powerful country would like to create its hegemony and exert its power. Any let-up by India will invite foreign power to fill-up the vacuum.

But peace and tranquility, so essential for economic advance, is under threat. Each country in this area is in turmoil. Militancy is rapidly rising affecting not only the region but the world with direct impact on Indian security. The conflict between Israel and Palestinians and other neighboring countries is going on unabated. Pakistan, from the very day of its coming to existence, is obsessed with confrontational attitude against India. They are unable to fathom their futility in doing the same, thus spending their fortune on war path which could well be utilised for their economic development. Further to that, their fundamentalist has made it a launch-pad for all kinds of terror activities. This has not only thwarted their progress but also expanded the arena of militant activities.

Iran, Iraq, Syria, Turkey, Afghanistan, name any West Asian Country one will find it in indirect clutch of the fundamentalists who are trying to disturb the homogeneity of the countries. Yemen is on the line. The new threat, ISIS, is up to destroy world peace. Recent ghastly attack in France has increased vulnerability to the world population. Militant organizations like ISIS, finding growing difficulties to carry out centralized operation against large scale operation on them by conglomerate forces, are creating sleeping cells in the target countries with their members or

sympathizers to operate in their respective countries. Incident in France is an example of that.

On the other hand it is helping to create world body to fight against terrorism. India has to be an important ally to this power-block.

In north we have china with which we have considerable economic and security issues to be resolved. In security aspect it has the largest army of the world and with double the size that of India, well poised against India, backed by good infrastructure, economic progress, communication net-work and forward deployment. There is a large boundary between China and India. Though they are likely confrontations, but unlike Pakistan, there is no fundamentalist approach other than boundary dispute and struggle for hegemony. We have manifested mutual trade interest, which may restrict both the countries from taking knee-jerk action, though politics do not have any permanent foe or friend. The long cultural, religious, trade linkage between India and China has its own part to play. Proper handling may buttress a congenial relation between these two great civilisations with their very old history. Only thing which is needed is a reconciliatory approach by understanding that both countries are too big and powerful to achieve anything by military confrontation. It would only cause mutual destructions while both are in possessions of weapons of mass destruction. In today's world physical capturing of another country, especially of a country with the size of India or china, is unthinkable. So why to fight! Let's understand each other's strong points arising out of natural endowments like geographical location, resources, economy and technical advances also limitations in order to create safe environment.

In south we have volatile Sri Lanka. It holds a very strategic position in the gate-way of Indian Ocean. There are numbers of other strategically important small islands in the Indian Ocean viz., Laccadive, Maldives, Seychelles, British Indian Colonies, Mauritius-Reunion, Madagascar and number of small islands which would assist in making chain of bases to whichever power controls Indian Ocean. India need to have good relation with them for keeping the ocean secured. Besides that there are many developed countries in the south-east Asia as well as developing states in Africa where India need to maintain good relation.

**POWER COMPARISON**

Our strategic vision till 2025 shall be to have reasonable military control over the Indian Ocean bounded by Australia in the east and South Africa in the west besides of course Arabian Sea and Bay of Bengal. The important countries touching this boundary are, Burma, Thailand, Malaysia, Indonesia up to Western Australia in the east and the littoral countries of Western coast of Arabian Sea and Indian Ocean touching Oman, Yemen, Somalia to down to South Africa. These countries must feel the existence of India both commercially and militarily. Indian Navy must have reasonable influence over foreign navies operating in this area.

In view of above let's assess what we have around to deal with.

<b>Sr. No.</b>	<b>Country</b>	<b>No of soldiers</b>	<b>Budget</b>
a)	Chinese Army	22, 85,000 with 2,800 Aircraft	126 Bn
b)	USA Army	14, 31,000 with 13,892 Aircraft	612 Bn
c)	Indian Army	13, 25,000 with 1,800 Aircraft	46 Bn
d)	Russian Army	7, 68,000 with 3,100 Aircraft	76.6 Bn
e)	North Korean Army	11, 90,000 with 810 Aircraft	7.5 Bn
f)	Pakistani Army	6, 30,000	7.7Bn
g)	South Korean Army	6, 30,000	34 Bn
h)	Iraq Army	5,78,269	18.9 Bn
i)	Iranian Army	5, 34,000	
j)	Vietnam Army	4, 82,000	
k)	Turkish Army	5, 10,000.	22.6 Bn



Details of army held by developed countries are given hereunder:-

	<b>Active troops</b>	<b>Spending</b>	<b>Navy by weight in tons</b>	<b>Aircraft</b>	<b>Tanks</b>	<b>Special notes</b>
<b>U.S.A.</b>	1,400,00	\$577 billion	3,415,893	13,892	8,848	Budget larger than rest of list combined
<b>Russia</b>	766,000	\$60 billion	845,730	3,429	15,398	Controls the oil of its most likely enemies
<b>China</b>	2,333,000	\$145 billion	708,086	2,860	9,150	Special operators consistently place at Warrior Games
<b>India</b>	1,325,000	\$38 billion	317,725	1,905	6,464	Hurt by large need for oil imports
<b>United Kingdom</b>	147,000	\$52 billion	367,850	936	407	Easily defended island
<b>France</b>	203,000	\$40 billion	319,195	1,264	423	Strong defense industry
<b>South Korea</b>	624,000	\$33 billion	178,710	1,412	2,381	Drills under imminent threat
<b>Germany</b>	179,000	\$40 billion	242,508	663	408	Energy dependent on Russia
<b>Japan</b>	247,000	\$42 billion	413,800	1,613	678	Constitution limits offensive actions

<b>Turkey</b>	411,000	\$18 billion	148,448	1,020	3,778	Has ISIS on its doorstep
<b>North Korea</b>	11,90,000	7.5 billion	940	4,200		Active Reserve

Above figures give us a glimpse of a picture indicating where we stand. Though numerically we are the third largest army in the world, overall modernization and quantum of force multiplier in our army may be debatable. Countries with much smaller army are almost at par or higher in expenditure on their respective armies and holding of their Navy by weight in tonnage and Air Force by numbers of aircrafts are substantially larger. This implies state of modernisation and gap of that in the Indian Army. We need to not only close that gap at the earliest but also surpass that. All our defeats in past resulted from inferior weaponry and tactics. Our history will vindicate that. We must not have that repeated.

Question arises what India needs to do to be able to maintain her projection as a regional power over South Asia Region, Indian Ocean - a major marine lane with tremendous strategic and commercial importance - and its littoral states. India needs to project her economic and military preponderance in this area to vindicate her growing stature as regional as well as future world power. Under the situations what would be the likely tasks of Indian Defence Forces:-

- a. Guarding our Indian territory from any physical assault.
- b. Create optimum combined forces, army, navy and air force, to be able to undertake, besides guarding own boundary, off-shore operation (s) if needed.
- c. Create strong bases at the available Indian Islands in Bay of Bengal, Indian Ocean and Arabian Sea.
- d. Need to control sea lanes.
- e. Try to create good relation with astute foreign policy with the neighbouring countries including South-East Asians and African countries.
- f. Guarding the sea lanes against breaking military equilibrium and piracy.
- g. Create a balance force as deterrent to meet all the contingencies those are expected be faced.

In case such policies, as mentioned above, are adopted what would be expected reactions of various countries with their respective interests:-

- a. Other powers specially China, Pakistan and USA and also like North Korea, Japan, Russia would react for the fear of losing hegemony.
- b. Smaller countries may create their own group to feel safe.
- c. The situation will turn volatile.

#### **WHAT SHOULD BE INDIA'S COURSES OF ACTIONS?**

- a. Assess relative strength and priorities.
- b. Create balance force with matching capability. For instance, China with her hypersonic missiles capabilities, can reach Indian target within 10 minutes. China besides its large army is developing its marine and nuclear power. As opposed to this, our preventive and retaliatory capabilities to be assessed.
- c. Assess our mobilisation capabilities and estimated time to react to any adverse situation.
- d. Our structure of military command and control to be revised.
- e. Indian Defence Force should be able to spare enough amphibian force, at least composite corps strength, with adequate air and naval power to be effective at any point of time for independent task without jeopardy to the national security.
- f. Creating powers block with like minded countries with common interest and integrate strategic planning.

Let us assess what would be its repercussions. There will be spontaneous reaction first from China, followed by Pakistan, USA and other Asian and European powers. But these all will be transitory and will die down after a time period as we have experienced in other cases as long as India is firm and powerful.

Like USA and main European Powers, India needs to emphasise in equipping the Indian Defence Forces with most sophisticated weapons and equipments in all respects. In today's context, while the weapons have such unprecedented destructive power, mere number of soldiers has no value other than making them only cannon fodder. Our ability to remain more dispersed with capability of rapid concentration to the point of impact will be our tenet of survival. This also includes deployment of our nuclear warheads. Besides mainland the oceans and the islands give us scope of dispersal as well as advanced bases.

One thing which is very essential is to create nuclear shield, like all the western powers where, all command structures to common people, can get shelter against nuclear strikes lest they are literary obliterated from the earth after nuclear strikes. This will provide second-strike capability. This task must start from today as it will take a long time to create.

This will be a joint venture of all the important ministries of India with full confidence on Defence Ministry and Defence Forces.

### CONCLUSION

Over a period of time the center of gravity and power equation has shifted from Asia to Europe to USA and USSR and now it is globalised, not confined to any one continent. Various power blocks based on regional powers are confronting each other. Of all the powers USA, resurging Russia, upcoming China and India and old guard Europe will play very important part in maintaining global power balance.

India needs to go along with the time. World has become small which acts in both advantages and disadvantages. We have become interdependent at the same time within very close range to each other for mutual destruction. Fire power has undergone phenomenal changes. One button may destroy the humanity and that button is gradually falling in the hands of errant people.

India needs to become visionary and undertake fast all-round development to play her part as a budding regional and global power. She has to develop a balanced military power. Unlike olden days arena of conflict has gone beyond the territorial limit to include sea and ocean. The physical boundary is no barrier.

The essence of defence is now to have offensive spirit while guarding the boundary with three dimensional powers and be able to strike much ahead of the homeland. This obviously needs advance bases with balanced forces to act both as deterrent as well as strike forces.

As a regional as well as a global power one may not be always acting as a big brother but as a protector creating confidence among the lesser power in the power block as it is going to be mostly regional. This block must not be only power oriented but also be economic partner with comfortable trade relation.

Once such block is created the partner countries will act as base for

each other which is essential sustained conflict and protection.

Conventional threat with less possibility gives itself away to budding and dreadful militancy. Militancy, unfortunately, does not work within any limit or boundary. It is becoming omnipresent giving tremendous importance in developing information warfare. In such wars common citizen need to be involved.

Such situation also calls for balanced political handling. Unnecessary bullish and dominating attitude with unnecessary use of power for short time gain may cause long time loss as we witness the same today in West Asia.

Along with soldiers we may have be ready to absorb civilian casualties under militant scenario.

Create a global power to fight the global mess. Shed off petty regional or national gain and look for world harmony.

However, one may always remember peace arises from power.

**LT COL MRINAL KUMAR GUPTA RAY**



Lt Col Mrinal Kumar Gupta Ray was born on 23 Oct 1946 in Dhaka: on partition migrated to Kolkata in 1950. He graduated from Calcutta University and joined Army on 12 Jan 1969 in Sikh Regiment.

The author served in the army for 31 years till 27 May 1999 taking premature retirement from the army. He had a long experience of regimental duty as well as staff appointment at various levels.

During his tenure in the army he had taken part, beside many local operations in J&K, in Indo-Pak war 1971 and Operation Pawan, where he took his unit within 24 hours to Jaffna, Srilanka on 12 Oct 1987, immediately after the peace accord, between India and Srilanka, failed. Under most adverse condition and with depleted strength of 220 soldiers and minimum resources below operation level support available then, he cleared Jaffna Town within three days from the clutches of LTTE (Liberation Tigers of Tamil Elam), one of the most dreaded militant outfits of all time.

After retirement in May 1999, the author had worked in a few NGOs to work for the society.

So far he has authored two books, named Srilanka Misadventure on his Srilanka (Jaffna) experience, along with his co-author Lt Col Gautam Das (Veteran), which was published in 2008 and Birth of a Nation published in Sep 2015. He is now working on his third book 'Western Front in 1971 with special emphasis on Navy, Air Force, Mukti Bahini and events unfolded in UN exposing its inability to stop one of the worst post World War II genocides in the World History.

The book Srilanka Misadventure was well acclaimed. It found its place in Parliament library.

Presently the author is settled in Pune and trying to pursue literary works.

## India's Coastal Security Much Better 7 Years Post 26/11

*Brig Hemant Mahajan (Retd)*

### CENTRE ADVISORY AFTER PARIS ATTACKS

The Union Home ministry after Paris attacks announced that states had been directed to stay alert from security threats from terror groups and expressed confidence in the coastal security of the country.

Confidence of political leaders does help in reinforcing a sense of comfort among people. Mere statements before TV cameras do not reflect the reality of the existing security infrastructure, intelligence gathering and sharing, manpower and most importantly commitment of state governments to growing threat to national security from terror groups from the sea

Most TV channels post Paris attacks & 26 November 2015 focussed their discussions regarding on similarities that the pattern of attacks had with Mumbai in 2008. A few others used the news development to yet again focus on Pakistan-sponsored terrorism in India and the failure of US and Western powers to “rein in” Pakistani military establishment. Little has been said or discussed about the preparedness of the States to pre-empt or tackle any kind of security threat. Have we learnt anything from 2008? Are we better prepared today?

The Indian peninsula has got most of its vital nerve centres, including ports, oil installations, power grids, nuclear reactors, defence establishments, trading and manufacturing hubs, and a number of major urban settlements, located along, or in close proximity to, its coastline.

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The ill-protected seashore, over the decades has, made this high priority infrastructure vulnerable to maritime subversion, terrorism, resulting in a wider sense of insecurity which currently envelopes the country.

### **93 BOMB BLASTS IN MUMBAI**

While there have been two major terrorist attacks (the serial bomb blasts of March 1993 and multiple terrorist attacks in November 2008, both of which in Mumbai) orchestrated principally using the sea route so far, the scale and magnitude of these two attacks had made them the worst of the country has been witness to. What adds greater concern is that both these attacks targeted the country's commercial capital. On March 12, 1993, 13 bombs of high intensity ripped through Mumbai, killing 257 persons and injuring above 700. The RDX used in the serial explosions was smuggled in a consignment through the sea route and landed at Shekhadi in the Raigad District of Maharashtra.

### **26/11 MUMBAI ATTACKS**

On November 26, 2008, ten Lashkar-e-Toiba (LeT) terrorists came from the Pakistani port city of Karachi by boat, breaching three layers of security – Navy, Coast Guard and Coastal Police – and attacked the county's commercial capital, killing 166 civilians and 20 policemen, soldiers, and injuring 304 persons.

Even as India looks to augment its internal security apparatus, including coastal security, intelligence agencies have warned that there is scope for replication of another terrorist attack via the sea route, with significant perceived threat to vital installations. Intelligence intercepts of cross-border communications of the LeT revealed that Pakistan-based terrorists will also use the sea routeing addition to traditional infiltration routes through Jammu and Kashmir (J&K), Nepal and Bangladesh.

The aim of the article is to review present state of coastal security & suggest additional measures to improve existing security set up.

#### **The article will cover the following aspects:-**

Part 1 : Glacial Paced Evolution Of The Coastal Security.

Part 2 : Measures Taken By The Government In Response To 26/11.

Part 3 : The Challenges Of Coastal Security.

Part 4 : Recommended Additional Measures



## **PART 1 : GLACIAL PACED EVOLUTION OF THE COASTAL SECURITY**

### **Global Warnings**

Global intelligence agencies have also been warning of terrorist attacks on India through the sea route. The maritime threat perception to oil supply remains high, with intelligence agencies warning that militants could attack oil supplies to India, through pipelines beneath the sea water coming from West Asia or at Bombay High.

Since 26/11, there have been repeated intelligence warnings that terrorists may target vital installations from the sea.

In November 2006, the then Union Minister of Home Affairs, had alerted security agencies that Indian nuclear power plants were highly vulnerable, to attempts by terrorists to occupy some uninhabited islands and use them as bases for attacks along the coasts. Some LeT operatives were being specifically trained to sabotage oil installations and these militants had decided to use sea routes to infiltrate into India. The terrorists "planned to induct arms and ammunition through the sea route." The terrorists were reportedly collecting information about the location of various refineries on or near the Indian coastline in a new strategy of widening their spheres of influence. The targets also included the Goa Shipyard.

In March 2007 that there were "reports about terrorists of various tanzems (groups) being trained and (the) likelihood of their infiltration through sea routes". Again, in May 2008, the then Union Minister of State for Home Affairs stated that Pakistan-based terrorist groups, particularly the LeT, were exploring possibilities of infiltrating their agents, arms and ammunition into India through the sea route.

### **Eight Coastal States And Four Union Territories**

The defence of the coast in India is the responsibility of the Navy and Coast Guard operating under the Ministry of Defence, but, formulating maritime policy is lost in a bureaucratic labyrinth. In addition to the eight coastal states and four Union territories governments, there are currently 12 ministries and eight departments of the Central Government involved in maritime-related policy formulation and implementation. This results in overlapping responsibilities and inability to provide quick decisions and responses.

### **Op Swan ,OPTasha Failed Operations**

In 2005, the Union Government approved another coastal security scheme called Operation Swan, envisaging a three-layered security blanket through joint patrolling along the most vulnerable coasts of Maharashtra and Gujarat by the Navy, State Police and Customs Forces. The central objective was to safeguard India's territorial waters along the nine coastal States and four Union Territories. Operation Swan envisaged a three-layered security blanket:

The first involved joint patrolling along the coasts of Maharashtra and Gujarat by the Navy, State Police and Customs Forces. The next was setting up 73 Coastal Police Stations, 97 check-posts, 58 outposts and 30 barracks, with the cost to be borne by the omnibus Coastal Security Scheme. The third part was to be financing security support to littoral states by the Centre.

The MHA's outcome budget for 2007-08 conceded that there had been a delay in implementation of the scheme. The main cause was identified as the cancellation by the Defence Ministry of the Goa Shipyard Limited's contract for procurement of coast guard interceptor boats. "This was due to the high cost quoted by the shipyard," the MHA report noted.

No single coastal security plan has reached its target so far. The Coast Guard faces deficits, with an authorised strength of just 106 vessels and 52 aircrafts. Several crucial procurements, including hovercrafts and fast patrol boats, remain pending with the Ministry of Defence. In 2007, a Parliamentary Committee on Defence blamed the Ministry for not acquiring the requisite number of vessels over the years. Pointing out the most serious problem, a Parliamentary Panel noted that there was a gap in the surveillance capability of both the Navy and Coast Guard due to lack of aerial platforms and vital surveillance equipments, including Unmanned Aerial Vehicles, long range surveillance aircraft and medium range maritime Dornier aircraft.

The Coast Guard's western region, which polices the sensitive 3,300 kilometre coastline between Gujarat and Kerala, had a fleet of just 14 ships (2009 data) of various sizes and eight surveillance aircraft while one report suggests that it actually needs at least 50 ships and 36 aircraft. Neither the Coast Guard nor the Navy, moreover, reportedly has the authority to stop and search merchant vessels – that is the sole prerogative

of the Director-General of Shipping, a shore-based organization with no personnel or ships.

After 26/11 exposed such gaps in coastal security, the Union Government, on February 28, 2009, designated the Navy as the central authority responsible for the country's overall maritime security. "The Navy will be assisted by Coast Guard, state marine police and central agencies for the coastal defence of the nation. The Government has set up Joint Operation Centres at Mumbai, Visakhapatnam, Kochi and Port Blair under the charge of Naval commanders-in-chief. A national command control communication and intelligence network, for real time maritime domain awareness between the operations rooms of Navy and Coast Guard, has been established at both the field and the apex levels.

## **PART 2 : MEASURES TAKEN BY THE GOVERNMENT IN RESPONSE TO 26/11.**

### **Series Of New Measures After 26/11**

After 26/11, a series of new measures had been approved. These include: Multi Purpose National Identity Cards for all fishermen and people in coastal villages; development of special transponders for boats and trawlers by the Indian Space Research Organisation; a new uniform licensing system for boats across coastal States; an INR 68 billion plan envisaging a special 1,000-strong Sagar Prahari Bal (Sea Guarding Force) together with 80 fast boats for protection of Naval assets and other vital coastal installations. The plan also includes the establishment of a Coastal Command and a Maritime Security Advisory Board, with nine additional Coast Guard stations, static radar and an Automatic Identification System (AIS) chain all along the shoreline. AIS transponders are proposed for some 300,000 crafts below 300 tonnes at a cost of INR 1 billion. The International Maritime Organisation (IMO) only prescribes transponders for vessels over 300 tonnes.

26/11 prompted the Union and State Governments to announce a series of policy measures intended to modernise and improve the coastal security apparatus. Most of these are still to be implemented. Regrettably, past experience has shown that implementation remains tardy and inefficient, leaving many gaps which the terrorists can exploit. It can only be hoped that the biggest gap in India's security – the inefficiency of administration – will be overcome this time around, and that a measure

of urgency will attend the implementation of current plans for a stronger coastal security system

## **INDIA'S COASTAL SECURITY MUCH BETTER 7 YEARS POST 26/11**

### **Defence of Gujarat' exercise**

In the run-up to the 7th anniversary of the Mumbai terror attack, over 30 ships, submarines and aircraft of the Navy, Air Force, Coast Guard and State agencies were recently deployed for 'Defence of Gujarat' exercise off the West Coast. During this exercise, defence of the Offshore Oil production areas was also tested. This exercise provided all stakeholders an opportunity to fine tune SOPs and test improved concepts for coastal security.

The government has moved on several fronts. Vulnerable spots and gaps along the coast were identified and proposals finalised to improve surveillance (In what time frame?).

### **Sagar Kavach to Test Coastal Security**

Coastal security exercise Sagar Kavach was conducted over two days on 18 and 19 November 2015. The biannual coastal security exercise, tests the security mechanism of the entire state and involves close cooperation of various stake holders such as Navy, Coast Guard, Marine Police, Customs, CISF, intelligence agencies, Mumbai Port Trust and JNPT e.t.c to name a few. Over 20 Naval and Coast guard ships, Dorniers and Chatak Helicopters, and over 55 boats from various security agencies were deployed for the exercise.

These exercises commenced in the year 2009 post 26/11 attacks on Mumbai. The exercise involves simulation of attacks over the coast line of the state. As part of the exercise, infiltration and landing through coast was attempted and the efficacy of the patrols by various maritime agencies was tested. Various contingencies were practiced during the exercise. There has been improvement in the overall success of the exercise in terms of thwarting the simulated attacks over the years. Each exercise opens up new areas for improvement in the field of coastal security and their review ensure long term improvement in the overall security situation.

However summing up immediately after the exercises needs to be done. Lessons learnt for future should be conveyed to all stake holders in writing for improving operational efficiency.

Inter-agency coordination between more than 20 national and state agencies has improved, due to regular 'coastal security exercises' conducted in all the coastal states. Nationwide, over 120 such exercises have been conducted till date since 2008.

In addition, over 180 real-time coastal security operations have also been conducted during this period.

### **Network (NC3I) For Real-Time Maritime Domain Awareness**

As part of the efforts to enhance our Maritime Domain Awareness, Defence Minister Manohar Parrikar, inaugurated the National Command Control Communication and Intelligence Network (NC3I) on November 14. This over-arching coastal security network collates data about all ships, dhows, fishing boats and all other vessels operating near our coast, from multiple technical sources including AIS and the coastal radar chain.

These inputs are fused and analysed at the Information Management and Analysis Centre (IMAC) at Gurgaon, which disseminates this compiled Common Picture for coastal security to 51 nodes of the Navy and Coast Guard spread across the coast of India.

At the apex level, the National Committee for Strengthening Maritime and Coastal Security (NCSMCS), headed by the Cabinet Secretary, coordinates all matters related to Maritime and Coast Security. Joint Operations Centres (JOCs), were set up as Command and Control hubs for coastal security at Mumbai, Visakhapatnam, Kochi and Port Blair and are fully operational. These JOCs are jointly manned 24×7 by the Navy, Coast Guard, and Marine Police personnel.

National Command, Control, Communication and Intelligence Network (NC3I) for real-time maritime domain awareness, linking operations rooms of the Navy and Coast Guard is mostly complete.

The electronic means of surveillance that are critical to achieving coastal security are in place. Modern technical measures have also been implemented for coastal surveillance by way of a chain of 74 Automatic Identification System (AIS) receivers, for gapless cover along the entire coast. This is complemented by a chain of overlapping 46 coastal radars

in the coastal areas of our mainland and Islands. These are equipped with state-of-the-art Danish Terma radars, Swedish automatic identification system (AIS), Canadian cameras and Israeli thermal imaging technology to track ships near the Indian coast day and night.

**A second phase of 38 coastal radars is also being implemented to plug in the Coastal Security Plan.**

All efforts notwithstanding, we remain vulnerable to terrorist attacks along our coastline. The core of any effective system of coastal defence capacity should be to detect illegal movement of ships and boats."Unless there is a GPS tagging system to identify those whose presence is legitimate, it is impossible to identify the enemy. This is a must for all fishing boats.

**Naval Improvements**

The Indian Navy has been made the agency overall responsible for coastal security and coordinates the efforts with stake holders such as Coast Guard, Marine Police and other Central and state agencies.

The Navy has established the 'Sagar Prahari Bal', for coastal security, comprising over 1000 personnel and 95 Fast Interceptor Craft, for protecting of maritime assets. 17 Immediate Support Vessels have also been inducted for 24x7 operations in defence of the Mumbai High Oil Production Area off the West Coast.

**Improved Patrolling**

Over 100 Interceptor boats have joined the Navy and Coast Guard for patrols. Coastal patrolling by the Navy, Coast Guard and Marine Police has increased sharply over the last few years. At any given time, our coastline is under surveillance by ships and aircraft of the Navy, Coast Guard & police. Interception of Pakistani boat off the Rajkot coast was an operation well conducted.

### **PART 3 : THE CHALLENGES OF COASTAL SECURITY**

#### **Long and Porous Coast Line**

The length of the Indian coast line is more than 7500Kms, covering nine states and four union territories creating tremendous complications for co-ordination; 13 major and 185 non major ports have to be guarded. There are a large number of ministries including Shipping , Surface Transport , Immigration , Trade and commerce , Defence and Home busy guarding their own turfs. Apart from these there are a large number of agencies like the Navy, Coast Guard, Marine Police, Intelligence Agencies, Customs, Excise and immigration lacking adequate coordination. The intelligence is generic, giving larger than life image to the terrorists.

#### **Terrain and Location**

This coastline is characterized by numerous creeks, small bays and rivulets. Since the creeks and rivulets run deep inside and remain poorly guarded, they have become ideal for clandestine landing of contraband and infiltrators. The physical proximity of the coast to Pakistan and the Gulf countries further adds to its vulnerability.

#### **Security of Strategic Installations**

Gujarat, Maharashtra, Karnataka, Tamilnadu are highly industrialized states. The Kutch and Saurashtra regions of Gujarat, are fast emerging as an industrial and energy hub. If terrorists were to attack a VLCC (Very Large Crude Carrier) carrying several million barrels of crude oil and seriously damage it leading to a massive oil spill, the environmental and economic impact will be immense.

#### **Security of Fishermen**

The straying of Indian fishermen into Pak waters is a serious security problem. Currently there are 434 Indian fishermen and 369 fishing vessels in Pakistani custody.

As Per Rajya Sabha Unstarred Question No.1287 Answered On 07.05.2015 Fishermen And Boats In Foreign Custody Are:-

<b>S. No.</b>	<b>Country</b>	<b>No. of Indian fishermen and fishing boats in custody</b>	<b>No. of Indian fishermen released recently</b>
1.	Bangladesh	The total number of Indian Fishermen and their boats in the custody of Bangladesh at present are 37 and 3 respectively	Since October 2014, a total of 212 Indian fishermen were arrested in fifteen different arrests. Out of these our Mission has secured release of 168 fishermen and 44 fishermen including 9 fishermen arrested on February 4, 2015.
2.	Pakistan	As per the information received, 464 Indian fishermen are in Pakistani custody but Government of Pakistan only admits to presence of 303 Indian fishermen. As regards fishing boats, an estimated 823 Indian fishing boats are in the custody of Pakistani authorities.	Due to efforts of Government of India, 172 Indian fishermen were released by Pakistan in February 2015.
3.	Sri Lanka	As per available information, 37 Indian fishermen and 25 fishing vessels, apprehended during 2015 on fishery related violations in Sri Lankan waters, remain in Sri Lankan custody.	Since January 2014, 927 Indian fishermen have been released, out of 964 apprehended by the Sri Lankan authorities.



The arrested fishermen could be recruited by Pakistan (ISI). ISI might use the confiscated boats to sneak in arms, explosives and operatives into India. Since these boats have Indian registration, they can easily evade attempts by Indian security agencies to track them.

### **Fishermen Going To Sea Without Valid Proof Of Identity**

Another issue is of fishermen going to sea without valid proof of identity. Photo identity cards are issued by the state fisheries department, but the arrest of many Bangladeshi fishermen by the Coast Guard exposes the corrupted process. There is difficulty of keeping a vigil on fishermen who gather in their thousands at small harbours not having security forces.

At any time there might be as many as 60,000 fishing vessels in sea. For the Coast Guard and the Navy to intercept and physically search each one of them is simply impossible. Operation, Rasta Roko, was conducted in June 2009 along the entire west coast, with the aim of 'tracking all vessels and checking their identities'. During this joint operation, the security agencies could check only 1,000 ships and fishing vessels despite pooling in all resources.

### **Components of Coastal Security**

Sea patrols and aerial reconnaissance maintain vigil over the territorial waters, the exclusive economic zone and the high seas. A three-layered patrolling system is operational. At the outermost layer, the Indian Navy patrols the high seas and carries out aerial reconnaissance with ship-based aircraft. The intermediate layer, (between 12 and 200 nautical miles) is patrolled by the Coast Guard. And the territorial waters are patrolled by joint coastal teams, comprising of Customs, the state police.

Agencies receive and generate intelligence about the movement and operations of criminal and terrorist groups at sea and on land. The fishermen and villagers, have been sensitized and organized into vigilant groups like 'Gram Suraksha Dal' and 'Sagar Rakshak Dal' who keep a vigil in their villages and adjoining areas & watch on suspicious movements along the coast and at sea. Photo-identity cards have been issued to fishermen and their boats registered. To prevent from crossing over the notional maritime boundary, the government has initiated a scheme of installing GPS and VHF set in fishing boats. Coastal installations

and offshore assets are provided protection through the deployment of security forces personnel and the installation of traffic monitoring systems. As part of ISPS code, Vessel Traffic Management Systems (VTMS), Automatic Identification System (AIS) and Ship Security Alert Systems (SSAS) VTMS is being installed in the Gulf of Kutch Securing the Creek Areas. Completion will take at least 10-15 years.

North western Gujarat is characterized by large creeks. For the security and surveillance of the creeks, two battalions of the water wing of the Border Security Force have been deployed along with six floating BOPs (Border Outposts). Of these, four are deployed in forward areas while two are kept in reserve. These BOPs maintain vigil over the area with the help of patrol boats.

This mechanism looks nice on paper but has failed in the past. As per “Ram Pradhan Committee Report on 26/11”, Coastal Security scheme is a total failure.

### **Slow Implementation of Coastal Plan**

The progress on most aspects is very slow.

- (a) ISPS implemented only partially.
- (b) Radar cover along coast line will take very long time.
- (c) Progress on implementation of AIS is very slow, negligible for vessels below 300 tons.
- (d) Net working of Navy, Coast Guard, Police, and Intelligence agencies is still far away.
- (e) Coast Guard Lead Intelligence Agency. Still does not have adequate qualified personnel on ground. MAC is not effective.
- (f) Container Security Initiative is nowhere in sight.

### **Insufficient Manpower**

The police is short of manpower. The Coast Guard too faces manpower shortage. It suffers from a deficiency of 20-25 % in the officers', 30 % in sailors and 20 % among civilian staff. The Navy withdrew from joint patrolling in 2006 citing a manpower crunch.

### **Poor Training**

Personnel sent by the state police for training are otherwise misfit to perform regular duties. As a result, all coastal police stations have only

a handful of trained personnel. Even those policemen sent for training claim that duration of training is inadequate. As a result, they express lack of confidence in venturing out into the sea. Lack of ethos is also manifested in the attitude of the police towards coastal security duties. They are extremely reluctant to undertake coastal patrolling because of Seasickness & multiple reasons.

### **Inadequate Infrastructure and Equipment**

All agencies are woefully short infrastructure, jetties, parking place for parking patrolling boats, repair facilities a proper office building, check posts, watch towers, etc.

#### **Systemic Flaws**

These include inter- and intra-agency confusion about areas of jurisdiction and lack of coordination, laws and procedures. Coast Guard is not under command of Navy. Coast Guard the Lead Intelligence Agency does not have any worthwhile intelligence setup. Thus, lack of 'actionable' intelligence is not the only. The mechanism suffers from various inadequacies and deficiencies, and systemic flaws.

## **PART 4 : ADDITIONAL MEASURES THAT NEED TO BE TAKEN**

### **Draft Piracy Bill Needs To be Passed**

A draft Piracy Bill placed by the UPA government in 2012 lapsed as the Parliament did not take it up for discussion and passage; an essential piece of legislation that would demarcate legal territory for Navy and Coast Guard in the Coastal Security Bill that was drafted in 2013 has still not been tabled in either House of Parliament.

In response to a question on funds spent on coastal security since 2008 Mumbai attacks, the Rajya Sabha was informed in December last year that Rs 570 crore have been spent on coastal security in six years.

### **Coastal Policing Needs Improvements**

The idea behind raising a maritime police force was to keep track of communities, people and any activity taking place along the coastline. It remains bogged down in most states by local politics, staff shortage, diversion of cops for VIP duty and failure to use new technological solutions. For every one lakh people, India, on an average, has 106

policemen. If there are fewer men on ground then the failure to upskill them and use new technology has added to the challenge for tackling any kind of terrorist activity.

The Navy and Coast Guard have provided periodic maritime training to Marine Police in all coastal states. However much more needs to be done. In order to have a permanent police training facility, a National Marine Police Training Institute has also been approved by the Government. This must be implemented on priority. The states have to do much more to upgrade coastal police infrastructure.

In states like Maharashtra there are marine patrol boats which are rusting, there are inadequate number of marine police stations, inadequately trained staff, huge number of vacant posts, according to a CAG Report released a few months ago.

Tamil Nadu, everyday, thousands of small boats leave Rameswaram and it is near impossible to monitor them in the waters between Tamil Nadu coast and Sri Lankan waters.

There are around 75 small ports in different states with no basic security infrastructure yet. Small boats land there but no one is scanned. No one knows who comes and who goes.

Seven years later we still do not have an up-to-date databank of names of residents in coastal areas; the national register of citizens is far from complete.

If marine security initiatives have been slow to take root because state governments fail to appreciate and understand larger security issues. It remains bogged down in most states by local politics, staff shortage, diversion of cops for VIP duty and failure to use new technological solutions. For every one lakh people, India, on an average, has 106 policemen. If there are fewer men on ground then the failure to upskill them and use new technology has added to the challenge for tackling any kind of terrorist activity.

Most of them treat security issues as ordinary policing activity and address individual incidents from narrow political interests. Every security incident has a larger impact and wider connection that needs to be addressed not by making political points though. The, state governments have an important role in the implementation of national security strategy.

### **Registration of Fishing Boats**

Issue of ID cards to all fishermen with a single centralised database, registration of over 2.4 lakh fishing vessels operating off our coast, vessel colour coding and equipping fishing vessels with suitable equipment to facilitate vessel identification and tracking are also being implemented to enhance coastal security. Registration of fishing boats, providing multipurpose national identity cards (MNICs) to the population in coastal villages and biometric cards to fishermen is still far from complete.

### **CCTV coverage**

Most state governments including Delhi have invested little resources to provide CCTV coverage along with the ability to interpret real time data. Most cities faced with a terror threat have a robust CCTV coverage that helps police keep an eye on vulnerable areas. The extensive CCTV surveillance system in London has been operational for years with real-time interpretation of footage underway at a state of the art control room in Soho district. Voice recognition, Facial recognition technology has also been put into use in several European cities now. In the seven years since the Mumbai attacks, state governments have not invested in technology or empowered counter-terrorism forces.

### **Improve Actionable Intelligence**

The quality of our actionable intelligence of intelligence agencies, Police, Navy and Coast Guard requires vast improvement.

Our fishing communities are adept mariners, whose cooperation is indispensable to our maritime security. The fishermen community is apprised of the coastal security arrangement during various Coastal security awareness campaigns. However they have been able to reach a small % of coastal population. The awareness campaign should reach 100% of coastal population.

Fishermen are like the "eyes and ears" of the security apparatus and young personnel from their community should be encouraged to join the marine police, Home Guard, Coast Guard, Navy etc.

The coastal security toll free number '1093' is now operational from all network providers and provides a quick means of reporting coastal security threats.

The Indian Maritime Foundation(think tank /organization doing yeoman service to improve maritime awareness in the country) /other NGOs & ex service men population settled on the coast line could be tasked for an all out public awareness campaign.

### **Security in non-metros and state capitals:**

Barring areas where VIPs live, most other residential areas are left to the mercy of vigilant residents. Basic security infrastructure is absent and local police rely on informers and traditional methods for surveillance. Awareness of security challenges and mitigation are poor.

These glaring gaps need to be looked into and bridged by state governments who believe that the Central government is responsible for security issues. Over the years, the Central government held meetings with states to sensitise them about changing security environment and challenges posed by new terror groups, but a large number of states have not much to show even after seven years. While central agencies can share intelligence and provide financial assistance, states cannot shirk their responsibility. The Paris attacks should not just remain a topic of discussion on TV channels; they should galvanise state governments to review security preparedness and tighten loose ends.

### **Improve Human Resources**

The country's coastal and maritime security has seen a lot of consolidation over the last 7 years. Huge amount of money has been spent to improve coastal security, but there is also a need to augment offensive capacities. There is need to improve the quality of human element with all stake holders including Indian Navy, Indian Coast Guard, Police, Marine Police, Customs, CISF, intelligence agencies, various Port Trusts etc.

### **Conclusion**

Historically the Indian coast line has always been very porous. Infiltration of arms, ammunition, and terrorists continues from the coast line. No heads rolled despite the fact that on 26/11 a group of terrorists landed within 500 yards of HQ Western Naval Command, HQ Coast Guard and HQ Mumbai Police.

There are 13 major and 185 minor ports to be guarded. There are 572 islands in the Andaman and Nicobar group of islands and 27 islands in the Lakshadweep islands. There are a large number of ministries including Defence and Home busy guarding their own turfs & large number of agencies like the Navy, Coast Guard, Marine Police, working at cross purposes. The intelligence is generic, giving larger than life image to the terrorists.

A police force of 45,000 could not stand against 10 terrorists as they lacked combat training, leadership and ethos to fight. Requirement of police in terms of additional man power and equipment has been sanctioned. However no action has been taken for qualitative improvement of training. The Navy, Coast Guard, police need to be more combative to inculcate qualities of courage, bravery, fighting Spirit. Advanced training should be carried out with Army units deployed for stopping infiltration on the LOC and carrying out counter terrorist operations in J & K and Assam. Ex Navy and Coast Guard personnel should be recruited by the police to improve maritime aspects. Retired personnel from the NSG, army should be recruited to improve the combat potential.

We are living in troubled times. The ISI and Pakistan Army is actively involved in aiding and abetting various fault lines in the Indian society. The news papers and TV Channels have reported many cases of corruption, inefficiency and dereliction of duty while doing investigative stories on coastal security. All such reports of investigative journalism should be investigated further and concerned agency punished if found guilty. The need of the hour is joint man ship between Navy, Coast Guard, Police, Intelligence agencies and various Government ministries.

After all can we have a repeat of 26/11?

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He commanded 7 Maratha Light Infantry in Operation Rakshak in the most difficult areas of Poonch and Rajouri. His unit was responsible for stopping terrorists from Pakistan into Jammu and Kashmir. His unit was awarded Unit Citation, 18 gallantry awards including YSM(Gallantry) for the officer.

He was awarded with Army Commanders Commendation award during Operation 'Parakram'.

He commanded a Brigade on the LOC in intense insurgency areas of Poonch, Krishna Ghati, Surankot and Rajouri of Jammu and Kashmir. One unit was awarded Unit Citation,BSF Battalion was declared the best battalion in the country & highest award for the year 2006 was awarded to one of the offrs in the brigade,

He joined as a DS the faculty of Higher Command Wing in Army War for three years. As a Directing staff he was responsible for guiding the student officers in understanding various facets of national security.

His articles are regularly published in all leading Marathi, English newspapers. He has published more than 1000 articles. He also visits many Think Tanks delivering lectures on subjects related to national security. Appears on TV debate on Marathi, Hindi, English news channels regularly. He has written 7 books on national security.



## The Chinese attention to Soft Power: An Analysis

*Ms. Gunjan Singh*

### INTRODUCTION

Soft power has become a very important tool in the foreign policy arena. Countries invest heavily in the development of their soft power. In the international system one has seen that there is a major emphasis given to the soft power attraction of the countries as a lot of foreign policy and diplomacy is based on this. Military strength and other hard power are not considered to be very effective in the changing international system today. The article by Joseph Nye in Foreign Policy titled, “*What China and Russia don’t get about Soft Power*” dated April 29, 2013 had generated a response by Liu Aming in the Chinese government controlled ‘Global Times’.

Soft power as defined by Joseph Nye is,

“the ability to get what you want through attraction rather than through coercion or payments. It arises from the attractiveness of a country's culture, political ideals, and policies. When our policies are seen as legitimate in the eyes of others, our soft power is enhanced.”  
(Nye 2004, x)

Nye in his Foreign Policy article argues that,

“The development of soft power need not be a zero-sum game. All countries can gain from finding each other attractive. But for China

and Russia to succeed, they will need to match words and deeds in their policies, be self-critical, and unleash the full talents of their civil societies. Unfortunately, that is not about to happen soon".(Nye 2013)

The Global Times article by Liu Aming argues that,

"The preference for "binary opposition" theory by some Western scholars and their potential awareness of competition and crisis when facing China's rise make them believe that China's soft power is either not attractive or that it is aiming to compete with the US for leading status.

Although Nye admits soft power can reach a win-win situation, he obviously is not willing to admit or hasn't realized that some attractive power does exist in the world that's unknown to Americans or Westerners". (Aming 2013).

However in 2015, Nye again argued that there were two very prominent factors which were limiting the use of Soft Power by China. One was nationalism and the other was the lack of a fully functional civil society. (Nye 2015). The general perception has been that the Chinese soft power components are still weaker than its hard power components.

In this backdrop this article will attempt to look at the ways and means by which China is employing its soft power. It will also try and look at the factors which drive this change in Chinese policy and also try and answer the question as to what is the primary motive behind the Chinese soft power and how far is this successful. This article will look at some of the tools and events which have played an important role in developing and defining the Chinese soft power.

### SOFT POWER AND CHINA

The Chinese government's first exposure to the idea of Soft Power was in the year 2004 during the thirteenth group study session of the Politburo of the Chinese Communist Party (CCP). (Lai 2012: 11). According to Young Nam Cho and Jong Ho Jeong, "In particular, the introduction of the peaceful rise theory in 2003 and the Beijing Consensus in 2004 both helped decisively to shape the use of soft power theory into a nationwide trend". (Cho and Jeong 2008: 459). They further add that the Chinese

soft power is dependent on the “Chinese developmental model, foreign policy centered on peaceful rise or peaceful development theories, and Chinese civilization”. (Cho and Jeong 2008: 461). In October 2011 the final communique of the 17th Central Committee of the Chinese Communist Party (CCP) declared that efforts should be undertaken to “build our country into a socialist cultural superpower.” (Shambaugh; 2015). In the words of Bandurski, “Soft power has become strategically important for China because cultural productivity and influence are now regarded as important components of comprehensive national power, or *zōnghé guóli* (综合国力), China’s own indexible measure of general nation-state power”. (Bandurski, 2015)

However there has been an increase in the global attraction towards Chinese culture. There has been a rise in the celebrations of Chinese Spring Festival as well as the Chinese New Year. As per the Chinese Ambassador to the United Kingdom, “Chinese culture is gaining increasing acceptance overseas, which in itself attests to China’s progress with a burgeoning foreign appetite to know more about China.” (Sukhoparova, 2014). To compliment this there has also been an increase in the number of tourists who visit China today from across the globe.

## ELEMENTS OF CHINESE SOFT POWER DIPLOMACY

### a) Foreign Aid

Nye has not included aid and other means as a tool of soft power. However Beijing has consistently utilized these methods in order to achieve its goal. The level of aid which it provided to countries of Africa and Latin America is consistently rising. Another important aspect is that China has been extending these aids without any ‘string’ of human rights and other issues. It appears that China is on the way of overtaking Japan and United States. Chinese no ‘strings’ attached policy is totally different from the one used by other countries and international institutions. As a result aid has become an important part of Chinese soft power policy. According to Joshua, “Beijing sometimes uses its soft power in order to achieve harder goals”. (Kurlantzic 2007: 6).

The debate over Chinese foreign aid had become heated after the release of the Chinese White Paper in 2011. According to it, the

Chinese government provided aid without being concerned about the domestic situation of the concerned countries. The major focus was to help countries economically. It can be argued that, “it is more than clear that China uses the Five Principles of peaceful existence to justify its dealings with rogue regimes”. (Singh 2011). As per *China Daily*, “by the end of 2009, China had sent aid to 161 countries and regions and more than 30 international and regional organizations. Among them 123 countries and regions have been long-term recipients of such aid”. (China Daily 2011). Between 2010 and 2012 China provided a total amount of \$14.41 billion as aid to various countries. (Xinhua 2014)

The attraction for the aid diplomacy for the developing countries has increased as an effort to counter the influence of the United States. The ‘forced’ notion of democracy which is asserted by United States is not perceived as a satisfactory thing by a number of countries. Meanwhile China has always stated that it is not concerned in the domestic politics of the countries and has no preferences based on the form of the government.

### **b) Confucius Institutes**

In 2005 China had announced that it plans to open 100 Confucian institutes around to world to encourage Chinese language and culture. (Pan 2006). The final aim is to have 1000 Confucian Institutes worldwide by 2020. (Mattis, 2012). Even though a number of such Institutes have been established globally owing to the increasing demand for Chinese language and culture studies, the process has not been smooth. The general criticism and concern expressed has been that these Institutes are not free from the control of the CCP and are means to extend their political agenda. Similar concerns were expressed by the University of Chicago in 2014. (Economist, 2014). Finally in September 2014, the Confucius Institute at the University of Chicago was closed. (Volodzko, 2015).

The debates surrounding the Confucius Institutes have limited their role in becoming strong contenders for promoting Chinese soft power. Most of the countries where they are active are not very happy with the way their managed and generally perceive them to be extensions of the CCP. However the way the Chinese government has reacted to the controversies with regard to the Confucius Institutes also strengthen the

notion that it is not ready to let the soft power come from people as the CCP is not ready to let the Institutes work independently. (China Brief, 2014). Even though China has invested heavily in these Institutes; the overall results are not that promising from the soft power promotion perspective.

### **c) Chinese Media**

However the government had also establishment state media and publicity management institutions. In 1987 the Chinese government established the State Administration for Press and Publications (SPPA). This organization looks after the licensing and regulating the way the Chinese print media functions and operates. (Zhao 2004). However in the age of internet which has increased the global connectivity media is playing an ever important role in promotion of soft power. As per reports by the end of June 2015 there were 667 million China Internet users. (China Internet Watch, 2015). These figures clearly highlight the strength of the Chinese internet force. In addition China is also working towards expanding its CCTV network to become a multinational network and is expanding its staff to tenfold of the current size by the end of 2016. (Branigan, 2011). As argued by the Chinese journal Leadership Decision-Making Information, “Global competition nowadays is not just political and economic, but cultural ... Countries that take the dominant position in cultural development and own strong cultural soft power are the ones that gain the initiative in fierce international competition”. (Branigan, 2011).

In addition when it comes to foreign policy matters the Chinese media is in sync with the views and approaches of the central leadership and is also very nationalistic. The CCP appears to be ever so reluctant to loosen its control over the media as the fear of instability within the society and a loss of position of power instill great fear within the party leadership. It appears that the battle between the media and the CCP will continue as the ‘control’ over media is an important element of the power dynamics of the CCP. The CCP is still very uncomfortable with the idea of a free and independent and critical media space.

Chinese government also employs around 2 million people who work as “public opinion analysts” and they try and prevent any public criticism of the government and policies. (Hunt and Xu, 2013). It is reported that

they get paid around 50 cents for every post. (Sterbenz, 2014).

In the words of Yuezhi Zhao, “As a part of the process of an ongoing global power shift along the nation-state axis, the Chinese state’s effort in projecting soft power through media and communication systems has meant that analysis of the Chinese media’s foreign influence, rather than foreign media’s influence on China, has quickly emerged as the new focus of research”. (Zhao, 2015: 23). She further argues that the importance extended to ‘development and democracy’ will mean that the Chinese cultural influence will be measured differently than what is done for other countries. (Zhao, 2015: 39). This stems from the one party rule and authoritarian structure of the Chinese political system.

#### **d) Economic Diplomacy**

In recent years the introduction of institutions like Asian Infrastructure Investment Bank (AIIB) and One Road One Belt (OROB) initiative under Xi Jinping should be regarded as a major thrust to promote soft power dynamics as both these initiatives have strong cultural components. These initiatives are important in order to underplay the ‘hard’ image of China, especially in connection to neighbours with which it has ongoing disputes. Such initiatives promote the argument that Beijing is willing and capable of sharing the benefits of economic growth and is also comfortable in putting aside the nagging and problematic ‘hard power’ issues, like border and territorial disputes. It also generates the notion that China wants to play the role of a regional and in future of a global power and has the capacity to lead various countries. However, the alternate arguments have been that such initiatives are attempts by China to counter the western institutions and further extend its global influence.

#### **e) Sports Diplomacy**

Sports have been an important aspect of the soft power diplomacy. Since the very beginning countries have used some form of sports to extend their culture and other social aspects. Olympics especially have been used by countries to extend their existing situations and gain international attention and positive reactions. Japan and South Korea are very prominent examples in this regard. Even for Beijing Olympics was a very historic event and occasion. Post the Tiananmen Square Incident

and the marginalization by the world community at large, this was an occasion when China could showcase to the world its achievements and level of growth. The successful execution of the Beijing Olympics was regarded by China as a major feather in the cap and a great step towards showcasing its soft power. China was also thrilled when the National Broadcasting Company Universal (NBCU) declared that the Beijing Olympics was one of the most viewed programme in American television history. (Xinhua, 2008). According to NBC, “Through 16 days, NBC Universal’s Beijing Olympic coverage has reached 211 million viewers and has been viewed by more Americans than any event in U.S. television history, according to data provided by Nielsen Media Research. The Beijing Games have surpassed the 1996 Atlanta Games, which were viewed by 209 million Americans”. (West, 2008). Some of the prominent examples of Chinese soft power in the area of sports are athletes like the Chinese tennis player Li Na (it is reported that around 65 million people watched her Grand Slam final in Melbourne in 2011), hurdler Liu Xiang and basketball player Yao Ming. (Jieh-Yung Lo, 2013).

#### **f) Space Diplomacy**

China has also used its space capabilities in order to extend its soft power positioning internationally. In the past Beijing had launched satellites for Nigeria, Pakistan and Sri Lanka. China had launched a communication satellite for Pakistan in August 2011. (Space Daily 2011). In December 2012 China launched a Turkish earth observation satellite. (Space Daily 2012a). In addition to this China has also launched the first communications satellite for Sri Lanka in November 2012. (Reuters 2012). China has also launched two satellites for Venezuela in 2008 and 2012 respectively. (Clark 2012). China has also been collaborating with countries like Brazil to develop space technologies. China has also concluded a space cooperation deal with Argentina. (Space Daily 2012b).

#### **OVERVIEW**

China has employed aid diplomacy, Economic superiority, Beijing Olympics and space launches as an important tool of projecting its soft power capabilities.

In the words of Pang Zhongying,

“as [China] is rising economically and strategically in the world, an exclusive reliance on hard power is seen as inappropriate and insufficient in pursuing [it’s] goals. Officially and unofficially, the development of the nation’s soft power has been regarded as a pressing task and is near the top of China’s list of priorities”. (Zhongying 2008).

In January 2013, China inaugurated a non-profit organization which is its first committed organization for the support of soft power. It is called the China Public Diplomacy Association (CPDA). (Keck 2013). According to China Daily, Chinese leaders are also thinking about improving Chinese soft power and they accept that “the country that occupies the cultural commanding height and possesses strong soft power will win the initiative in global competition”. (Kan 2012). As argued by Shaun Breslin, “Many Chinese analyses of soft power focus on the promotion of a preferred (positive) understanding of China’s interests and identities overseas”. (Breslin 2011). This was also a result of the increasing Chinese diplomatic interactions with other countries. (Breslin 2011).

There is another view which adheres that the rise of China should be seen as the rise of Chinese political soft power. The acceptance and attraction towards the Chinese model of growth is an important factor behind this. (Weiwei 2012). As argued by scholars, “Building soft power commensurate with China’s major power status and influence has become an urgent task in China’s development plan, according to various Chinese scholars”. (Mingjiang 2008). However it has also been argued that the primary factor which is driving Beijing towards asserting its soft power is looking at its usefulness in the overall discourse of Chinese foreign policy. (Mingjiang, 2009: 2).

However contrary arguments assert that the CCP’s inclination towards ideology can be a hurdle in the path of growth of Chinese soft power and its global appeal. (Mingjiang 2008). In addition there is also an absence of important non-governmental organizations which play a crucial role in the generation of soft power. (Nye, 2008). Almost all the measures undertaken by China are perceived with caution by the global community. The rapid economic and military growth has created



a degree of mistrust towards China.

Another major hurdle in the path of making Chinese soft power attractive to its neighbour and the world is its growing military maneuvers and presence, especially in the South China Sea. Beijing is becoming increasingly assertive about its stance towards the territorial conflicts and is very vocal about its claims of the islands in the South China Sea. Such show of military might and strong stance negatively affect the appeal of the Chinese soft power. China is not perceived as a 'peaceful power' and thus the Chinese neighbours are constantly on guard against perceived Chinese military attack. Such hostile image does not help in the path of becoming a soft power image.

However this is a very cautionary note expressed by Tao asserting that there is a need that the Chinese leaders try and re-evaluate their approach towards soft power. He argues, "Soft power is as seductive as it is elusive, which makes it irresistible. Soft power is also costly and ephemeral, which makes it undesirable and unaffordable. Last but not least, it is nearly impossible to separate the effects of soft power from those of hard power". (Tao, 2015).

## CONCLUSION

The rise of China is an accepted fact today. The 2008 financial crisis firmly established the fact that economically China is one of the strongest countries today and the western and European nations have a lot to learn from it. However the increased focus which Beijing has directed towards strengthening its soft power status highlights the importance of this. Another factor is that China understands that to have a global acceptance and reach soft power today is more useful and essential as compared to hard power. This is also an important tool to counter the ongoing 'mistrust' which surrounds China and its international intentions. The most prominent view is that the rise of China will definitely disturb the existing 'peace and stability' of the international order. The argument in favour of this has been that a rising power is always aggressive and thus all the talk by China that it is pro-stability is regarded as mere lip service. It appears that Beijing is devoted towards using soft power in order to fight some of the negative reactions which it faces. The stronger China gets, militarily and economically, the more it will need the help of soft power to manage its international relations as well as image.

In addition it has been argued that the primary goal behind Chinese soft power projection is resources and the goal of isolating Taiwan. (Pan 2008). However it has been rightly argued by Yanzhong Huang and Sheng Ding “Soft power remains Beijing's underbelly and China still has a long way to go to become a true global leader”.(Huang and Ding 2006, 22-44 quoted in Mingjiang 2008: 308).

The recent attention towards soft power by the Chinese government can also be perceived as an attempt to counter the strong American ‘soft power’ existence. United States has enjoyed the supreme position when it comes to having a strong soft power. Everything about the United States has been too attractive for the world. At some level Beijing understands that if it needs to project itself as a worthy alternative or even competitor of the United States, it will have to develop and employ equally strong soft power characteristics as well. So it can be argued that there is no real change in the Chinese policy, however it is attempting to supplement its ever increasing hard power with soft power.

In addition to United States, China has also faced difficulty countering the reach and appeal of the Indian soft power. Even on the regional level if China has to become more attractive it will have to work harder. The reach and appeal of Indian cinema, music, food and other cultural aspect is too strong. This clubbed with the increasing Chinese attention towards the South Asian region can be another important factor behind the growing attention which the Chinese government is directing towards its soft power capabilities.

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## Why Nuclear Weapon Remains as the Ultimate Weapons of Mass Destruction and Disruption

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It is widely known fact nuclear weapons, the ultimate among three weapons of mass destruction and disruption, have the ability to destroy the physical environment when used against adversaries and can do all possible damage to the living beings. The use of these deadly weapons in the two Japanese cities has already shown us the destructive power and effect. However, various devastating effects related to nuclear weapons, both immediate and long term, have not been studied until the early 1950s. But with the proliferation of this dreaded weapon, both the scientific community and civil society took the phenomenon of radioactive fallout and its global health and environmental effects seriously, particularly the threat to the ozone layer, the invisible atmospheric shield that protects animals and plants from ultra-violet light. Another threat, that of a 'nuclear winter', a long period of darkness and extreme cold condition that would follow a nuclear war also gained worldwide attention in the 1980s. Scientists believed that a layer of dust and smoke in the atmosphere would cover the earth and block the rays of the sun, as a result of which most living organisms would perish in due course.

In a nuclear detonation, several types of energetic ionising radiation are produced. The initial radiation consists of neutrons and gamma

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rays, most of which are emitted simultaneously with the explosion and within one minute after the detonation. The intensity of the radiation depends on factors like density and humidity of the air and the explosive yield of the bomb. More than half of all individuals subjected to the radiation doses would develop diarrhoea, malaise, and tensions of the mucous membranes. Though there is uncertainty about the acute effects of radiation, under war conditions it is likely that the majority of persons exposed to radiation would die. However, the actual destruction causes the fallout, which is the most unpredictable effect of a nuclear explosion. Unlike other effects, which are immediate, fallout danger is extended in time as well as in space. It consists of the radioactive fission products created at the instant of the explosion. If the bomb is detonated at great height so that the fireball does not touch the ground, then the fission products, which are in gaseous form, rise with the fireball to high altitudes into the stratosphere. There the particles are carried by the winds round the globe and finally after some months come down on earth and have a global effect. The exposure of people to this fallout may cause long-term effects such as cancer and genetic damage. On the other hand surface bursts vaporise vast quantities of soil or rock, which are sucked into the fireball and become radioactive by mixing with the radioactive remnants of the bomb. This material can contaminate vast areas with lethal levels of radioactivity depending on the winds. This is called local fallout. Global fallout is considerably less harmful than local fallout because it is far more dispersed and has longer to decay.

This article delves into those nuclear events, both actual weapon use (e.g. bombings on the Japanese cities) and nuclear weapons tests; debates surrounding the long cold darkness (Nuclear winter) and the scourge of nuclear terrorism.

#### THE SAGA OF HIROSHIMA AND NAGASAKI

The detonation of the world's first nuclear device in the Alamogordo Desert in New Mexico was carried out on July 16, 1945. Barely twenty days later, the first military use of this new but ultimately lethal weapon occurred over two Japanese cities: Hiroshima and Nagasaki. The bombings definitely initiated an arms race that continues to this day as countries continue to develop nuclear weapons and secretly stockpiled it in their respective arsenals. At present at least eight countries have

nuclear weapon capability and couple of more are striving to achieve that status. This nuclear proliferation threat has become the focus of public attention because of certain dangerous developments, especially the accidents in some nuclear plants, the risky task of storing radioactive waste materials and the dangerous potentiality of nuclear weapon production and its tests which exposes workers and communities to a wide variety of radiation and non-radiation hazards.

To begin a description and critical analysis of the effects of nuclear weapon use since World War II, it is necessary to assess the history's most inhumane act, by describing their first and till now last military use on Hiroshima and Nagasaki. The bomb which destroyed Hiroshima on August 6, 1945 was dropped at 8.15 a.m. and exploded 510 meters above the centre of the city. 'Little Boy', as it was called, released an energy equivalent of about 12.5 kilotons of TNT. The atomic bomb dropped on Nagasaki, just three days later, exploded 500 meters above the city at 11.02 a.m. It is known as 'Fat Man' and is thought to have had a yield of some 22 kilotons of TNT. These two weapons give only an approximate guide to the effects of modern warheads as they were so small and the efficiency they had was that of a primitive nuclear weapon. Yet the effect of these two small devices on the Japanese cities was devastating.

The immediate effects varied considerably in the two cities because of the geographical situation. Hiroshima is built on a plateau and the city was damaged symmetrically in all directions. But Nagasaki is built on mountainous ground and the damage varied according to the direction. But the number of people killed at a given distance from the hypocentre was roughly the same in both cities. Though the exact number of people killed is not known, almost all within 500 meters of the hypocentres were dead by the end of 1945. About 60 percent of those within 2 kms died. The difficulty in estimating the exact number of people killed is related to the lack of figures for the population of Hiroshima and Nagasaki at the time. When the explosions occurred, thousands of Koreans and forced labourers were there. According to the best estimates, the total number of people killed by the two bombings exceeds 260,000.

The intensity of the heat generated by the nuclear explosions, estimated to have been 30000-40000C at ground level near the hypocentres, lasted for one second. At a distance of 500 meters from the hypocentre in Hiroshima, nearly 60 calories per sq.cm. of the thermal radiation were

emitted in the first three seconds. At a distance of 3 kilometres from the hypocentre, the heat in the first three seconds was about 40 times greater than that from the sun. The heat at Nagasaki was even more intense. It was sufficient to burn exposed skin at distances as great as 4 kilometres. From the hypocentres, within 20 to 30 minutes after the explosion, a massive fire began. This violent firestorm lasted for a half day in Hiroshima. The fire was accompanied by black rain. The black rain, containing radioactivity from the explosion, fell on Hiroshima for 7 to 8 hours.

About half of the energy generated by the explosions was given off as blast. The front of the blast moved as a shock-wave, a wall of air at high pressure spreading outward at a speed equal to or greater than the speed of sound. In Hiroshima, all buildings within 2 kilometres of the hypocentre were reduced to rubble. The death toll was severe. Blast injuries occurred mostly among people in concrete buildings. In Japanese-style houses, the injuries were less severe generally.

The Hiroshima and Nagasaki atomic bombs afforded the first opportunity to observe the effects of massive ionising radiation exposure in humans. But little is known about the effects of initial radiation. However, nearly all who died within three weeks had signs of radiation injuries. The prodromal radiation, which is the early manifestations of an illness, usually of one or more days duration, consists of prostration and gastro-intestinal symptoms, including nausea, vomiting and loss of appetite. This syndrome was most marked in the very severely exposed people. Most of them died within two weeks, with blood cell abnormalities. Others died 30 days after the bomb explosion with milder prodromal syndromes.

Most of the survivors alive at the end of 1945 suffered the late effects of nuclear explosion. This delayed effect comprised a variety of illnesses like eye diseases, blood disorders, psycho-neurological disturbances, and disturbances of reproductive function.

After the bombing, the blood cells of survivors were extensively investigated, and these investigations have continued for years. The most significant radiation effect has been the induction of malignant tumours in exposed survivors. The earliest evidence of radiation-induced malignant change was the occurrence of increased leukaemia in the late 1950s and early 1960s. The mortality rate for leukaemia reached a

level of 30 times higher than that of the non-exposed Japanese. Clinical studies in both the cities in the late 1950s and early 1960s showed that the frequency of thyroid cancer was higher among survivors, especially women who were exposed to high radiation doses. The incidence of other malignant tumours like breast, lung, prostate, and bone, has been higher among the survivors also. The most surprising fact is the absence of genetic damage in survivors exposed to radiation. However, according to physicians and scientists, it is too early to say definitely that there has been no genetic effect from the atomic bombs.

#### **ENVIRONMENTAL EFFECTS OF NUCLEAR WEAPONS TESTS**

Nuclear weapon tests are associated with the development of new types of nuclear weapons. But some tests are random tests to maintain confidence and reliability in weapon stocks. Till 1996, six countries had conducted approximately 2,048 nuclear tests; of these about 530 have been in the atmosphere, underwater, or in space. In 1963, the Partial Test Ban Treaty prohibited nuclear tests in these three areas. Among the five declared nuclear weapon states – the US, U.K., and the erstwhile Soviet Union - all signatories to the treaty, resorted to underground testing, whereas France continued its atmospheric tests till 1974 and China till 1980. It is estimated that from 1945 to 1996 there were 1518 underground tests. India and Pakistan, both warring South Asian neighbours have conducted underground tests. After the 1974 underground test, India detonated five nuclear devices in May 1998 at Pokhran. Even though there were information of Pakistan's covert but 'cold nuclear device test' in March 1983, it came out openly in May 1998 by detonating at least six nuclear devices in Chagai hills. The latest entrants into the nuclear weapons club is North Korea which has tested two nuclear devices in October 2006 and in May 2009. Both Israel and Iran have developed the capability though they have never tested any device so far.

However, following the explosions over the two Japanese cities, the Pacific region to a large extent became the most nuclearised region in the world by way of testing, dumping of nuclear waste materials, and other related activities. Besides the Pacific, some countries used their own territories for these acts.

USA. The United States, being the pioneer in the nuclear arms race, has conducted 1,032 tests, both atmospheric and underground, at eleven

locations within its boundaries, at four island locations in the Pacific and over the open ocean in the Atlantic.

After World War II, the United States took possession of Micronesia comprising the northern Marianas, Belau, the Federated States of Micronesia and the Marshall Islands. Just after the war, the United States decided to set up 'Operation Cross Road', the first series of atomic tests at the Bikini Atoll to conduct research on the nature and effects of nuclear explosions. The inhabitants of the Bikini Atoll were given one month notice to evacuate the island for the well-being of mankind. The people choose to move to Rongerik Atoll, 200 kilometers to the east. After the world's first underwater nuclear blast 'Baker', the entire lagoon was engulfed in radioactive mist as the radioactive column from 'Baker' rose to 6,000 feet. As a result, the third test of the series, 'Charlie', was cancelled due to the high contamination and the testing site was shifted to Eniwetok. On December 21, 1947 the islanders of Eniwetok were forcibly moved to Ujelong Atoll, in preparation for 'Operation Sandstone'. In 1954, the Bikini Atoll was again in the news when the US exploded its largest hydrogen bomb, 'Bravo'. This caused an international furore over the highly radioactive fallout. The fallout was carried away by the wind to Rongerik, Uterik and a Japanese trawler in the area, 'Lucky Dragon'. This unfortunate consequence occurred because the meteorological situation was misjudged and an unexpected change occurred in wind direction. Five hours after the detonation, the fallout began at Rongelap Atoll. This fallout consisted mainly of mixed fission products with small quantities of neutron-induced radio-nuclides and traces of fissionable elements. About 24 hours later, the residents of Utirik were evacuated and after 50 hours, the Navy evacuated the Rongelap population.

Among the immediate common complaints after drinking contaminated water were nausea, skin-burns, headaches, and numbness. About 90 percent of the people from Rongelap whose hair became white with fallout ashes, experienced hair-loss. Long-term ailments included reports of miscarriages in women upto four years after the test and increase in hyper-active thyroid glands, thyroid cancer and leukaemia. Besides this, the displaced Bikini Islanders on Rongerik suffered severe food shortages due to limited resources on the island. A survey conducted by the US government estimated that the Bikini will not be habitable

until at least the first half of the next century.

United Kingdom. Till 1962, Britain has tested its nuclear weapons at the Nevada test site in the United States. A suitable alternative to the Nevada test site led them to the choice of the Montebello Islands of Australia. There were 12 atmospheric tests in all, carried out between 1952 and 1957, three at Montebello, two at Emu and seven at Maralinga all in Australia. Till 1996, Britain had conducted 45 nuclear tests comprising 21 atmospheric and 24 underground tests.

The first British nuclear test, 'Operation Hurricane', took place in the hull of an old warship, the HMS Plym, on October 3, 1952. Subsequently the location changed to Emu field, Marilanga and Christmas Islands. Following Totem I, a 10-kiloton bomb exploded in October 1953 at Emu field. The aborigines saw a black cloud which drifted over Wallatina and Melbourne Hill. The aborigines claimed that many of their members fell ill and even died. The general contamination of the aborigines was in part due to the fact that the British and even the Australian authorities were ignorant of the lifestyle of the aborigines. The South Australian Health Commission in 1985 identified 30 cases of cancer amongst aborigines between 1969 and 1980. Most of the aborigines lived north of the testing sites of Emu field and Maralinga. Twenty-seven cancer victims among them died. The Totem I blast also proved an unexpected radiation hazard for members of the British, Australian and American forces involved in the test.

The environment of these three sites have been left contaminated till today. The total amount of plutonium-239 dispersed as a result of the tests was about 1,350 curies. At Maralinga, there continues to be a number of radiological and toxic hazards. The major hazard is from the plutonium-239 which was scattered near the site.

France. The first French nuclear tests were conducted in Algeria between 1960 and 1965. On February 13, 1960, the first test took place at Reggan. Before Algeria won its independence, fourteen nuclear weapons tests were conducted at two Algerian locations in the Sahara desert. After that France shifted its locations to Polynesia in the Pacific. In the Pacific, two atolls - Moruroa and Fangataufa - became its major testing sites till 1996.

After three years of feverish preparation, on July, 1966 the French tried out their new atomic test site at Moruroa Atoll. The first bomb,

a plutonium fission device, was placed on a barrage anchored in the lagoon. When it was detonated, all the water in the shallow lagoon basin was sucked up into the air. It then rained down. Till 1996, it is estimated France had conducted 210 nuclear tests, among them 50 atmospheric and 160 underground tests.

The environmental effect of atmospheric and underground testing includes short-term and long-term effects. Though underground tests have less dangerous immediate effects on the environment than atmospheric tests, they leave long-lived radio-nuclides underground which sooner or later make their way into the bio-sphere. In French Polynesia, all inhabitants faced the insidious hazard of the steady absorption of radioactive fallout. As the effects of the fallout take 10-15 years to become apparent, it could be expected that there would be a sharp increase in the number of cancer patients from the early 1980s. A recent study confirms the presence of radio-nuclides in Moruroan waters. The land area of Moruroa has been used to store radioactive waste in a huge heap on the north coast of the atolls which covers 30,000 square meters. In the course of time, most of the radioactive materials deposited have found their way into the lagoon, contaminating the active marine life. There is evidence of plutonium-239 accumulating in the foodchain.

A major test-related landslide and tidal waves happened in Moruroa on July 25, 1979. A 120 kiloton weapon which was supposed to be lowered into 800 meter shaft got stuck at a depth of 400 meters and could not be dissolved. The explosion resulted in a major underwater landslide of at least one million cubic meters of coral and rock and created a cavity. It produced a huge tidal wave, which spread through the Tuamotu Archipelago and injured people on the southern part of Moruroa.

Others. Besides these three nuclear weapon countries, other declared nuclear powers like the erstwhile Soviet Union (Russia) and China conducted many nuclear tests at their respective sites. The former Soviet Union conducted its nuclear tests from 1949 on. It is estimated that it conducted 715 nuclear tests, including 219 atmospheric and 496 underground tests. Its main test sites have been near Semipalatinsk in Kazakhstan and at two sites on the Arctic islands of Novaya Zemlya. Besides these two sites, there are over 50 other test sites in the Soviet Union. Though the environmental effects of these tests are not known,



research is on at all these sites.

China has conducted all its nuclear tests at Lop Nor in Xinxiang province. It exploded its first fission weapon in 1964 and its first thermonuclear weapon in 1967. It conducted 45 tests in all between 1964 and 1996. Of these 23 were atmospheric and 22 underground tests. There is no official record of fallout and data regarding fallout and environmental contamination of these tests are not available. Similarly, North Korea has conducted a number of nuclear tests since 2006. North Korea has conducted an underground nuclear test and couple of missile tests on May 25, 2009 sending shockwaves across the world. These tests were considered successful nuclear tests than its earlier October 2006 tests. Again the country claimed in February 2013 to have tested another underground nuclear weapon tests.

The Chinese government maintains the utmost secrecy about its military activities. Similar to China, North Korea too maintains utmost secrecy over its military activities. There is no available information to know for sure about the effects of North Korean tests so far on the human and physical environment.

### NUCLEAR TERRORISM

In the last couple of decades the news of terrorists searching for nuclear weapons in Russia and Afghanistan coupled the threat emanating from transnational groups such as Al Qaeda and other jihadi networks has brought this threat to the forefront. There is a clear consensus about an increased threat of nuclear and radiological terrorism in the post 9/11 period, even though many have tagged this threat as ‘overrated nightmare’ since using and acquiring nuclear capability may well be beyond the purview of a terrorist group. At a global level, any form of nuclear terrorism could have a devastating effect when it leads to war or armed conflict between two countries or among a group of nuclear powers. The impact of a nuclear-terrorist act would be far greater when it would be misconstrued as an attack by the enemy country. Not only Islamic Jihadists groups, but broad categories of non state actors who can resort to a nuclear or radiological strike against a nation state including apocalyptic groups and Politico-Religious Terrorist groups (e.g, Islamic State, Al Qaeda, or Aum Shinri Kyo) and Separatists organizations like Chechen or Baloch groups. Religious cults like Aum Shinri Kyo of Japan

have openly stated their desire to acquire and use nuclear weapons. Aum cult chief Soko Asahara had vision of a nuclear Armageddon. Aum's associate Hayakawa had reportedly made frequent visits to Russia to acquire military hardware that includes nuclear weapon components. Al Qaeda's leader infamously stated once that it is a religious duty for him and his group to acquire such weapon system to defend Islamic world.

Although no terrorist groups to date have detonated a nuclear or at least the so called dirty 'radiological' bomb, it is most likely for groups like Islamic State (or ISIS) to use such devices against a highly symbolic target, such as one representing the economy or government, and designed to cause the maximum amount of disruption at the target site. While the terrorist use of a nuclear bomb remains hypothetical due to serious technical obstacles, the past attempts to acquire nuclear devices by Chechen Separatists and Al Qaeda's slain leader Osama bin Laden's network made it clear that there has been immense interest to acquire this ultimate weapon through available and covert connections in the nuclear black market or through technological know-how by hiring rouge scientists.

#### **DARK AND LONG WINTER**

There is no doubt that the direct blast, heat, and radiation effects associated with a large scale nuclear war would be disastrous beyond previous experience. But even if hundreds of millions of people were to die from the prompt effects of a war, the majority of the world's population would probably survive, at least initially. The question of long-term global environmental effects and their consequences for survivors is, therefore, a valid and important one for study.

During the early 1980's it became apparent that the nitrogen oxides produced and injected into the stratospheres by large nuclear fireballs could significantly damage the ozone layers and the consequent increase in ultra-violet-B radiation reaching the earth's surface would have negative effects on the health of humans, animals, and plants. A Soviet analysis showed that the detonation of explosives in the megaton range with an overall explosive force of 104 megaton would destroy 30-60 percent of the total amount of ozone in the Northern Hemisphere. The large-scale spread of radioactive products also affects ecosystems through radiation and changes in the electrical characteristics of the

atmosphere. The pollution of the atmosphere by radioactive products and dust alters the radiation characteristics of the atmosphere, changes weather and climate, and causes deterioration of ecosystems. According to some American scientists, there are four effects: obscuring smoke in the troposphere; obscuring dust in stratosphere; the fall out of radioactive debris; and the partial destruction of the ozone layer. These constitute the principal adverse environmental consequences that will follow a nuclear war.

Before 1982, the potential global environmental effects of nuclear explosions were thought to be radioactive fallout and ozone depletion. The discovery of a new concept, 'nuclear winter', has changed all the skepticism about doomsday environmental effects. Initially, the scientific basis of the nuclear winter hypothesis rested exclusively with the "TTAPS" groups and their first calculations. This group consisted of five American scientists: Turco, Toon, Ackerman, Pollack, and Sagan (TTAPS). Later on, many American and Soviet scientists took on the research for a more comprehensive opinion on the nuclear winter concept and climatic catastrophe. Though there were some disagreements, it was concluded that the effects of nuclear war would reach the most remote areas of the world. No one would be spared.

It has been known for a long time that a nuclear blast on or near the ground would lead to particulate matter being sucked up into the air along with other ground matter which, gasified by the heat, would later form particles from condensation. Larger explosions would result in the greater portion of these particles being transported into the higher atmospheric layers where they could remain for years. By shielding the sunlight, this layer of particulate matter would lead to the cooling of the earth's surface. An even greater effect could be produced by the soot-ridden layers which would build up from the extensive fires. Materials such as oil and plastics give off a black sooty smoke when burned. The soot cloud would rise several kilometers up into the atmosphere and spread over the greater portion of Northern the Hemisphere within weeks. Soot particles are very effective absorbers of sunlight. An extensive cover of soot would result in the warming of the upperside of the layer and a cooling of the earth's surface. The dark cloud layer would diminish the intensity of daylight on the ground to only a few percent of the normal value and lead to a constant twilight.

The cold and darkness would affect the entire land surface of the Northern Hemisphere within a couple or several weeks of the war and would persist for several months. Under such conditions it is likely that agricultural production in the Northern Hemisphere would be almost totally eliminated, so that no food would be available for the survivors. It is also quite possible that severe worldwide photochemical smog conditions would develop with high levels of tropospheric ozone that would interfere severely with plant productivity. The dispersion of radioactive particles to the Southern Hemisphere would occur when the dust and soot layers would cause a strong air flow from the Northern Hemisphere to the Southern Hemisphere. Within a few weeks they would spread to the tropics.

In a situation like this, people will die due to hypothermia as they will lose body heat very quickly. Although shortage of food could be the most widespread and serious problem among human survivors, poor health would be a major problem. These would rise from a combination of three main factors – the breakdown of medical and public health services; the effects of worldwide pollution with early exposure of radiation; and most importantly, the third factor, the spread of epidemic diseases mainly due to poor living conditions, malnutrition and lack of sanitation. The Scientific Committee for Problems of the Environment (SCOPE), a sub-group of the well respected International Council of Scientific Unions, calculated that at least hundreds of millions of people would die of starvation in non-combatant nations from disruption of the food trade alone.

However, the study of the global atmospheric consequences of nuclear war and nuclear winter contains many uncertainties. But these cannot be totally eliminated. It is hard to escape the general suspicion that a nuclear holocaust would be the ultimate result of a nuclear exchange of a certain magnitude.

India conducted one underground test in the Thar Desert of Rajasthan in 1974. Since then India has kept the international community guessing about its nuclear weapons capability. On May 11 and 13, 1998 India conducted a series of five nuclear weapons tests at the Pokhran test site, including a thermonuclear device. The government claimed that there was no fallout and radioactivity neither in the 1974 test nor in the recent tests. Some reports about the 1974 test have become available recently. It is reported that there have been ten deaths due to cancer and some radiation effects on livestock. Like India, Pakistan also conducted six nuclear tests in

the Chagai Hill region in Baluchistan. But the environmental effects are not known except for some immediate blast effects.

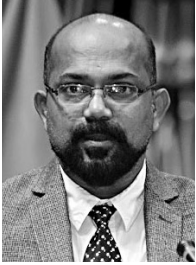
In 2010 one of the Scientific American article written by Alan Robock, and Owen Brian Toon (of TTAPS fame) on how a local nuclear war could affect the global climate and sufferings of human civilisations led to intense debate on the efficacy of nuclear weapons in a real time war scenario. The study concluded that a limited regional nuclear exchange between India and Pakistan, with each side attacking the other's major cities with 50 low-yield Hiroshima-sized weapons, would throw up major concentrations of soot into the stratosphere which would remain there for long enough to cause unprecedented climate cooling worldwide, with major disruptive effects on global agriculture. The study estimated that more than 20 million people in the two countries could die from the blasts, fires and radioactivity. This regional nuclear war would stunt agriculture worldwide for 10 years.

Even though it is difficult to ascertain the actual size and composition of India's and Pakistan's nuclear arsenals, Pakistan is estimated to have 90-110 nuclear weapons with much advanced delivery system ranging from short-range, medium, and longer-range ballistic missiles. India too have stockpiled around 80-100 nuclear warheads. With equal capable delivery systems in its arsenals. The numbers might vary, but its for sure that both neighbours have stockpiled nuclear weapons for each other in any future event of war. Historically speaking both countries have fought four major wars and as many skirmishes in the last six decades.

## CONCLUSION

The world's concern for complete elimination of all nuclear weapons has evidently faded away with the recent developments in South Asia and Korean Peninsula. The prospects of complete nuclear disarmament too have receded. In the light of the above discussion of nuclear weapon and its lethal effects on human and physical environment and the future prospects of its use, one can easily see that aftermath of a any nuclear event which would be more than devastating. In such complicated situation, no nation on earth would remain untouched, no people would remain unaffected. The so-called 'nuclear winter' would make life miserable for the survivors. It is believed that global nuclear war would drive human civilisation back to the Stone Age. Even if the natural environment recovered from a nuclear exchange, the future of human civilisation would be bleak.

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## Security of Nuclear Materials and Nuclear Installations

*Shri. Munish Sharma*

### INTRODUCTION

The nuclear technology has evolved as a strategic technology ever since the atoms were split in a research during the Second World War. The initial research was focused on development of nuclear bomb by splitting the atoms of particular isotopes of either uranium or plutonium. In the decade of 1950s, the attention was shifted to development of nuclear technology for peaceful purposes, primarily for electricity generation. At present, 11 percent of global electricity needs are met by nuclear technology from 435 commercial nuclear reactors in 31 countries, with a total installed capacity of over 375,000 MWe.<sup>1</sup> Nuclear power is pivotal to energy security; reduce the impact of volatile fossil fuel prices and mitigate the effects of environment change. For a developing country such as India, it can make a vitally important contribution to economic and social growth.

The nuclear technology faces many challenges in terms of higher lifetime costs, safety and security of nuclear materials and nuclear installations, proliferation and waste fuel management. There is a growing concern about security of nuclear facilities from terrorist

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1 “Nuclear Power in the World Today”, *World Nuclear Association*, see <http://www.world-nuclear.org/info/Current-and-Future-Generation/Nuclear-Power-in-the-World-Today/#.UVutCxfsqOc>, accessed on 12 November 2015.

attacks. Post Fukushima crisis in March 2011, the resilience of nuclear installations to natural disaster has also been put under scrutiny. The German government, in direct response to the Fukushima accident, has announced that it is going shutdown all the nuclear plants by 2022.<sup>2</sup> The security concerns are no more limited to nuclear and fissile material, they also include lower grade nuclear material as well as radioactive substances which could be used to disperse radioactivity in the environment. The new approach includes broader view of security: all substances, fissile or radioactive, have to be managed to ensure their accountability, safety, security and, for fissile materials, their peaceful uses.

The response to the challenges and threats to nuclear materials and installations has elevated at national and international level. The agencies responsible for nuclear safety and security have evolved guidelines and best practices to reduce the existing risk. For instance, nuclear security issues pertaining to the prevention and detection of, and response to, theft, sabotage, unauthorized access and illegal transfer or other malicious acts involving nuclear material and other radioactive substances and their associated facilities have been addressed by the IAEA in its publication on Nuclear Security. There are a number of international nuclear security instruments such as the Convention on the Physical Protection of Nuclear Material, the Code of Conduct on the Safety and Security of Radioactive Sources, the Supplementary Guidance on the Import and Export of Radioactive Sources, the United Nations Security Council resolutions 1373 and 1540 and the International Convention for the Suppression of Acts of Nuclear Terrorism.<sup>3</sup> Nuclear security is encapsulated in the management of nuclear technologies and its applications which involve nuclear or other radioactive material.

The issues pertaining to nuclear safety and security remain debatable among the scientific and academic community in India. The Atomic Energy Regulatory Board (AERB) has been mandated to review, enforce standards and authorize from safety angle siting, construction, commissioning,

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2 Helen Pidd, "Germany to shut all nuclear reactors", *The Guardian* (Berlin), 30 May 2011, see <http://www.guardian.co.uk/world/2011/may/30/germany-to-shut-nuclear-reactors>, accessed on 12 November 2015.

3 "IAEA Nuclear Security Plan for 2010-2013", *International Atomic Energy Agency*, see [https://www.iaea.org/About/Policy/GC/GC53/GC53Documents/English/gc53-18\\_en.pdf](https://www.iaea.org/About/Policy/GC/GC53/GC53Documents/English/gc53-18_en.pdf), pp. 4-5.



operation and decommissioning of nuclear and radiation facilities in India. The nuclear industry in India operates under the legal framework of Atomic Energy Act, 1962 (Amendment) and the Environment Protection Act of 1986. The existing nuclear security architecture needs an assessment and if necessary, reinforcement to develop a resilient and secure energy source for the forthcoming generations.

### THREAT ASSESSMENT OF NUCLEAR INSTALLATIONS

As the nuclear technology has evolved in last six and half decades, the threats to nuclear facilities and supply chains have increased in numbers and sophistication. The risk of nuclear or other radioactive material being used in malicious acts remains high and it is regarded as a serious threat to international peace and security. These risks are applicable to nuclear material in use, storage and/or transport, and of associated facilities. As more nation states acquire the capability to generate nuclear power, several tonnes of nuclear fuel is transported through road, rail, air or sea ways which remains highly vulnerable to attacks and accidents. Transportation of nuclear materials involves significant risks to human health and the environment. It is vulnerable to accidents, and transport medium or vehicles could be a soft target for terrorist attacks or theft of fissile materials. Perhaps, spent nuclear waste is one of the most vulnerable targets, as it is transported from the nuclear reactor sites to reprocessing plants to separate uranium and plutonium from the highly radioactive waste.<sup>4</sup>

Furthermore, the perimeter defence of the nuclear installations is of paramount importance which is not just restricted to physical security but encapsulates the cyber infrastructure and security of human beings involved in operational processes. A physical attack on nuclear installation may have widespread and catastrophic consequences for both the environment and public health. Although, the extent or severity of the damage is highly subjective, and it depends on various factors such as the type of nuclear facility, the nature of the attack, weather conditions and the operational success of mitigation measures put in place.<sup>5</sup> After

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4 Cleo Pascal, "The Vulnerability of Energy Infrastructure and Environmental Change", *China and Eurasia Forum Quarterly* (USA), v. 8, n. 2, 2010, pp. 153 – 155.

5 "Nuclear Power and Security Threats", 2007, see <http://www.no2nuclearpower.org.uk/reports/Security.pdf>, p. 1.

the terrorist attacks of September 11, 2001 on the World Trade Centre, the term potential of “nuclear-terrorism” is being discussed among the members of scientific and academic community.<sup>6</sup> According to the International Atomic Energy Agency (IAEA), terrorists could target nuclear facilities, nuclear material and radioactive sources worldwide.



Worldwide Map of Nuclear Power Stations and Earthquake Zones  
(Source: <http://maptd.com>)

The threats emanating from terrorist activities could be divided into three categories: (1) dirty bombs, in form of conventional explosives or incendiary devices that disperse radioactive materials, (2) attacks on nuclear-weapon storage or nuclear-energy facilities, and (3) acquisition and use of nuclear-explosive weapons.<sup>7</sup> The attacks on nuclear-weapon or nuclear-energy facilities could create considerably higher casualties. A nuclear reactor and its spent-fuel storage pool, which is constructed in the vicinity

6 Jeffrey T. Richelson, “Nuclear Terrorism: Threat and Response”, *Nuclear Terrorism: How Big a Threat?*, see <http://www.gwu.edu/~nsarchiv/nukevault/ebb388/>, accessed on 12 November 2015.

7 John P. Holdren, “Threats to Civil Nuclear Energy Facilities”, *Science and Technology to Counter Terrorism: Proceedings of an Indo-U.S. Workshop* (The National Academies Press: Washington DC, 2007), p. 62.

of the reactor, rate among the most dangerous targets. Perhaps, mixed-oxide (MOX) fuel-fabrication plant, spent-fuel stored in dry casks or in shipping casks for transportation or a nuclear-waste repository are other possibilities. Moreover, terrorists could attack a facility or item in transit or could mount an attack using an armed force, possibly aided by insider accomplices, to gain entry to a facility and sabotage the infrastructure.

Worldwide there are around 440 power reactors and 32 more under construction. A nuclear reactor site has a spent-fuel storage pool, which handles several times as much long-lived radioactive material than a reactor. Moreover, large civil fuel-reprocessing plants are operational at La Hague (France), Sellafield (England), and Chelyabinsk region (Russia); similar but smaller commercial plants operate at Tokai-Mura (Japan) and Marcoule (France).<sup>8</sup> The consequences of a successful terrorist attack on any nuclear facility depend upon a number of factors including direction and speed of the wind, atmospheric conditions, and the distribution of population in the adjoining area.

The nuclear facilities and supply chains are vulnerable to both natural disasters and human induced attacks or errors leading to catastrophic events. The nuclear power plants are designed to withstand the impact of natural disasters like earthquake. Nuclear Reactors usually require a large amount of water for cooling, approximately 95,000 to 227,000 litres per MWh of power generated.<sup>9</sup> As a result, they are generally situated in areas such as coast and river banks which are highly susceptible to sea level rise, extreme weather and storm surges, floods and cyclones. There have been instances of flooding at nuclear power plants in the U.S., France and India.<sup>10</sup> The changing climatic conditions and variation in water availability along with instances of flooding pose many threats to nuclear power plants. Furthermore, the threats from tsunami have high probability to impact the functioning of nuclear installations. The Tsunami in Japan in March 2011 caused a series of breakdowns in disaster-related safety procedures, resulting in a nuclear disaster. The Tsunami in the Indian Ocean in 2004, led to Kalpakkam nuclear facility shutdown while the campus of Kalpakkam Atomic Reprocessing Plant

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8 n. 7, p. 64.

9 "Geography of Nuclear Reactor", see <http://www.energybc.ca/profiles/nuclear.html>, accessed on 14 November 2015.

10 n. 4.

was flooded. The threats are not restricted to physical domain; the digital networks carrying critical information related to operations of the facility are at constant risk.

The nuclear facilities use both digital and analogue systems to monitor and operate plant processes, equipment, and store and retrieve information. Analogue systems follow hard-wired instructions while digital computer systems use software and communication channels to provide instructions or commands. The computer and control systems of nuclear installations are connected through digital networks, extending across the plant, performing safety, security and emergency functions. Over the years, manual controls have been replaced by electronic controls, monitored and triggered remotely by specialised software. Apart from physical and system operational security, cyber security of electronic hardware and networks has also become a major concern.<sup>11</sup> Digital systems, including individual computers and networks, are vulnerable to cyber attacks, which include malicious exploitation and infection by malware such as viruses, worms and other types of programming code. For instance, the Stuxnet malware was designed to change the parameters of Programmable Logic Controller (PLC) device associated with high speed centrifuges, and compromise the industrial process critical to the functioning of the nuclear installation. The Stuxnet malware was discovered in 2010 and it triggered intense discourse about a possibility of similar virus being used against critical power infrastructure, especially Nuclear reactors of a nation state.

A meticulous attack needs precise information about the instruments deployed at the facility, its design and process flow documentation. Threats to the cyber security of a nuclear installation include attempts to gather such sensitive information, which could further be used in planning and executing malicious acts and attacks to disable, destroy or compromise the computer resource critical to the security or safety of the facility.<sup>12</sup>

The future of such viruses and malwares is highly unpredictable and

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11 “India Smart Grid Forum: Working Group on Cyber Security”, see <http://173.201.177.176/isgf/wnPage10.htm>, accessed on 14 November 2015.

12 IAEA Nuclear Security Technical Guidance, “Computer Security at Nuclear Facilities”, *International Atomic Energy Agency, 2011*), see [http://www-pub.iaea.org/MTCD/Publications/PDF/Pub1527\\_web.pdf](http://www-pub.iaea.org/MTCD/Publications/PDF/Pub1527_web.pdf), p. 2.

they could be used as a weapon against any state or establishment. The nuclear power plants are highly vulnerable to Stuxnet like viruses and the challenge lies in devising cyber security means to keep a check on spread of malwares into the industrial control systems. With more nation states waging war in cyber space against other nations and the nexus with terrorist organizations has added to the existing woes of cyber security experts.

#### **NUCLEAR MATERIALS AND INSTALLATIONS THREAT MITIGATION**

The mitigation strategy for varying number and degree of threats to nuclear materials and installations has to address the physical, personnel and cyber dimensions of security. The regulations lay down by IAEA and national nuclear regulatory bring down the probability and impact of the threats in case of an eventuality. The security is built along with the design. The international references are drawn from the Convention on the Physical Protection of Nuclear Material, 1987 (and amendments in 2005) and the Nuclear Security Recommendation on Physical Protection of Nuclear Material and Nuclear Facilities by the IAEA. The IAEA has played an active role in the development of codes, specifications, and operational procedures that deal in detail with the technical, regulatory, and licensing aspects of nuclear security. The French control system works on the fundamentals of regulations to prevent loss, theft or diversion of nuclear materials, to protect installations against sabotage and to maintain compliance with rules set up by the IAEA. The measures built for security cover physical security, control and accounting mechanisms. The implementation of security measures is done in form of – prior authorization to exercise nuclear materials import, export, storage, transfer, use and transport activities; verification procedures for administrative, technical and accounting aspects; and punishment for improper possession of nuclear materials or in adherence to the security regulations.

**Figure 1: Nuclear Plant Security Zones**



Source: <http://www.nei.org>

At the national level, regulatory controls are pertinent to ensure that nuclear material within the borders of the state is secure from theft or diversion from civilian nuclear facilities for possible use in clandestine fissile explosives or any sort of risk from radiological sabotage. The users of the special nuclear materials and certain quantities of by-product material(s) apply safeguards to protect against sabotage, theft, and diversion, which include:

- a) *Physical protection of facilities and/or special nuclear material at both fixed sites and during transportation; and*
- b) *Material control and accounting for special nuclear material.*<sup>13</sup>

Physical protection consists of a variety of measures to protect nuclear facilities and material against sabotage, theft, diversion, and

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<sup>13</sup> “Domestic Safeguards”, <http://www.nrc.gov/security/domestic.html>, accessed on 30 November 2015.

other malicious acts.

Technology plays a critical role in developing the defence-in-depth architecture. It is utilized in physical security measures in form of intrusion detection sensors, surveillance and assessment of the protected area such as video supervision, alarms etc. Additional security measures are kept in place such as well trained and armed security officers, physical barriers, and access controls. Nuclear facilities that require physical protection include nuclear reactors, fuel cycle facilities, and spent fuel storage and disposal facilities. Physical protection programs for these facilities include the following key features<sup>14</sup>:

- *A detailed threat assessment to determine the requirements of physical protection;*
- *Demarcation and grading of Physical Protection Areas, such as Exclusion Area, Protected Area, Vital Area, and Material Access Area, and their respective security measures in form of barriers or controls;*
- *Intrusion Detection measures to raise alarms as notification to the security administrator in case of security breach; and*
- *A clearly defined armed response to protect public health and safety and defend nuclear material or a nuclear facility against an intrusion or armed/physical attack.*

The transportation of spent nuclear fuel and other high activity shipments requires stringent physical protection, which may include<sup>15</sup>:

- *Use of certified, structurally rugged, shipment over-packs and canisters only;*
- *Advance planning and coordination with local law enforcement along approved routes;*
- *Protection of information about schedules;*
- *Regular communication between transports and control centres;*
- *Armed escorts within heavily populated areas; and*
- *Vehicle immobility measures to protect against movement of a hijacked shipment before response forces arrive.*

In recent years, due to significant increase in the risk, security

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14 Nuclear Regulatory Commission, "Nuclear Security and Safeguards – Physical Protection", see <http://www.nrc.gov/security.html>, accessed on 08 November 2015.

15 Ibid.

measures related to nuclear and radioactive material have been accordingly elevated. Therefore, the materials management and safeguards system undergo frequent reviews and revisions and upgrades. Technology is a key enabler of physical security measures for risk mitigation. For instance, a joint NRC-Department of Energy database in the U.S. captures the details of nuclear material in transit, hence the movement and location of nuclear material are readily known to the stakeholders. The National Source Tracking allows radioactive sources in quantities of concern to be closely tracked. Nevertheless, dependence on technology, specifically Information Technology has thrown open a gamut of challenges.

To protect nuclear plants from cyber attacks, the primary objective of any cyber security programme must be to protect the confidentiality, integrity and attributes of electronic data or computer systems and processes in a highly complex and integrated environment. The nuclear industry takes measures to ensure that its nuclear plants are protected from cyber attacks. The critical systems are air-gapped to mitigate the risk of cyber attacks, and therefore detached from Internet or internal network of the facility, in essence isolated to minimize the access for a targeted cyber attack. The Industrial Control Systems (ICS), access control systems, alarms etc. have different architecture, configuration, or performance requirements and many a times these are customized for specific needs. ICS are built to serve for a longer life span; therefore many installations still run on legacy systems. ICS is a soft target for cyber attacks because availability is the key determinant, and they remain prone to unauthorised access or breach of integrity. They remain operational round the clock, for years, and regular updates or security patch installations need a system shutdown, which is infeasible for ICS. In the absence of technical security measures, attackers attempt to gain access to the networks for espionage, and an attack may lead to sabotage.

The following measures ensure protection against cyber threats<sup>16</sup>:

- Isolated key control systems and equipment is air-gapped, and functions without network or internet connectivity;

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16 "Cyber Security Strictly Regulated by NRC", *Nuclear Energy Institute*, see <http://www.nei.org/resourcesandstats/documentlibrary/safetyandsecurity/policybrief/no-additional-regulation-is-needed-for-nuclear-energy-cyber-security/>, accessed on 08 November 2015.



- Strict controls over the use of portable media, such as thumb drives, CDs, and laptops, which are prone to malware infections and become a carrier or threat vector;
- Heightened defenses against insider threats, in form of training, vetting and behavioural observation for individuals handling plant equipment; and
- Configuration management, impact analysis before making changes to relevant equipment, vulnerability assessments.

The IAEA has published Technical Guidance for cyber security as part of Nuclear Security Series, dealing with computer security at nuclear facilities. The publication recognizes the increasingly complex threat scenario, where the possibility of occurrences of cyberterrorism as a means of attacking a State's critical infrastructure has prompted a number of national authorities to prepare defences and issue new regulations. A comprehensive nuclear security programme involves the prevention of, detection of, and response to, criminal or intentional, unauthorized acts involving or directed at nuclear material, other radioactive material, associated facilities, or associated activities, and other intentional acts that could directly or indirectly produce harmful consequences to persons, property, society or to the environment.<sup>17</sup>

According to the IAEA Nuclear Security guide, good practices for computer security at nuclear installations should be adopted, such as: national legal and regulatory requirements; adequate resources and support for computer security; a well defined computer security perimeter; to identify the interactions between computer security and facility operation, nuclear safety and other aspects of site security; risk assessment; regular audits and reviews.

The State legal system should provide the legislative and regulatory framework that covers protection of sensitive information and addresses any activity that might precipitate breaches of nuclear security. It is important that State legislation is continuously reviewed and updated to include provisions for new and emerging criminal activities and other potential threats to computer security. The IAEA requires Nuclear Installations to assign a Computer Security Officer (CSO), with in-depth knowledge of computer security and good knowledge of other aspects of security in nuclear facilities. The officer is the point of contact for any

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17 n. 14, p. 1.

emergency situation pertaining to computer security to streamline the communication which is of essence in case of an eventuality.

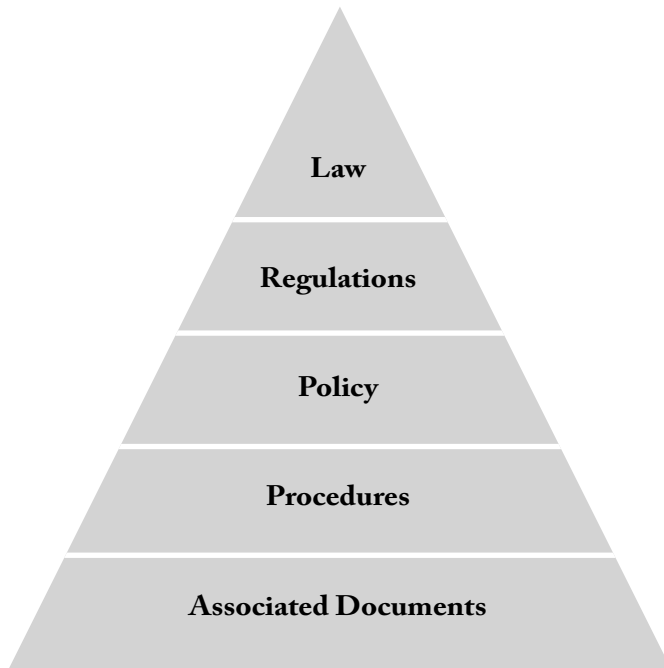
### CONCLUSION

The nuclear industry is going to face a number of challenges from non-proliferation threats and issues pertaining to security of nuclear materials and installations. The newly emerged threat of terrorism would remain prominent in the foreseeable future. All the nation states involved either in manufacturing or operations of nuclear reactors need a well coordinated effort to mitigate the threats and to develop a defence-in-depth architecture. Comprehensive security architecture is feasible only when three dimensions of security – physical, personnel and cyber – are addressed in detail by each nuclear installation under the purview of the national regulatory and IAEA. The nuclear installations, nuclear material and allied supply chains are vulnerable to these man-made threats at different time of their lifecycle. They are equally vulnerable to natural disasters such as cyclones, earthquakes and environment change. The defence-in-depth mitigation strategy builds resilience among the infrastructure to withstand the impact and reduce the time to restoration of services.

The responsibility of security lies with every stakeholder. The IAEA at the international level is responsible for defining the wider framework and policy initiatives. The national regulatory handles the domestic implementation of these advisories and policies with stringent verification and auditing mechanism. The nuclear installation operators, vendors, and personnel share the equal responsibility as they are the implementation means. The guidelines and good practices are implemented at the bottom layer of security. There are numerous means for physical security and it includes of use of force and technology as well. The physical and cyber dimensions of security are discounted if the personnel security involved in the architecture is compromised. The personnel involved in the operations of nuclear installations have varied responsibilities and skill sets. They perform a wide number of operations which may be critical or sub-critical. As Social Engineering remains to be a threat in the upcoming years, the awareness of these key resources towards computer security could make a lot of difference as an aware employee knows the risks and implications. The personnel need

to be trained and given knowledge of the baseline computer security procedures or job specific computer security procedures. The security policies would be the guiding factor and proper knowledge of security systems would ensure timely reporting and escalation of a crisis. Besides awareness and training, other aspects of security, personnel security is essential for instituting consistent computer security. The necessary provisions for establishing an appropriate level of vetting, confidentiality undertakings, and termination procedures and for defining required job competencies should be coordinated between the computer and personnel security managements. In particular, staff with key security responsibilities (system administrators, security team) may require a higher level of vetting.<sup>18</sup>

**FIGURE 2: THE APPROACH TO SECURITY OF NUCLEAR INSTALLATIONS**



Source: IAEA

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18 n. 14, p. 25.

The risk assessment and management procedures are relevant at all stages of the facility's systems life cycle, including design, development, operations and maintenance. It is an important tool for determining the best location to allocate resources and effort in addressing vulnerabilities and the likelihood of their exploitation. The threat and vulnerability assessment provides the basis for preparing the countermeasures required to prevent or mitigate the consequences of attacks against the nuclear installations.<sup>19</sup>

In India, nuclear power plants design, construction, finance, operations and management lies under the direct control of the government or its public-sector enterprises. From design process, Indian nuclear facilities deploy physical protection measures and redundant safety systems. These features were built to ensure nuclear reactor safety and to protect the public at large in case of an accident or incident. In India the independent organization Atomic Energy Regulatory Board (AERB) is responsible for monitoring and controlling the civilian use of radioactive sources, and ensuring their security.

The changing threat perception to the nuclear material and installations has gained attention of governments and international agencies. The threats from nation states, non-state actors and natural disasters are being debated and discussed among the members of scientific and academic community. The response to these dynamic threats lies in the three dimensional in-depth architecture covering the physical, personnel and cyber aspects of security. The adherence to guidelines and adoption of best practices laid down by the IAEA and national regulatory bodies is the key to a secure and resilient nuclear energy industry.

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19 n. 14, p. 36.

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