

## **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.

The Centre aims at undertaking research and analysis of subjects relating to national and international security and development through seminars, discussions, publications at periodical intervals and close interaction with the faculty members and research students in allied disciplines in the Universities and Educational Institutions as well as the Armed Forces. In the coming future, the Centre expects to award research fellowships for studies in various areas of National Security and National Development. It aims to generate and promote interest among the academicians and public in related subjects, with a view to increase awareness to national security concerns. It has received very valuable support from the University of Pune in all its activities, especially from the Department of Defence and Strategic Studies. It has a Memorandum of Understanding (MOU) with Yashwantrao Chavan Academy of Development Administration (YASHADA), Pune for enabling mutual collaboration in the academic activities. The Centre has held a number of seminars, panel and group discussions in the past. The Centre has also embarked on publishing a Quarterly Journal with effect from January 2014.

### **ADDRESS:**

Centre for Advanced Strategic Studies  
M.M.D.W. Potdar Complex, Pune University Campus,  
Pune – 411 007  
Telefax No.: 020-25697516  
Email: [casspune@yahoo.com](mailto:casspune@yahoo.com) / [director@cfass.org.in](mailto:director@cfass.org.in)  
Website: [www.cfass.org.in](http://www.cfass.org.in)

## EDITORIAL BOARD

- Air Marshal (Retd) BN Gokhale, PVSM, AVSM, VM, Editor-in-Chief.
- Lt Gen (Retd) Amitava Mukherjee, PVSM, AVSM, Former Director General, Air Defence, Army Headquarters.
- Prof Amitav Mallik, Former, Member, National Security Advisory Board and Founder Director, LASTEC, Delhi.
- Shri Jayant Y Umranikar (Retd) DGP (Spl Ops) Maharashtra and Former Commissioner of Police, Pune
- Vice Admiral (Retd) DSP Varma, PVSM, AVSM, VSM, Advisor, DRDO, Pune.
- Lt Gen (Retd) KT Parnaik, Former G.O.C.-in-C, Northern Command.
- Shri Nitin Gokhale, Security and Strategic Affairs Editor NDTV, New Delhi

---

© Centre for Advanced Strategic Studies, Pune.

---

### *Published by*

**Centre for Advanced Strategic Studies**

M.M.D.W. Potdar Complex,

Pune University Campus,

Pune – 411 007

Telefax No.: 020-25697516

E-mail: [casspune@yahoo.com](mailto:casspune@yahoo.com)

[director@cfass.org.in](mailto:director@cfass.org.in)

Website: [www.cfass.org.in](http://www.cfass.org.in)

Submission and permission-related queries can be sent to the Editor, Centre for Advanced Strategic Studies at [casspune@yahoo.com](mailto:casspune@yahoo.com)

### *In collaboration with*

**Menaka Prakashan**

(Publication division of MediaNext)

2117, Sadashiv Peth,

Vijayanagar Colony,

Pune – 411 030, Maharashtra

Email: [sales@menakaprakashan.com](mailto:sales@menakaprakashan.com)

Webstore: [www.menakabooks.com](http://www.menakabooks.com)

For subscriptions: 9823 69 69 60

Printed at:

Vikram Printers, Parvati,

Pune – 411009

---

All Rights Reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, recording or otherwise without the prior permission of the copyright holder.

*Disclaimer:* The views expressed in this journal are those of the authors and do not reflect the views of the Centre, those of any of the Ministries or any other organization, unless specifically stated as such.

Single issue price ₹ 400	Annual Subscription ₹ 2000 (Includes postage)	Please turn to last page for subscription form. To subscribe online, please visit <a href="http://www.menakabooks.com">www.menakabooks.com</a> Single issue is also available at <a href="http://www.amazon.in">www.amazon.in</a> and <a href="http://www.infitbeam.com">www.infitbeam.com</a>
-----------------------------	---	--

### **Founder Members**

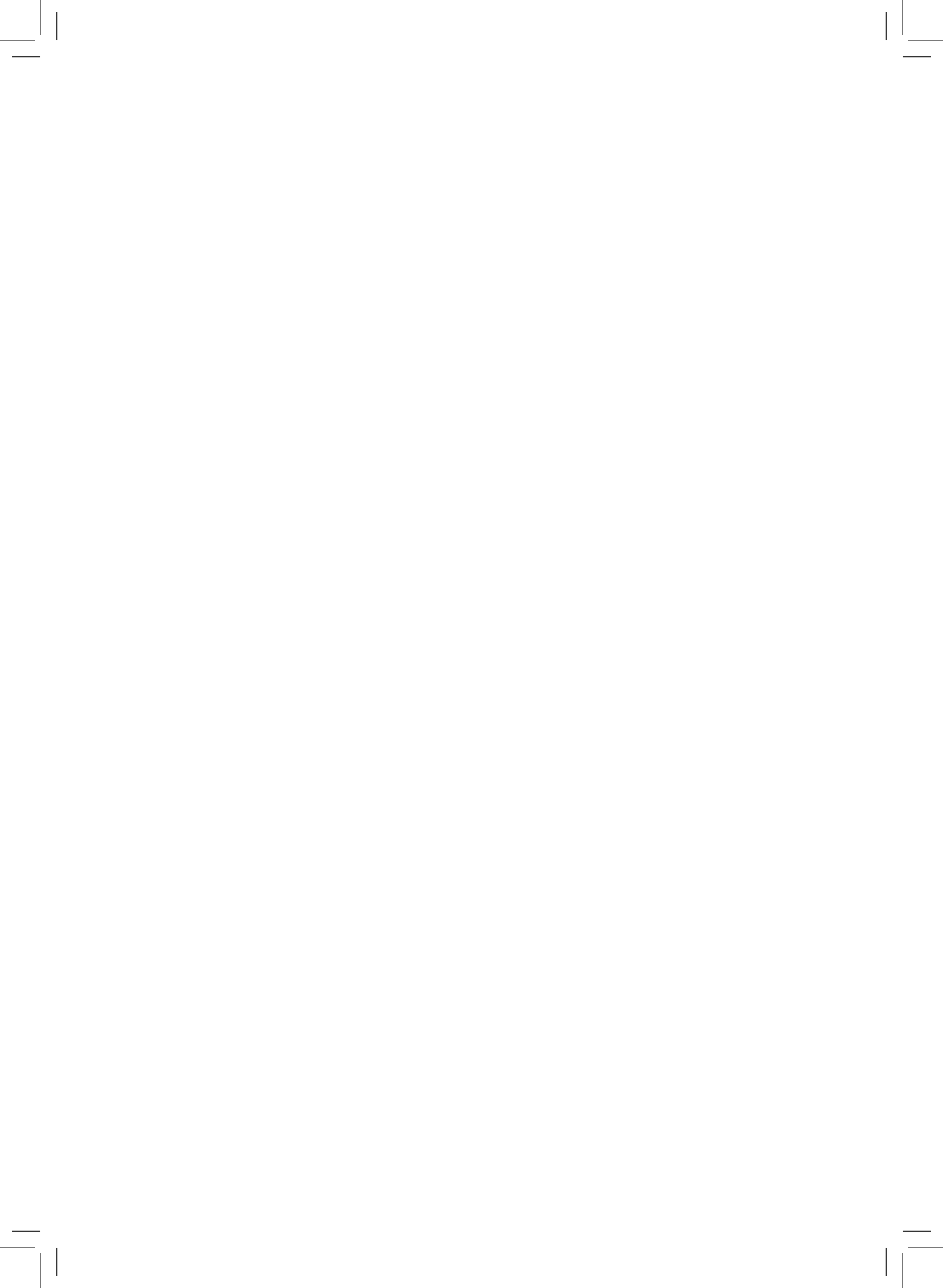
- Late Shri PVR Rao, Former Defence Secretary, Government of India.
- Late Shri RD Sathe, Former Foreign Secretary, Government of India.
- Late Prof VG Bhide, Former Vice Chancellor, University of Pune.
- Late Air Marshal (Retd) YV Malse, Former Vice Chief of the Air Staff.
- Late Shri Sharad Marathe, Former Industries Secretary, Government of India.
- Admiral (Retd) JG Nadkarni, PVSM, AVSM, NM, VSM, Former Chief of the Naval Staff.
- Professor Gautam Sen, Former Head, Department of Defence and Strategic Studies, University of Pune.

### **Honorary Life Members**

- Shri Abhay Firodia, Chairman, Force Motors Ltd.
- Shri Atul C Kirloskar, Chairman and Managing Director, Kirloskar Oil Engines Ltd.
- Shri RD Pradhan, IAS (Retd), Former Home Secretary and Governor, Arunachal Pradesh.

### **Governing Council Members**

- Admiral (Retd) JG Nadkarni, PVSM, AVSM, NM, VSM, Former Chief of the Naval Staff, IN.
- Air Chief Marshal (Retd) H Moolgavkar, PVSM, MVC, Former Chief of the Air Staff, IAF.
- Dr. Madhav Godbole, IAS (Retd), Former Home Secretary, Government of India.
- Professor Gautam Sen, Former Director General and Member Board of Trustees, Indian Institute of Education.
- Shri MK Mangalmurti, IFS (Retd), Former High Commissioner, South Africa.
- Lt Gen (Retd) Amitava Mukherjee, PVSM, AVSM, Former Director General, Air Defence, Army Headquarters.
- Lt Gen (Retd) Ashok Joshi, PVSM, AVSM, Former Director General, Military Training, Army Headquarters, and Chhatrapati Shivaji Chair Professor, University of Pune.
- Air Marshal (Retd) S Kulkarni, PVSM, VM, Former Commandant, National Defence College, New Delhi.
- Air Marshal (Retd) BN Gokhale, PVSM, AVSM, VM, Former Vice Chief of the Air Staff, Air Headquarters, Presently Consultant, Principle Scientific Advisor, Government of India and DRDO and the current Director, Centre for Advanced Strategic Studies, Pune.
- Group Captain (Retd) SG Chitnis, VSM, Deputy Director, Centre for Advanced Strategic Studies, Pune.



# CASS Journal

## Volume 1, Number 3, July–September 2014

---

### Contents

<i>Editor's Note</i>	vii
1. Disaster Management Regime <i>Lt Gen Abhay Parnaik</i>	9
2. Strategic role of Science, Technology and Engineering in Water Security and Socio-Economic Development <i>Dr CD Thatte</i>	19
3. Development of Rivers, Inland Waterways, Dams and Reservoirs in India <i>Capt Subhash Bhate</i>	43
4. Relevance of Nehru's Foreign Policy in Today's World <i>Amb MK Bhadrakumar</i>	55
5. The Current Crisis in Ukraine <i>Lt Gen (Retd) Ashok Joshi</i>	63
6. Forget the CDS for now, let's get on with the Integration of Service Headquarters <i>Air Marshal A R Ghandhi</i>	77
7. Need For Slim, Trim, Light and Agile Security Mechanism for India <i>Lt Gen (Retd) (Dr) DB Shekatkar</i>	97
8. Internal Security And Police – New Challenges <i>Shri Jayant Umranikar</i>	117
9. Towards Energy Independence for India <i>Prof Amitav Mallik</i>	129
10. Technology Perspective and Capability Road-map: An Initiative of Limited Value <i>Maj Gen Mrinal Suman</i>	139
11. A Political Consensus to Resolve Problems of the North East <i>Shri Gautam Sen</i>	151
<i>Guidelines for Contributors</i>	157





Air Marshal (Retd) BN Gokhale  
PVSM, AVSM, VM  
Director, CASS



Centre for Advanced Strategic Studies  
Pune University Campus  
Ganeshkhind Road  
Pune 411 007, INDIA

## Editor's Note

*“Horizon is what you think you are capable of, what you can see.  
Whereas, beyond the horizon is where you realise your  
true potential”.*

The quarter ending June 2014 has been a momentous time for us in India and around the world a very tumultuous one. The month of May witnessed world's largest democracy bringing about a change of Government by the ballot. The 16th Indian general election recorded some of the highest turnouts mainly on account of large numbers of young voters. The challenges facing the country are daunting but there is renewed optimism and hope.

One of the immediate concerns is of a delayed and weak monsoon bringing to the fore issues of water management and water security. Connected is the important issue of adequate energy. This issue covers some of these aspects of non-traditional threats.

It is often said that 'best of the friends make bitterest of the enemies'. How true when one witnesses the events in Ukraine, which has brought apprehensions of return of the Cold War. Added to this is the worsening situation in Iraq resulting in price rise of crude oil. In today's interdependent and interconnected world Indian energy requirements

will be affected. However, new and alternate long term solutions will need to be found so that such events do not adversely impact her already frayed economy. The Centre intends publishing considered opinions of experts on all such connected aspects in subsequent issues of the CASS Journal.

As we offer this bouquet of articles on varied aspects of National Security and National Development, I must thank the authors and readers for their continued support to this nascent endeavour by the Centre. The transliterated edition in Marathi is also being read widely. From the next issue we also intend bringing out Book Reviews to facilitate avid readers.

Wishing you all Happy Reading.

Jai Hind

20 June 2014



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



## Disaster Management Regime

*Lt Gen Abhay Parnaik*

### INTRODUCTION

The June 2013 disaster of Uttarakhand once again brought the focus on our preparedness to handle such situations and more importantly, on our very approach to the ever prevailing facet of the country's vulnerability to natural and manmade disasters. Such vulnerability, albeit in varying measure features as a reality for most, if not all nations. In the context of India, this vulnerability may be assessed from some factual data available. 58.6 percent of India's land mass is prone to earth-quakes of varying intensities. About 12 percent of land amounting to approximately 40 million hectares is prone to floods and river erosion while 68% of cultivable area is vulnerable to drought. Out of 7516 Km of the coast line about 5700 Km is prone to cyclones and tsunamis. The hilly areas are vulnerable to landslides and snowbound areas are additionally prone to avalanches. The country is also prone to man-made disasters of biological, chemical, radiological and nuclear kind.

Disasters have the potential to impact adversely on economy, put back development activity by several years and leave behind long lasting human sufferings. Therefore, the management and mitigation of natural disasters go much beyond 'calamity relief'. An all encompassing and holistic approach including prevention, mitigation, preparedness, response, rehabilitation and reconstruction is essential. Initiatives in policy mechanisms have been attempted in varying measures of success over the years, picking up tempo with every disaster. Till a decade ago, the mechanism mainly dealt with response, relief and rehabilitation just after occurrence of the disaster.

---

*ISSN 2347-9191 print*

*© 2014 Centre for Advanced Strategic Studies*

*CASS Journal, Vol. 1, No. 3, July–September 2014, pp. 9–18*

However, serious deliberations since have brought in institutionalisation in the form of Disaster Management Act 2005

### DISASTER AND DISASTER MANAGEMENT

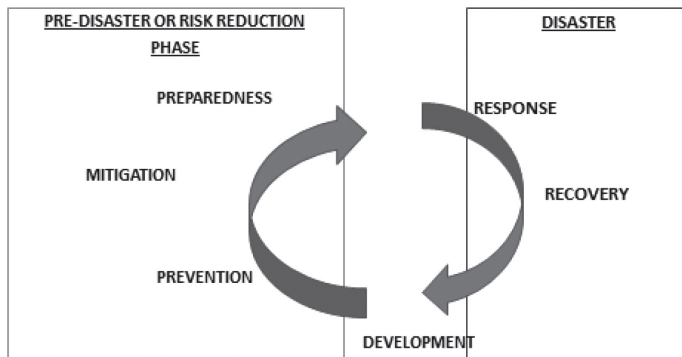
Disaster is defined in the Disaster Management Act 2005 as catastrophe, mishap, and calamity or grave occurrence from man-made or natural causes which results in substantial loss of life or human suffering or damage to or destruction of property or degradation of environment which is beyond the coping capability of the community of the affected area.

The Act also defines Disaster Management. The term implies a continuous and integrated process of planning, organising, coordinating and implementing measures which are necessary or expedient for :

- (a) Prevention of danger or threat of disaster
- (b) Mitigation or reduction of risk of any disaster or its severity or consequences.
- (c) Capacity building.
- (d) Preparedness to deal with any disaster.
- (e) Prompt response to any threatening disaster situation or disaster.
- (f) Assessing the severity or magnitude of effects of any disaster.
- (g) Evacuation, rescue and relief.
- (h) Rehabilitation and reconstruction.

A typical continuum depicting disaster management envisioned in Disaster Management Act 2005 may be made as under. It consists of six elements viz prevention, mitigation, preparedness, response, recovery and development.

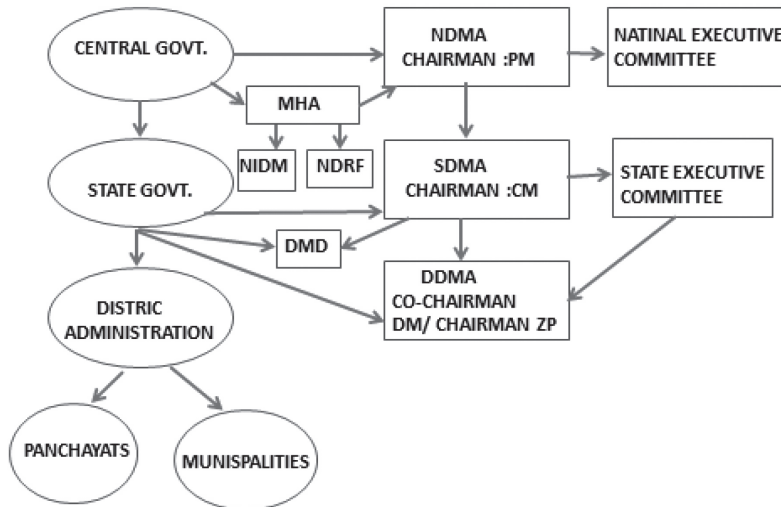
Disaster Management Continuum



**INSTITUTIONS UNDER THE ACT**

A comprehensive institutional frame work that has been created may be depicted as under:

**INSTITUTIONAL ARRANGEMENT IN THE ACT 2005**



**NATIONAL DISASTER MANAGEMENT AUTHORITY (NDMA)**

The NDMA as the apex body for disaster management has been created under sec (3) of the Act. It is headed by the Prime Minister and has the responsibility for laying down policies plans and guidelines for disaster management and coordinating their enforcement and implementation for ensuring likely and effective response to disasters. These guidelines assist the central ministry, department and state to formulate their respective disaster management plans. It oversees the provision and application of funds for mitigation, and preparedness measures and authorises emergency procurement. NDMA also exercises general superintendence, direction and control over NDRF (National Disaster Response Force). NDMA is mandated to deal with all disasters, natural or man-made. However, emergencies that require close involvement of security forces are dealt with by National Crisis Management Committee.

#### **NATIONAL EXECUTIVE COUNCIL (NEC)**

Section 8 of this Act provides for constitution of NEC to assist NDMA in the performance of its functions. NEC is essentially the executive arm of NDMA for assisting it and compliance of directions issued by the Central Government. It prepares the national plan of Disaster Management based on national policy and monitors the implementation of guide lines issued by NDMA. The NEC also performs such other functions as many be prescribed by the Central government in consultation with NDMA.

#### **STATE DISASTER MANAGEMENT AUTHORITY (SDMA)**

Section 14 of the Act envisages establishment of SDMA in every state by state notifications . The SDMA headed by Chief Minister of state and lays down policies and plans for disaster management in the state. It approves the state plan in accordance with the guidelines laid down by NDMA and coordinates the implementation of the state plan. It recommends provision of funds for mitigation and preparedness and reviews developmental plan to ensure mitigation of prevention, preparedness and mitigation measures.

#### **STATE EXECUTIVE COUNCIL (SEC)**

A SEC is constituted by the State Govt to assist SDMA (Sec 20 of the Act). The SEC has the responsibility for implementing the National Plan and State plan and acts as a coordinating and monitoring body for management of disasters in the state.

#### **DISTRICT DISASTER MANAGEMENT AUTHORITY (DDMA)**

Section 25 of the Act provides that the State government shall constitute a DDMA for every district in the State. It is headed by the Collector or District Management or Deputy Commissioner. The DDMA acts as the district planning, coordinating and implementing body for disaster management and takes measures for the purposes of disaster management in the district with the guidelines laid down by the NDMA and SDMA. It prepares the district Disaster Management Plan and monitors its implementation. It ensures that the guide lines for prevention, mitigation preparedness and response measures laid down by NDMA, SDMA are followed at district and local levels.

### **LOCAL AUTHORITY (LA)**

Section 41 of the Act covers local authorities. As per National Policy on Disaster Management 2009 ( Approved by the Union Cabinet on 22 Oct 2009) the LA include Panchayati Raj Institutions ( PRI), Municipalities, District and Cantonment Boards, and Town planning Authorities which control and manage civic services. These bodies ensure capacity building of their officers and employees for managing disasters, carry out relief, rehabilitation and reconstruction activities. LA prepare DM plans as per the guidelines of NDMA, SDMA and DDMA.

### **NATIONAL INSTITUTE OF DISASTER MANAGEMENT (NIDM)**

Section 42 of the Act, mandates the Central government to constitute a National Institute of Disaster Management ( NIDM). The NIDM along with other institutions has responsibility of capacity building, training, research, documentation and development of national level information base. It organizes training for trainees, DM Officials and other state holders. The NIDM aims at emerging as a 'Centre of Excellence' in the field of DM.

### **NATIONAL DISASTER RESPONSE FORCE (NDRF)**

Section 44 of the Act envisages constitution of National Disaster Response Force (NDRF) for the purpose of specialist response to a threatening disaster situated or disaster. The general superintendence, direction and control of this force is vested in and exercised by the NDMA. The command and supervision of the Force is vested in the Director General Civil Defence and NDRF.

### **OTHER IMPORTANT INSTITUTIONAL ARRANGEMENT**

There are a number of institutions and mechanism that are connected with Disaster management.

These are :

- (a) The Cabinet Committee on Management of Natural Calamities (CCMNC). This deals with all aspects related to the management of natural calamities
- (b) Cabinet Committee on Security (CCS). This deals with matters related to the defence of the country. It deals with the nuclear, chemical

and biological emergencies.

- (c) National Crisis Management Committee (NCCM)
- (d) High Level Committee.
- (e) Armed Forces, Central paramilitary Forces, State Police and Fire Services, Civil Defence, Home Guards are other institutions which deal with the disaster on the ground. National Cadet Corps (NCC), National Service Scheme (NSS) and Nehru Yuva Kendra Sangathan (NYKS) are the youth based organisations which can be optimally utilised for management of disasters.
- (f) Regional Co ordination. Major disasters may not be limited within the national boundary and may affect several nations / regions. This necessitates development of close cooperation and coordination with such other countries.

#### **FINANCIAL ARRANGEMENTS**

The Act envisages a paradigm shift from relief centric response to one covering all aspects of prevention, preparedness and mitigation of disaster. For this, disaster management needs are to be dovetailed into developmental plans. All developmental programmes and projects are to incorporate disaster resilient specifications in design and construction. This is ensured by the Planning Commission while allocating resources. The Act mandates creation of following funds for response and mitigation of disaster:

- (a) National Disaster Response Fund (NDRF) The NDRF is used to meet emergency expenditure for response, relief and rehabilitation as per the guidelines issued by the Central government in consultation with NDMA.
- (b) National Disaster Mitigation Fund (NDMF). The NDMF is utilised for projects exclusively meant for mitigation of the disaster. On similar lines, state governments constitute Funds at state and district level for response and mitigation of disasters. Every ministry and department is to make provisions in their annual budget for carrying out the activities and programmes set out in the disaster management plan.

#### **DETERENTS**

The Act makes provisions for placing safe guards like immunity for\

governments and officers against suits so that officers may not be harassed for their right actions in dealing with disasters. At the same time deterrent provisions have been added to check malpractices of misappropriation of money, stores, materials etc.

### **UTTRAKHAND DISASTER 2013**

On 16 June 2013 the state of Uttarakhand suffered its worst disaster with huge losses of lives and wide spread destruction. The disaster coincided with the peak tourist and pilgrimage season which escalated the casualties and adversely affected the rescue and relief operations. The main possible causes of the disaster that have been given include collision of Western Disturbances with monsoon easterlies resulting in excessive precipitation in a very short time. This was understood to have been aggravated by the outburst of the Churaibari glacial lake, possibly due to heavy inflow of water and falling of a portion of the glaciated kedar dome above, into it. The draining of such volume of water into the river system through the kedar valley resulted in massive erosion of the banks leading to collapsing of mountainsides at several locations. This resulted in the courses of the rivers getting altered at several places and extensive damages to infrastructure. Seemingly, the rivers were claiming their right of way. What was left behind was a trail of death and devastation. The manner in which various agencies rose to the occasion in one of the largest rescue operations in recent times is well known.

### **LESSONS LEARNT FROM UTTRAKHAND DISASTER 2013**

The Uttarakhand disaster has brought out several lessons. Some of these are summarised below:

- (a) Statistical data related to disasters must be maintained duly updated.
- (b) Analysis of statistical data must be carried out regularly and results used in planning infrastructure development. Sufficient safety margins must be catered for.
- (c) Research in related fields must be fully integrated into plans for development.
- (d) Hydro Electric Projects must be well planned keeping in view their impact on the environment as a whole. Disaster impact assessment would be essential especially in ecologically fragile areas.
- (e) The history of the river bed / bank needs to be taken into

- (f) account in planning land use.
- (g) Land slide risk zone mapping must be carried out and should be incorporated in
- (h) planning development projects. Blasting of hills for road construction should be avoided or be controlled if unavoidable. Hill slopes must be stabilised during road construction.
- (i) Regular monitoring of glaciers, glacial lakes, rivers and hills prone to slides should be carried out.
- (j) Suitable river training works should be undertaken based on sound hydrological studies / models.
- (k) Suitable protective works need to be undertaken to avoid toe erosion for the safety of hillsides and infrastructure thereon.
- (l) Reliable line, mobile and radio communication facilities must be available in regular usage to ensure voice linkages in crisis.
- (m) Multiple means of land /air connectivity must be ensured to enable reaching stranded population requiring assistance.
- (n) Effective early warning system should be in place.
- (o) Sound management and regulatory mechanism for control of pilgrims in terms of registration, medical fitness, volume of persons and vehicles and awareness about warning systems needs to be ensured.
- (p) Legal framework for land use planning and zoning needs to be reviewed based on hazard, risk and vulnerability studies.
- (q) One single agency should co ordinate infrastructure development activity in the state. This will greatly minimise damages due to work on roads, railways, Power projects, transmission lines etc.
- (r) River bed mining must be done scientifically.
- (s) A sound medical plan should be in place.
- (t) System for dignified and speedy disposal of the dead should be in place with all legal issues being taken care of.
- (u) Disaster Management plans must be prepared down to the lowest level and should be sound. Mock drills must be carried out so that coordination issues are resolved.
- (v) Effective integration of various agencies should be ensured.
- (w) Services of retired personnel of Armed Forces and those with experience in managing crisis should be utilised.
- (x) An efficient system should be in place for managing non-



- governmental aid.
- (y) Reconstruction phase should be utilised for developing infrastructure that would be resilient against disasters.

### CONCLUSION

Natural and manmade disasters faced by mankind clearly highlight the need for a better understanding of nature and the manner in which its elements behave. While these nurture life, they also possess extreme and furious characteristics. These violent manifestations are not to be wished away but accepted respectfully in form of measures that promote peaceful co existence. Time tested wisdom related to relationship between man and nature, suitably integrated with science and administrative preparedness hold the key to achieving harmony and minimising the effects of disasters.

### BIBLIOGRAPHY

1. The Disaster Management Act 2005
2. National policy on Disaster Management 2009, NDMA, MHA Govt of India
3. <http://www.saarc.sadkn.org/countries/india/institutions>
4. [http://www.saarc-sadkn.org/countries/india/disaster\\_mgt.aspx](http://www.saarc-sadkn.org/countries/india/disaster_mgt.aspx)
5. Uttarakhand Disaster 2013 Report, NIDM

### **LT GEN ABHAY T PARNAIK, SM, VSM, DIRECTOR GENERAL BORDER ROADS & COLONEL COMMANDANT, THE BENGAL SAPPERS AND MILITARY SURVEY**



Lt Gen Abhay T Parnaik, SM, VSM is an alumnus of NDA, Army War College and the National Defence College. He was commissioned into 60 Engineer Regiment. He commanded 59 Engineer Regiment and was later posted as Colonel Administration in

24 Infantry Division. He has had two instructor tenures at College of Military Engineering. He has also been a Group Testing Officer at the Service Selection Board. He served as Senior Military Observer of United Nations Mission in Congo and on his return was an instructor at Centre for United Nations Peace Keeping. He has held the appointments of Commander 755 Border Road Task Force, Chief Engineer 2 Corps, Brigadier Administration 15 Corps

and Command Chief Engineer South Western Command. He was General Officer Commanding 101 Area and later served as Additional Director General Personal Services. On assuming the rank of Lieutenant General, the General Officer was appointed as Director General Financial Planning.

The educational qualifications of the General Officer include BE from CME ,Pune; Msc and MPhil in Defence and Strategic Studies from Madras University.

He was a member of the 3rd Indian Scientific Expedition to Antarctica which set up 'DAKSHIN GANGOTRI', the first Indian Scientific Base in 1983-84.

The General officer is a keen sportsman. He has participated in rowing events at the National & International levels and was part of the Indian rowing team at the IX ASIAD. He was a climbing member of the Western Command Mountaineering Expedition to Leo Pargyal in 2004.

Presently the General Officer is Director General Border Roads and Colonel Commandant The Bengal Sappers and Military Survey.

# Strategic role of Science, Technology and Engineering in Water Security and Socio-Economic Development

*Dr CD Thatte*

## 1. PREAMBLE

**1.1** Science and Technology (S&T): It is destined to play a ‘never before’ crucial role in the world during the 21st century, as modern engineering (E) continues to assist S&T for mankind to make its dreams a reality. Uniqueness of the planet Earth’s history is due to its *atmosphere* (air) and *hydrosphere* (water). These two created ‘life’ itself, gradually evolving into birth of homo-sapiens and modern humans. They soon started using goods and services (G&S) flowing from the two attributes. As the mankind is endowed with a highly capable faculty of ‘head, heart, and hand’; it stands apart from other life forms at the top of the evolution ladder. Leaders of mankind therefore act strategically and build security around the G&S, not only to disallow their erosion, but continue their enhancement. The struggle for securing adequate water supply has largely succeeded during the last century against enemies like natural disasters of flood and drought, desertification, cyclones, landslides etc on one hand, and deprivation in weaker sections of society, like hunger (food) – thirst (drinking & domestic supply), poverty, mal-nutrition, ill-health, unemployment and so on.

**1.2** The continuous upgrading of S&T for water resource development (WRD) has largely led to water security during the last few decades, while the current era of intensive industrialization, economic growth and social well-being was heralded. Strategic action can be considered applicable to waging a war against enemies of present day society, as perceived - like

---

*ISSN 2347-9191 print*

*© 2014 Centre for Advanced Strategic Studies*

*CASS Journal, Vol. 1, No. 3, July–September 2014, pp. 19–41*

climate change (CC) against which a coordinated mitigating action is being planned by UN agencies. For water sector at regional or river basin level, for example in India, there is ample scope for corrective action through adaptive measures as identified by National Water Mission & Action Plan a few years ago. More important than these measures, effort to improve governance to assist strategic action has to be mounted in particular by developing and least developed countries without loss of time.

**1.3 Planet Earth:** About 5 Billion (B) years before present (YBP), planet earth separated from the Sun as a fire ball of molten matter. Located at a distance of about 150 M Km, it makes one revolution around the Sun in 365 days. Diameter of this spherical planet earth called '*terra- sphere*' admeasures only about 0.013 M Km compared to distance from its parent Sun. It has therefore a cooled solid land surface, while maintaining a hot fluid core and boasts of presence of surface water because of its safe distance from the Sun. The water probably arrived on the earth about 3 BYBP, presently located in oceans and lakes, as ice-caps on mountains, as river flow and ground water, besides as soil moisture all over the *hydrosphere*. The planet has an enveloping gaseous layer of *atmosphere* comprising Nitrogen (78%), Oxygen (21%), Argon (0.9%), and others (0.1%) which include Green House Gases (GHGs): CO<sub>2</sub> (0.03% - 300 ppm), N<sub>2</sub>O and CH<sub>4</sub> (in ppb). While GHGs are emitted by natural processes on earth, some are formed due to human activity for energy generation (24%), in deforestation (18%), industry, agriculture and transport (each about 14%) and so on. Indeed it seems, several fortuitous conditions, led to origin of life on earth around 2 BYBP, evolving into a unique - possibly the only - 'biosphere' in the universe. The friendly amongst GHGs re-reflected the long-wave radiation back to earth, modifying its heat balance to maintain earth temperature that permits survival of plant and animal life.

**1.4 Climate Change:** Some decades ago, rapid increase of GHG concentration due to anthropogenic activity heightened scientists' concerns about likely rise in earth temperature. The phenomenon was initially labeled 'global warming' a bit harsh phrase for some, later changed to a milder version of climate change (CC). The UN's Inter- Governmental Panel for CC (IPCC) setup under UNFCCC has claimed at the end of a series of 5 Action Reports (ARs) in AR5, that CC is largely man-made (at 95% confidence limit which was 90% earlier). Although the global temperature rise from 1951 to 2012 was estimated earlier at 0.12 deg C / decade, good

news now is that it has declined to 0.05 deg C for the 1998- 2012 period, perhaps due to better awareness. The CC has potential to distort *hydro- and bio- spheres*. In India, it could adversely impact *hydrosphere* by: increase in – i) atmospheric temperature, ii) rate of evaporation and transpiration, iii) snow/glacier melt and their recession in Himalayas, (not by 2030 as wrongly stated in earlier AR, but may be by 2300 AD), iv) sea level rise, v) precipitation with variability, vi) changes in dates of onset – breaks –active periods – withdrawal of monsoon, vii) occurrence and intensity of extreme climatic events. A mention of Non-Governmental International Panel of CC (NIPCC) formed of Scientists from The Heartland Institute of Illinois US, ([www.heartland.org](http://www.heartland.org)), besides groups from Arizona and Virginia) who don't consider IPCC forecasts as correct, will not be out of place at this stage. It says that impact of human activity on CC is likely to be small relative to natural variability. The small change may produce benefits as well as costs as perceived by India Challenging Climate Team at Liberty Institute, New Delhi. Experts do differ! WR professionals have to assess both to decide appropriate measures.

**1.5 Mitigation and Adaption:** UNFCCC Scientists seek regulation of GHG emission in proportion of contribution by individual nations, to achieve a safe level and mitigate likely harm. A decade ago, a much welcomed Kyoto Protocol for this purpose, did not come into force. Hopefully the Protocol presently under re-negotiation will be successful. As is well known, excessive Chlor-Fluro-Carbons (CFCs) emitted by agricultural refrigeration had punctured holes in earth's protective ozone layer in polar region. They were successfully closed due to a 'Global Action' plan. It holds out a hope for similar unified action in case of CC. In the meantime, without waiting for the protocol, India's National Mission for Water (like some other areas) has planned adaptive measures to minimize impacts of CC, under sectors of: i) Policy and Institutions, ii) Surface and Ground Water, iii) Domestic and Industrial Water, iv) Efficiency in Use of Water (WUE) and v) River Basin Planning. For strengthening the supply side under threat, it suggests addition of new storages, provision of carryover storage, increasing height of existing dams, inter-basin water transfer, reducing evaporation losses, etc.

## 2. WATER RESOURCE OF THE EARTH

**2.1 Rain:** The axis of the earth revolving around the Sun tilts with its orbit, at about 23.5 deg from normal (with some wobble), causing different climate / seasons in countries in accordance with their latitude. Each year, summer is followed by rains, winter brings in snow (and rain). Both together constitute year's precipitation, making up its annual supply of fresh renewable water resource (WR or FWR), depending upon different parameters: the skewed areal spread of land / water in earth's North/South Hemispheres (NH, SH); heating – cloud formations – their movement dictated by differing atmospheric pressure belts from equator to poles, trade winds, depressions, cyclones, Coriolis effect etc. Besides, ocean currents, land-use, geographical relief, and occasional solar flares of differing intensity influence it.

**2.2 Earth's water stock and uses:** The earth's gross water stock remains constant, but is continuously in motion around it through the water cycle comprising three physical phases, viz. solid (snow/ice), liquid (water), and gaseous (vapour). India's annual precipitation is 117 cm, whereas world average is 110 cm. Unfortunately in tropical countries like India, 50% of this precipitation is received in 15 rainy days, underlining its variability. Each region gets its precipitation from condensation of water vapour in cloud formations due to ET source located far off. Dr Rama, India's well-known Meteorologist of yester-year had traced through isotopes, the source of our ET (besides Arabian Sea / Indian Oceans,) to more importantly to South African continent. It is therefore wrong for anybody to stake an ownership claim for precipitation in of his region. If for instance, Kerala or Maharashtra stake such a claim, African States can lay their claim on the original source itself! World-over SWR is considered usu-fruct and a common pool resource, for consideration of right of the established user, not of the administrative / political unit. GWR, under Easement Act of India on the other hand, bestows it on the owner of the land under which its occurrence is divined and drawn for use.

**2.3 Water Use:** When fresh-water reaches earth in the form of rain or snowfall, a part of it evaporates and a part is transpired by vegetation into vapour, cumulatively indicating the Potential Evapo - Transpiration (PET) of each locality. ET transforms water received from rain/snow at each location into vapour, constituting the ultimate 'annual use' of the WR. In water uses, one must differentiate between Consumptive Use (CU)

through ET, by Agriculture / Biomass, putting abstracted water back into hydrologic system as Water Vapour with every use. On the other hand, most of the supply for household, energy, and industry forms Non-Consumptive Use (NCU). Globally CU for agriculture constitutes is about 70% of the total, NCU being the rest. This is no surprise as food crops grown require almost 2000 litres per adult capita per day (lpcd), against that for drinking at only 5 lpcd. In India, use of WR for agriculture (CU) is almost 83%. It is likely to increase by 1.5 times. Rest will be NCU, which might increase by 3-4 times by 2060. NC water is used over and over again, keeping total abstraction within available stock. Traditionally, available WR was allocated between CU for agriculture (food), and NCU for other uses (people) till nineties. The World Water Vision in 1998-99, for the first time decided to plan use for nature (biomass, maintenance of water quality, etc). India's National Commission for WRD Plan (NCIWRDP 1999) followed and has provided for water use in 2060 for food, people and nature sectors separately.

### **3. SURFACE & GROUND WATER**

A part of rainfall after deducting transient interference due to foliage, infiltrates the ground depending upon the land - use pattern, while some moves on surface as overland flow into streams. A part of infiltrate reappears as inter-flow / other joins the groundwater (GW) stock. On the other hand, a portion of snowfall consolidates into ice cap increasing its residence time on land in a frozen state; the remaining joins a glacier, or melts and flows into a stream. The ice/snow phase occurs at mean sea level in polar areas or at higher altitudes near equator. The surface freshwater (SW) flow moves from a higher ground through a drainage network spread over a river basin, flowing out through a common outlet (mouth) into the ocean. On way, the freshwater dissolves / transports salts from soils/rocks, gradually turning itself salty or erodes / deposits soils into a sediment cycle, as it reaches sinks of wetlands / swamps / oceans. Beyond a certain salt / silt holding capacity, the water drops off both on sink floor. SW reaches and occupies earth surface depressions (like lakes & oceans), in depths of 5 km and more. They cover nearly 75% of earth surface, predominantly lying in SH. On the other hand, major part of the land is located in NH formed by seismo-tectonic events and physical processes of erosion-denudation, its elevation rising beyond 8 km at places. Water depth evaporated (Ev) from

oceans in SH exceeds precipitation (Pr); whereas Pr exceeds Ev in land of NH, setting up the hydrologic flow from land to oceans.

#### 4. RIVER BASINS

**4.1 SW and GW components of a basin's WR:** Although partly interchangeable, they have origin in precipitation, which varies from head reach of a basin to its mouth. Very few basins have uniform spatial rainfall in a year, all over its spread. Similarly spread of habitats, industry, hills, mines, energy sources, forests, farm plains, waste / wet lands, flood / drought prone areas are spread out in a non-uniform manner leading to skewed land-use and hence call for a different strategy for planning use of available WR. Basin boundary (ridge) is geographically prominent, yet when a river enters plains and deltas, it is less distinct. As GW lies at depth, the boundary of one aquifer may foul with another's, though they were formed in a different geological period. The ridge between adjoining GW basins is then unclear and overlapping.

**4.2 SWR/ GWR:** SWR is identified by its outflow over a year through the mouth into an ocean. As administrative / political boundary rarely corresponds with basin boundary, tagging /claiming of a SWR by such 'territory' is incorrect. As the river flow increases with its travel length, elevation and basin area, SWR is quantified on the basis of basin catchment area drained. Gravity enables deployment of a large proportion of SWR for multiple uses by diverting the flow through canals / pipelines. GWR on the other hand, is locally used on the basis of annual natural recharge, though the aquifer may be receiving it from far off natural recharge area. Receptivity of soil for recharge depends upon permeability of the under-ground strata formations determined by their nature, viz. being consolidated or unconsolidated. GW is usable on surface only by pumping it out from below the ground. India's average annual river flow is 4000 Billion Cubic Metres (BCM), 1 BCM is being equivalent to 1 cubic kilometer. Another 400 to 500 BCM flows in from neighbouring countries, thus making up a total SWR of about 4400 BCM. Most tropical rivers are seasonal frequently running dry; only a few are perennial. When available, the flow has to be captured, stored and used at the required place, time, in requisite quantity and quality. Users are not located necessarily where WR is available. Also depending upon spread of farm-land / urban - industry needs for CU / NCU vary. Transport for water supply barring a



small quantum locally usable, is therefore unavoidable. Water security for a country like India therefore has to address internal / external variability in availability. 'Internal' relates to political units (States) of the country, while 'external' relates to inflow from neighbours. Negotiations for water share are conducted ahead of WRD for both internal /external uses, to avoid loss of time in formalizing sharing agreements.

**4.3 Role of storage:** All the naturally available yearly WR flow can be comfortably availed if it is running all-through, which it is not. At times, it is far in excess; more times much less than needed, like we rush and store the flow from a municipal tap when running and use when it is not. Different countries have differences in need for storage, in accordance with spatial and temporal variability of their rainy seasons. Basins and countries of the world in a temperate region like West Europe have a low variability in WR availability per capita of population, within and between years. Their scientists coined a phrase 'Scarcity Indicator' (SI) during nineties of the last century to describe round the year variability and hence scarcity of WR availability, in cub m / capita /year. But, such availability means little for those in tropical regions, who need to capture and store it when and where economically possible. IWRDM paradigm adopted since centuries in countries with high variability therefore comprises storing the run-off behind dams, when it is flooding d/s areas and draw upon the storage when the run-off ceases.

**4.4 Indicators:** They therefore have replaced 'SI' by - storage / capita - a more appropriate measure, indicating a Country Storage Indicator (CSI) for such countries. By now, all WR related professional organizations, have adopted it. Yet, the phrase 'SI' has stuck with some who continue to tout it as the ultimate determination, for identifying WR availability. In the meanwhile, a flood of new definitions like Water Poverty Index (WPI), Water Access Index (WAI). Water Use Index (WUI) have been floated. Obviously, there is no end to linguistic hubris even in scientific discourse! So, we keep them aside for another day. Unfortunately, the CSI happens to be quite low in India (at 200 cub m) against over 6100 in Russia, 5000 in Australia, 3000 in Brazil, 2000 in USA, 1100 in China, and 800 in South Africa. Although India has nearly 5000 large dams, another 1000 are feasible and acutely needed to raise the CSI to a minimum comfort level. World over, economic dam sites are available but their construction is thwarted by misguided elements. Another phrase 'closed river basins' is

current. It indicates that WRD in such basins thus far planned is equal to all WR reliably available and the river flow in the mouth has practically ceased. In such cases, Inter-Basin Water Transfer (IBWT) of surplus water has to be adopted to make up the deficit in meeting needs.

**4.5 Dams large and small, both essential:** In a river basin, structures from micro scale like rain water harvesting for local use to mega-scale like high (big, large) multi-purpose dams, serving multiple purposes on a much larger scale but more economical per unit of water availability, are built. Micro scale structures are more successful in u/s with higher rainfall, mega scale in d/s. Attempt to reverse the sequence is more expensive. Both are needed in a discrete optimum combination, depending upon location specific parameters, which offer varying dependability of water supply. Economic acceptability of each has to be predicated by socio-economic-environment related benefit cost analysis and utilization of available WR, aggregating scheme wise to the basin level. A strong misguided lobby working against dams (as in case of Sardar Sarovar and Tehri) for the last few decades, has however preferred to spread a word that dam professionals go for high dams alone, as they are victims of hubris about science and technology.

**4.6 Lobbies against dams:** Fortunately, they have proved unsuccessful so far. Their strongest bid to denounce dams was made by promoting the World Commission on Dams (WCD) constituted by the World Bank and the UNEP comprising activists of different genre, at the turn of the last century. Although logically opposed by S, T, E anchored WR professionals, it gave a negative report egging World Bank to withdraw from dam building activity in countries like India, only to beat a hasty retreat a couple of years later, when it found no takers amongst developing countries for such regressive stand. Such struggles continue! The recent one has come from dam opponents attributing to hydro power dams, the Uttara-khand flood related disaster (2013) caused by landslide! In past, landslides did take place but then dams were considered as insurance against them. Times have changed! Recently, such flood induced landslides have occurred in Washington State of US and in our neighbouring country, Afghanistan. Hopefully, the anti-dam lobby is still not up in arms in those countries.

## 5. SHARED BASINS, DISPUTES AND THEIR RESOLUTION THROUGH IWRDM

**5.1** A river basin considered as a hydrologic entity for optimal planning: Integrated development (D) and management (M) of available

WR in an area of interest is called as IWRDM, the main message from Rio Earth Summit 1992. The Rio Earth Summit 1992 held that the strategy of IWRDM alone yields Sustainable Development (SD) which remains *i) techno - economically - financially feasible and viable, ii) socially acceptable and iii) ecologically benign*. The subject has been dealt with internationally from 1972 UN Conference on Human Environment, through 1982 World Charter on Water, 1987 Brundtland World Commission on Environment & Development, before the 1992 Rio Earth Summit and review of Rio declaration in Rio+10 (Johannesberg), up-to recent Rio+20 (at Rio) 2012 summit, later than the Rio summit. On a different platform set up in nineties as a follow up of 'World Water Vision' exercise in 1998-99 spearheaded by the World Water Council and the Global Water Partnership; UN System and others have set up a 'Water Unit', which brings out periodically 'World Water Assessment Report' and 'World Water Development Report' almost continuously updating global information.

**5.2 Indicators / Goals for SD, (SDG) replacing the Millennium Development Goals (MDG) adopted in 2000 are yet to be firmed up.** Hopefully, they will help remove wide-spread misunderstanding of some activists about need to achieve the 3 criteria mentioned in earlier para (in italics), equally and simultaneously. As that is not indeed possible, tradeoffs to suit local ethos are to be woven in the SDGs by different societies. But, IWRDM deals with integration of D&M, SW/GW, human / ecosystem needs, demands, supply, use, mega to micro size infrastructure for storing, harvesting or abstraction of WR. As it alone translates into SD, it assumes integration of core of S, T, E with administrative, economic, legal, political facets of governance. IWRDM thus forms the paradigm of WR sector. Although some activists campaign for a paradigm shift away from S, T, E base, it is obvious that it is just rhetoric.

**5.3 Dependability:** Generally density of human population increases towards down-stream (d/s) in a drainage area. Reverse may be true for other forms of life, as they prefer to be away from human habitat. Speedier shrinking and commercialization of agricultural farms, coupled with urbanization and industrialization during the last century has modified population spread significantly causing change of complexion of WR needs / demands for future. Equitable prioritized allocation of WR between user sectors in various administrative units has therefore become more complex. Within a nation, a river basin is usually shared by different States, districts

and so on where tendency to claim for a larger share of water prevails. In India for instance there are over 20 groups of river basins; majority of them are shared by more than one State. WR plans in India are severely limited by temporal variability of WR availability between years. Storage and utilization are therefore planned on the basis of 75% dependable flow catering to assured supply for at least 3 out of 4 years in succession. CC threatens to affect this variability further, causing reduced dependability for existing storages. As swathes of culturable drought prone areas remain unserved by irrigation due to the present dependability criteria, the concerned States have sought their downward revision to permit service even to 2 out of 4 years. In the meanwhile, a river dispute tribunal has recently permitted utilization at 65% dependable flow. Agreements are reached after long-drawn negotiations, yet disputes continue between states about sharing WR. India's River Water Dispute Tribunal (RWDT) Act (1956) lays down legal procedure for their resolution. Several disputes are resolved by now, including directions to set up institutions to implement the tribunal awards. CWC / MoWR have issued in 2013 Draft Guidelines for Water Allocation amongst states to clarify the matter further. Hopefully, these legal / administrative instruments will succeed.

**5.4** World over, many river basins are shared by different countries. ICID compilation (2003), for 77 such large basins with drainage area of more than 100000 sq km, shows that 23 of these are in Asia, 15 in Africa, 14 in Europe, 12 in North America, 10 in South America and 3 in Oceania. Out of these, 43 are shared by 2 and more countries, 15 by more than 5 countries. Amongst the continents, in South America, Amazon is shared by 9 countries. In Africa, Congo is shared by 9 and Niger/Nile by 10 countries each. In Asia, Ganga and Mekong are shared by 6 countries each. In Europe, Danube is shared by 17 countries. WR being essential for human survival and well being, water sharing disputes between co-basin nations have no doubt held a centre-stage in international sphere besides in continent size countries like India. Pessimists often claim that the next world war will be on WR of shared river basins! But their people understand that they all depend upon the same common basin WR. They are therefore prompted to co-operate rather than indulge in serious conflict. Aaron Wolf carried out a study (1997-99) of Water sharing agreements / conflict resolution / co-operation round the world. His analysis shows that human prudence has largely prevailed in binding societies together

through agreements. Disputes will continue as demand for WR grows, but it is also true that many will get resolved!

**5.5 Our shared basins:** India shares i) with Pakistan the Indus River Basin, regulated by Indus Water Treaty of 1960 and treated as a success story world-over; ii) with upstream Nepal, the Ganga basin tributaries for which agreements are operative; iii) with Bhutan several hydropower projects related agreements exist; iv) with Bangladesh, a treaty to share waters ex-Farakka Barrage. Another treaty for Teesta basin waters is under negotiation. It must be remembered that internal WR Security for India will be achieved if i) SCI is raised to the maximum possible level, ii) WUE is raised to an optimum level, iii) inter-state disputes are resolved on priority, and iv) WRs of all shared basins are developed fully. It is obvious that a culture of share and care grows only with IWRDM. External water security will flow only if all incoming run-off of over 400 BCM is assured through negotiated agreements with concerned countries. It is hoped the aim is realized sooner as economic compulsions grow.

**5.6 Inter-Basin Water Transfer (IBWT):** To match supply with demand for people of the region from the highly variable WR even in adjoining river basins, the concept of IBWT is followed world over since long. It provides transfer of a part of basin WR surplus to its needs to a basin where its availability is less than needed. Infrastructure of dams / canals / pump-houses / pipelines is needed for such transfer. The oldest existing global IBWT scheme was implemented in China in 300 BC. So far, about 230 schemes are implemented in over 35 countries, transferring about 650 BCM water to needy basins. After all, even building of dams in u/s and using the storage d/s involves transfer of water, albeit within the same basin to match supply with demand. IBWT is thus complementary to IWRDM. Presently over 90 schemes involving 1150 BCM of water transfer are contemplated in several countries round the world. No doubt, socio-economic-environmental analysis leading to requisite BC ratio has to be ensured for each such scheme. In India, 27 schemes of IBWT transferring over 60 BCM of water already exist, the oldest being some 200 years old. They have been extremely useful wherever implemented and show no adverse impact on environment. Their utility is never questioned. Another 200 BCM of water transfer through 30 such schemes, raising utilization to a requisite level is planned. Yet, utility of new schemes has been and is often being questioned! Their project reports are under preparation. Each has to

be subjected to usual scrutiny / clearance procedure before implementation. States have also proposed additional 50-plus within-state IBWT schemes, which are under investigation.

**5.7 Embedded / Virtual Water (VW):** Every human activity needs water. Human products similarly use materials and/or process that possess 'embedded' water. Every G&S has thus got a - virtual or embedded- water foot print. The WR thus gets embedded with industry/ industrial products. In turn, trade of commodities means trade / transfer of water with every piece of import / export. When one looks at water balance of a river basin or for that matter a country, an account has to be maintained for such water footprint. Water scientists led by Hoekstra & Capagain have reported (2002) a detailed study of major countries round the world, indicating for each its WR, plus the virtual water import / export to arrive at its actually deployed WR, and its dependence on trade of goods. The study opens doors for a novel approach for trade and interdependence of nations. For instance, if a country has low WR availability but it can manage funds, it can import VW. Similarly, if it has shortage of land compared with WR, it can grow high value crops and export them, while importing food crops with lower water foot-print.

## 6. GOODS & SERVICES, NATURAL – ENHANCEMENT BY S&T&E

**6.1 Enhanced G&S due to S, T, E and governance:** The ever-growing human needs have added tremendous pressure on available natural resources (NRs). Although they provide basic G&S, mankind had to enhance them several times by optimised development and management of WR in particular, facilitated by S, T and E during the last couple of centuries. It has led to considerable reduction of hunger, thirst, ill-health, unemployment, related seasonal migration, and poverty world-wide. Engineering indeed realizes dreams of S&T community by weaving principles of good governance in IWRDM. The enhanced G&S have allowed spectacular Economic Growth leading to socio-economic development of many most of societies round the world. Where such governance has a deficit, the dreams fail to materialize, causing vested interests to attribute it to narrow focus of engineering.

**6.2 Water Use:** WRs have been accessed, abstracted, transported, treated, shared for use by mankind in a myriad ways. Human needs are likely to stabilize by 2060 with population. WR professionals conclude through

various studies that these needs can be safely met by then through speedy work on IWRDM. Main uses of WR comprise: drinking and domestic needs followed by agriculture to meet the needs of: food, fodder, feed, fiber, and fuel. With industrial growth, its use for generating hydropower in particular - peaking energy, which happens to be always in short supply; is now second to none. Uses like navigation, leisure, social forestry, etc follow. Until the decade of nineties of 20th century, allocation of WR developed was for the traditional basic needs of mankind. Use of WR for agriculture largely consumptive thanks to ET is slated to come down from over 80% of total use at present to less than 70% by 2060 through increase in WUE. Other uses being predominantly non-consumptive, cause return of WR to water cycle, albeit degraded in quality so as to need treatment for reuse.

**6.3 Water Account:** Even accounting for 3 times increase in abstraction by 2060, recycling will enable limiting such use to a 30% component. But more than the uses, mankind has to attend to mitigating / managing extremes in its availability, which cause natural disasters like floods, droughts, famines, desertification, landslides, avalanches et al, taking a heavy toll of human life and property. Indian rivers carry a runoff of over 1900 BCM out of WR of 4400 BCM. Due to various reasons, about 1100 BCM alone, comprising 700 SWR and 400 GWR can be utilized. Totally, about 700 BCM of WR is presently withdrawn; remaining development has slowed down due to inadequate funding, environmental impacts, inter-state disputes, and several social issues. New IBWT program, if and when implemented, can add about 200 BCM, in addition to about 100 BCM by improving WUE to meet with ultimate needs of 1400 BCM for a population of 160 crores in 2060. Proposed infrastructure like 'Kalpsar' terminal reservoir in Gulf of Khambhat will help further augmentation of WR utilization.

## **7. ENVIRONMENT, ECOLOGY, ECO-SYSTEM, NATURAL RESOURCES (NRs)**

The totality of physical conditions on earth (climate, NRs, processes) is described by the word 'environment'. The science dealing with both plant and animal life in environment is 'ecology', meaning science of Eikos (home), an environmental branch of Biology. Mankind is at its centre. Ecosystem is a biological community of interacting organisms. The whole living world owes its existence to, and depends upon NRs - land, water, biomass and related natural systems. The plant and animal life accesses



them basically for: food, habitat, procreation, and life cycle as a whole. However, as spread of humans in the world is not congruent with location, quantity and quality of NRs, they need human intervention. Mankind has accessed the NRs through a variety of innovations for meeting its needs to avail a better, more humane, dignified working life / well-being / livelihood, with passing time.

## **8. CONSERVATION OF ENVIRONMENT, RESTORATION & DEVELOPMENT**

**8.1 Environment friendly WRD:** The day man walked on earth, environment started getting affected. Early on, man's movement was for survival. The human race proliferation occurred with habitats, agriculture and lastly the industry. Agriculture started with deforestation. But it is noteworthy that WR prompted irrigated agriculture avoided deforestation because its productivity per hectare went up 3-4 times of rainfed agriculture. Besides, conservation inputs due to irrigation became obvious. Hydropower provides green energy. Pumped storages use same water again and again. More and more waste water from domestic / industrial sources is slated for recycling during the next decade. The process will continue, with greater speed with new targets for conservation. Compensatory steps are taken for loss due to a WR project. Reservoirs no more are considered as a source of GHGs as proven by separate studies of India's National Institute of Oceanography (NIO) and International Hydropower Agency (IHA).

**8.2 Compensatory steps:** Surroundings of several man-made Indian reservoirs and canals are repositories / shelters for wildlife, exotic flora/fauna in otherwise tropically dry areas, as is apparent to a visitor to 'Indira Gandhi Naher' area, where Thar Desert has seen total reversal. There are similar instances around the world. Environmental activists often ignore that removal of deprivation in our society has been possible through IWRDM. In its absence, continued deprivation would only result in further impoverishment, increase in unforced seasonal migration of landless / workless farmers –farm-workers as still seen in drought prone areas, still unserved with irrigation. Irrespective of obvious steps taken, demand for restoration of environment is made without mentioning the desired cut-off date. In its absence the blame game continues.

**8.3 Perceptions about IWRDM:** It is mind boggling but amusing to see the literary attributes desired from IWRDM (or for that matter from any socio-economic sector of development), in the learned discourses



of some, who like the fabled blind persons, describe the elephant totally differently, as they perceive the animal. Here is a bunch of are some terms in circulation that provide food for thought: *efficient, effective, economic, equitable, fair, flexible, resilient, speedy, caring (for the weaker and vulnerable society), participatory, by the people - of the people - for the people, conservationist, transparent, inclusive, co-ordinated, balanced, optimal, productive, self-supporting, harmonising, holistic, maternalist – not paternalist, providing a mix of top-down and bottom-up approaches of management..!* Go...elephant, choose the fodder you like! ....as none would like it to be based on logic, reason, and founded in science and technology.

**8.4 Rights:** The ongoing discourse by opinion makers / activists / supported by greens in India often veers around to nature's rights. One often hears protests against violation of rights of rivers, their silencing, or their lament, wail, weep, shrill cry and a clarion call for saving them as they are endangered, or - of plant / animal life, or – of mountains, for that matter. To support the discourses, save...Bachao - (Narmada, Ganga, Bhagirathi, ...et al, or Chipko like campaigns or agitations are launched showing that their enemy is mankind from whose onslaught, the subjects are to be saved. Survival right of mankind is on a rung lower than these geographical inanimates! But, human rights to life, livelihood, food, employment and information constitute equally sensitive / explosive matter for agitationists / eco-fundamentalists. Luckily, Constitution of India (1948) incorporates some of these as fundamental rights of citizens under Articles 14-32 broadly covered under topics: equality, freedom, religion, culture and education, and constitutional remedies. Rights of nature – environment are surprisingly not included as probably the phraseology was not born then.

**8.5 And duties (?):** While being stridently awake about 'rights', few are aware of the following (in italics) fundamental duties introduced in the Constitution in 1975 (came 27 years after rights!) through Amendments under Art 41A. (Environment was included then - see underlined provision - perhaps in response to the international thinking.): *respect for national ideals /institutions...sovereignty, unity, integrity; to promote harmony, brotherhood amongst Indians transcending – religion, language,region ....., improve natural environment; (whatever meaning is attributed to this provision by activists), safeguard public property and abjure violence;.. strive towards excellence in all activities.* Even Bhagwad-Geeta tells us that 'duty' is the only 'right' for us

mortals! (Activists excluded?) Is it too late to remedy the situation? Duties perhaps ought to be mandated at least for those who seek rights.

### **9. CARRYING CAPACITY**

Practitioners of ecologic balance often ask S, T, E people not to exceed its carrying capacity by their actions promoting development. At the same time, they ignore limit of capacity of people to carry 'poverty & deprivation' longer. Another facet of argument relates to rights of ecosystem elements. It smacks more of romanticism, rather than realism. NRs happen to be nature's gift to life. Mankind ought to avail it with thanksgiving. In pristine conditions, NRs vary so much in time and space, that a very small proportion can alone be utilized. Indeed, NRs can't be deployed, unless they are developed, and managed optimally.

### **10. ROLE OF MANKIND**

Prudent use, neither hubris nor conquest: To continue the logic indicated in the earlier paragraph, the word economy calls for 'home management' or adoption of 'ecology' in practice. At the apex of the evolutionary ladder, sits the 'mankind' with attributes of head, heart and hand; and therefore is at the heart of ecology. The mankind has subdued one after another, several hostile elements in environment, which threatened its existence during its roughly 2 M years-long journey so far. However some wayward enthusiasts flag such landmark actions in poetic / romantic terms like 'conquest' or 'victory' of mankind over nature. Eco-fundamentalists condemn such claims as 'arrogant' and attribute them to hubris of engineering – construction centric narrow mindedness and hold them out while attacking S&T practitioners as 'anti-environment'. Nothing really could be far from truth. Population of mankind on Earth has grown to over 7 B recently. Having suffered due to galloping rate of its increase, scientific steps were taken during the last few decades to bring it down. The effort has largely succeeded in most of the societies promising attainment of stable global population of around 9-10 B by 2060. Devoid of such faculties, fittest amongst other living species have no doubt survived but their present population, its growth rate and forecasts till say 2060 are not so well known.

## 11. ECONOMIC GROWTH & DEVELOPMENT

Economic growth is the most important indicator of Development, which needs to include social justice and equitable distribution of accruing benefits, in particular regarding reduction of poverty, mal-nutrition & hunger, access to drinking water, health, employment, education et al. If it does not, it gets distorted. Gross Domestic Product (GDP) in % points denotes economic growth. GDP of a nation in three sectors, viz. agriculture, manufacturing, services is viewed conjunctively. Contribution to GDP by agriculture sector rapidly reduces for agrarian societies like India as they move up the economic ladder, as figures for the other two increase. During the 1st decade of 21st century, India attained over 9% GDP even though world economy was slowing down. Several difficulties brought it down to almost 5% during the first two years of the 2nd decade. The trend is now looking up. Simple figures of GDP alone do not indicate success in socio-economic development; it has to reflect good governance. Several studies round the world and in India in particular indicate that investment on IWRDM assists attainment of such inclusive growth. Recent case of the State of Gujarat exemplifies the contribution of IWRDM through SSP, in achieving the huge jump of GDP in agriculture sector for the state. Benefits from SSP – both indirect & incidental have proved phenomenal in boosting its development.

## 12. WR PROGRAMS AND PLANS, ROLE OF PLANNING COMMISSION (PC) – NDC, NEED FOR REVIEW, FYPs, FUNDING, LEGAL PROVISIONS

**12.1 Planning for use in WR sector:** As an agrarian society with underdeveloped WR, India's agenda in that sector after gaining independence in 1947 was focused on river valley projects for irrigation / flood management to provide protection against drought / famines / floods, as enunciated by Irrigation and Baadh (Flood) Commissions. Subjects of agriculture / food and generation of hydropower were tagged on to WR sector off and on, through multi-purpose river valley mega projects. Water supply / sanitation gained importance with growing urbanization, though they rode piggy-back on WR projects. As such, there are few dedicated projects to serve other purpose. States launched WR projects, the subject being on Constitution Scheduled List for States, albeit with oversight by CWC / MoWR the umbrella ministry. It was formed to provide integrating

force for the highly fragmented sector in particular for inter-state basins, besides availing services of economists, academics and S&T organizations, as the subject was also on concurrent list. PC cleared such projects after TAC (MoWR)'s clearance. These professionals collectively facilitated FYP formulation for states, with active participation of Centre, its officials chairing Steering Committees (SCs), Working Groups (WGs) and sub-groups.

**12.2 Plan funding and deficit in Governance:** NDC approved such consensus FYPs; yearly plan sizing being done by PC. In the 3rd year of a FYP, process for its mid-term- appraisal would start, leading to drafting of the next FYP. WR Sector itself has gone through a modernization process in the meantime, setting up institutions like NWRC and NWB at apex (followed by some States) and promoting River Boards and Basin Authorities. On one side, faster development of infrastructure is emphasized. On the other, funding for the WR sector as a proportion of plan provision for the country as a whole has declined with food production catching up with needs, and import of food grains stopping. The funding proportion perhaps reached lowest in 11th FYP, with follow up in the 12th FYP. With growth of the sector, following weaknesses have crept in WR plans mainly due to rising deficit in good governance and populist measures by some States, but blamed by activists on S, T, E's narrow thinking: *thin spreading of resources on schemes, more in numbers than could be supported, delays in implementation, neglect of construction of canals / distribution system in preference to dams, increase in gap between potential created (PC) / potential utilized (PU), lack of Command Area Development, over-exploitation of GW, neglect of conjunctive use of SW / GW et al, low WUE, inadequate attention to WUAs, Rotational Water Supply (RWS) for irrigation, improving demand management along-side supply management, promotion of water saving irrigation techniques, micro-level planning.* Although professional solutions to these issues have been articulated time and again, they have been drowned by clamour against 'professionalism' itself!

**12.3 PC Duties:** On lines of socialist models elsewhere, India opted for a centralized PC in March, 1950 soon after Independence, set up under by a Union Cabinet resolution. Seven duties assigned to PC are: 1 Assess material, capital and human resources. 2. Formulate Five Year Plan (FYP) to utilize them. 3. Decide priorities of development, define growth stages, and suggest resources allocation. 4. Indicate factors retarding economic

development and determine conditions for successful execution of plan. 5. Identify machinery for implementation of plan stages. 6. Appraise progress of implementation. 7. Suggest steps for own effective working. PC was not envisaged in the Constitution like the Finance Commission (FC) which was set up for distribution of financial resources (allocation?) between Centre / States, under Arts 270, 273, 275 & 280, and an Act (1951). PC thus started with overlaps, encroaching upon state subjects.

**12.4 Duplication of role of subject Ministries:** Starting as Union cabinet's advisory committee, the PC presently over-views but somewhat duplicates the role (including 'policy making') of subject matter Ministries, in particular those dealing with infrastructure, and state subjects concurrently, including MoWR. PC members are appointed by Union cabinet soon after a new government is sworn in, stepping down when the cabinet quits. PC has by now a top-heavy bureaucracy, its Members are of rank of Minister of State; Vice Chair PC is of Cabinet Minister rank. PC has a sizable Secretariat. Its role extends to Centre's Infrastructure Ministries also, complexion of which is transformed during the last 20 years with economic liberalization. WR sector similarly is currently slated to invite and deal with Private / Corporate Sector Funding in a big way. Duplication of their role by PC is therefore an un-necessary point of friction. India's policy making and planning for socio-economic sectors (e.g. WR) is in concurrent list of the Constitution. States and related GoI Ministries have to formulate them. PC's role therefore in Policy Planning of several socio-economic sectors is considered by many as encroachment on autonomy of our States. FCs have voiced such concern in no uncertain terms in past.

**12.5 Appraisal of PC role by National Development Council (NDC):** NDC is another non - constitutional body like PC, with PM in Chair and all Chief Ministers and Union Ministers as Members. It was formed as an adjunct to PC to mark partnership of states in Plan formulation. It held its first meeting in November 1952 with 3 objectives: mobilize resources, promote common economic policies and ensure balanced and rapid growth. The functions are: review working of National Plan and recommend measures to achieve its aims and targets. NDC finalizes FYP prepared by PC and sends it to Parliament for approval. Like the centralized PC duplicating activities, NDC's role has remained under scanner for its utility after early successes till 1970. By 57th NDC meeting in December 2012, its drift became obvious leading to only formal

discussions on Agenda. There is acute need to revisit roles of PC, FC and NDC all, to avoid overlaps. The Administrative Reforms Commissions (ARCs), and a recently conducted external review have pointed out a need for similar revamp.

**12.6 India's WR Paradigm:** India's comprehensive National Water Policy (NWP) was first formulated in 1987 following reports of two irrigation commissions (1905, 1975), Rio earth summit (1982) and generation / collection of all-round massive experience of nearly 100 years in all related sub-sectors of water use. The National Commission on Integrated Water Resources Development Plan (NCIWRDP) published a fresh Plan Approach in 1999, yielding NWP's revision soon in 2002, followed by next revision in 2013. Policy Planning in India thus is dynamic and evolving rapidly maintaining IWRDM as its anchor Paradigm. All states were encouraged to frame their own water policies (WPs) following NWP in 1987. Several states have framed SWPs and their WRD Plans in the last 2 decades. The process is on, but NWP / IWRDM philosophy acts as a guiding force. As water is intricately woven with many socio-economic sectors, WR sector has a fragmented look, its activities being dealt with by more than 6 Union Ministries. Effort was made in eighties to bring about a co-ordinated approach through the new umbrella MoWR.

**12.7 Need to reverse 12th FYP's Paradigm Shift:** In tune with thinking prompted by non-professionals / activists, MTA team included persons known for opposition to IWRDM so far kept in view. The result was slur on the paradigm of WR sector that denied 'Peoples Participation' in the Plan Process. Activists want plans to be formulated at village level Gram Sabhas that however are neither expected nor equipped to handle and decide WR issues at levels of districts, States, or River Basins. Similarly, the Parliament is not required to decide local issues. A distorted policy therefore was adopted for composition of MTA and later WGs for the 12th FYP, which resulted into a document heavily critical of all that was 'core philosophy' of water sector and its professionals. The PC argued in the 12th FYP document for a paradigm shift away from - the so called 'narrow engineering – construction centric approach' adopted so far. Dissent (and views) expressed by S, T, E professional members of various groups working on FYP was unfortunately swept aside.

**12.8 PC in the FYP document lays down / insists upon - *increase in WUE, reduction of gap of PC/PU, GW mapping, legal framework* – as**

new core areas, ignores past work and turns a blind eye to the real cause of failure due to poor governance, and not of the paradigm of S, T, E based IWRDM. Such thinking has turned the clock back on fast track work. In particular, when WR Sector of the country is provided oversight by institutions like National Water Board (NWB) & National Water Resources Council (NWRC), PC's activism in advocating a paradigm shift is ridiculous. Now that a new PC will be constituted by the new Union Government, hopefully the slide down will be stopped and reversed.

### **13. NEXT STEPS**

A quick recap of the present status and the desired steps, follows.

#### **PRESENT STATUS:**

The WR sector has: enhanced G&S given by nature and enabled significant reversal of famines and desertification; been successful in management of floods & drought; provided adequate supply of food grains, water for domestic and industrial needs and energy, seen - reversal of rural migration, better rural health and employment, contribution to GDP. With removal of the deficit in governance, and shunning misdirected & sterile opposition, WR sector's performance is slated to scale greater height.

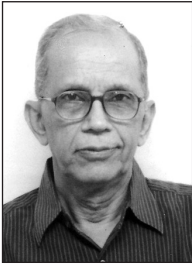
#### **DESIRED STEPS:**

- A) Repose faith in S, T, E based IWRDM as core paradigm. Reverse the PC proposed paradigm shift. Remove PC's activity overlap for MoWR, NWB, NWRC and states' sphere of action in water sector. Resolve water sharing disputes between States. Negotiate international agreements.
- B) Hurry up the proposed adaptive action plan to face CC.
- C) Mop up remaining WRD potential within a couple of decades, while taking compensatory steps to contain adverse impact on environment. Carry out EIA not only for i) before/after status of a project, but also for a condition without / with it. Account for compensatory cost & benefits to G&S in financial analysis.
- D) Undertake and complete the feasible IBWT schemes. Plan and implement Kalpsar like terminal reservoirs near mouths of rivers.
- E) Improve governance, WUE, recycle, reuse and recover all usable WR.
- F) As WR sector ensures SD, increase its plan outlays in national plans.



- G) As economy and ecology are two sides of the same coin of human welfare, integrate them. Shun playing one against the other.
- H) As romanticism about nature's attributes defeats rationalism in decision making for utilizing them for socio-economic progress, eschew it.

**DR. CD THATTE**



Dr. CD Thatte, 78, a Ph.D. in (Hydraulic Modeling) Civil Engineering, has worked for 58 years in all facets of water sector in state governments, Union Govt, International Commission on Irrigation and Drainage and also as a self-employed professional. Through his career, he contributed and strengthened – i) micro to mega scale infra-structure, ii) local to national level planning to fruition, iii) integration, conflict resolution, and ‘fire fighting’ processes, iv) Indian R&D processes, innovation, designing WRD, IBWT, safety, standardization.

In Gujarat, he carried out multi-disciplinary investigations for several projects including mainly the Sardar Sarovar Project (SSP); did innovative work in watershed development in fighting droughts of 1972-75 and 1985-87; built SSP / GERI lab & R&D facilities, and headed CDO & GERI for 3 years. He moved to Central Govt in 1987. Towards the end of his career in Government, he rose to the position first as Chairman, CWC and thereafter as Secretary, MoWR. After superannuation, he worked as ‘Emeritus Scientist’ for 4 years and then worked at ‘International Commission for Irrigation & Drainage’ (ICID) for 6 years as Secretary General. He represented ICID at World Water Council, Global Water Partnership and World Water Vision exercise. His forceful defence of ‘dams’ on behalf of the developing world at the World Bank, at global meets, and in the ‘World Commission on Dams’, in face of shrill opposition is recognized.

Presently he is working in honorary capacity on several National / International Committees / Editorial Boards etc. His work on major Indian WRD projects is known for in-depth assessments for enhancing safety / utility /cost-cutting /promotion of R&D / scientific approach. His contribution to projects including Narmada, Tehri, Farakka, IGNP is well known. He conceptualized and initiated India's first - multi-state ‘Dam



Safety Assurance and Rehab Project' in nineties.

In 2003, he worked as Member Secretary of the GoI Task Force on Inter-linking (inter-basin water transfer IBWT) of rivers. Although he has worked in all aspects of water sector, his strengths comprise investigations, R&D, policy planning, problem solving, in-depth analysis, and negotiations. For the last 10 years he has been heading many national / international Committees dealing with hydropower, irrigation, agricultural waters, environmental needs, etc. He has authored over 150 papers on various WR/Environment related Development and Policy issues. Recently, he worked on the Mulla Periyar Dam Empowered Committee and Expert Committee for Lower Subansiri Project. Presently, he works as Chairman of a Technical Committee on Dams and Water Transfer of the International Commission on Large Dams.



# Development of Rivers, Inland Waterways, Dams and Reservoirs in India

*Capt Subhash Bhate*

## INTRODUCTION

Although India has many rivers, inland waterways, canals, dams, reservoirs and lakes, their potential has often been underutilized, with a few exceptions, due to many of them having degenerated drastically in terms of capacity, navigability, cleanliness and so on. This is notwithstanding the fact that many government bodies have been established to manage these. Such departments include the municipal corporations in various cities, irrigation departments in all states, Inland Waterways Authority Of India [IWAI] headquartered in NOIDA(UP), Central Inland Water Transport Corporation Ltd [CIWTC] Kolkata, Central Water & Power Research Station [CWPRS] Pune, different port authorities, to name a few. There are a number of reasons, why this has happened. Some of these are listed below:-

## RIVERS

### **a] Neglected Resource:**

Rivers are carved out by nature. They are dynamic and carry water from their catchment areas down natural slopes to the sea or to their confluence with other rivers. Since ancient civilizations, towns and villages were built on their banks to fulfill daily requirement of water for

---

*ISSN 2347-9191 print*

*© 2014 Centre for Advanced Strategic Studies*

*CASS Journal, Vol. 1, No. 3, July–September 2014, pp. 43–54*

various purposes. These included domestic and industrial use, irrigation for agriculture, water transport, and even sports. The cleanliness of rivers was important as the rivers were also used for religious worship.

However, over the years, governments and municipal bodies have generally neglected them. Instead of nurturing them, the natural process of cleanliness has been interfered with due to overlooking of unauthorised reclamation, dumping of garbage, rubble and untreated effluents from drainage systems and by carrying out mining of sand from the riverbeds. At places, where rivers become rivulets in dry season, roads have been constructed on their beds both across and parallel to the banks. Consequently, the natural cross section areas of the rivers have got altered and reduced at many places.

Due to excessive pollution and neglect, oxygen levels in the waters fall often, causing the fish and other marine life to perish. Ujani dam in Maharashtra is one such recent example. Many rivers look like filthy sewers and in monsoons often overflow their banks causing health hazards. Pune's Mula river water is mostly covered by water hyacinth, which needs to be removed often.

### **b] Unauthorised Dumping and Sand Mining:**

Some years ago, builders had dumped 30000 truckloads of earth/ rubble in the smooth flowing Indrayani River, near Karla in Maharashtra, to reclaim additional land for construction of resorts. As a result, in the monsoons, the river inundated vast areas on its banks and caused havoc including loss of lives and property. Although an inquiry was carried out, the public memory is short and the matter has been forgotten.

Similarly, illegal sand mining by notorious sand mafias is destroying the normal ecology of many rivers. Unfortunately, governments and municipal bodies have been lenient with defaulters. It is unfortunate that rivers like the Mithi near Mumbai have not been conserved. As a result, this vital national resource is being misused and getting depleted.

### **c] River Cleaning:**

Readers will recall that for several years, they could drink tap water at any of the railway stations or bus terminus safely. But sadly, drinking bottled water outside the house and fitting of water filters at home has now become a must.

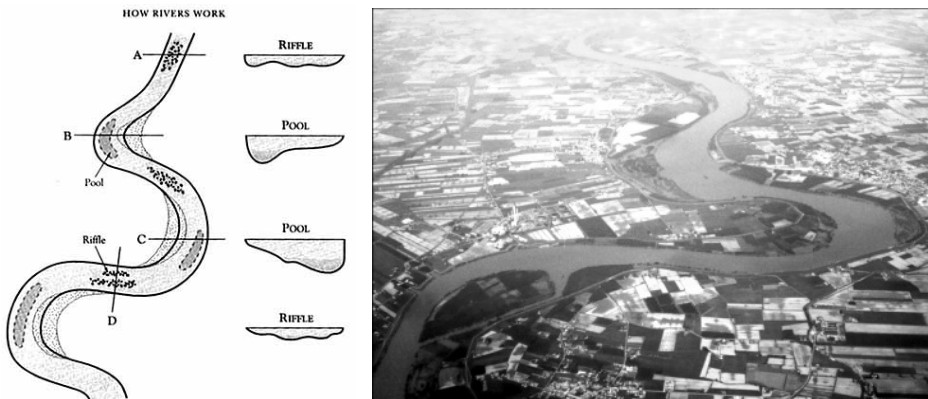
Some years ago, the author had participated in an annual Mutha river bank cleaning campaign on behalf of Indian Maritime Foundation [IMF] in conjunction with Pune Municipal Corporation's Health Department along with volunteers from schools. The filth and garbage quantities were so extensive that the campaign was a failure. It was also an eye opener to witness the huge quantity of effluents, which continued to flow in or were thrown in the river. In Mutha and Mula, the natural river cleaning happens only on a few days in monsoon, when the sluice gates of dams are opened! During rest of the year, these rivers degenerate into dirty nullahs.

### LIMITED PERIOD OF MONSOON

The monsoons in India last only for 3 to 4 months of the year. In the absence of perennial head water supply, the rivers tend to dry up. It is unfortunate that most of the surplus rain water flows into the seas for want of more bunds and reservoirs. As such, the rivers do not have adequate navigable depths to allow plying of river craft/barges for carrying passengers and cargo.

### MEANDERING OF RIVERS

Rivers mostly meander during their course from the origin, till they meet either another river or enter the sea estuary. While meandering, their concave banks always have deeper water pockets and where they cross from one concave bank to other concave bank, extending between



the convex banks, there is a shallower area known as a bar.

In the 126 nautical miles long Hugli River, between Kolkata and the Sandheads, there are 14 such bars and the shallowest of them is called the Governing Bar. With substantial amount of sand/mud flowing down in the monsoons, it is accumulated in most parts of the river bed resulting in reduced navigable depths.

The Farakka Barrage was conceived and constructed in the 1960/70s with a view to ensure perennial head water discharge into the Hugli river in the dry season so as to flush down the silt and maintain desired minimum navigable depths up to Kolkata. However, as a result of a dispute with East Pakistan and later with Bangladesh, insufficient discharge has resulted in depth reductions over the Hugli river bars. This in turn has resulted in only lesser draft vessels to ply to Kolkata and Haldia thereby reducing the Port earnings.

The channels to Kolkata in the lower reaches of Hugli River had to be shifted to the opposite bank to avail better depths. The original Haldia oil jetty on right bank had to be abandoned due to extension of the shallow Balari bar and built lower down twice in succession, to enable big tankers to dock.



An Indian canal



Suez Canal

In comparison, man-made canals, for irrigation or water transport are mostly straight, have firmly built sloping banks, have uniform depths and are easier to ply in. Their banks however, need to be protected so that the mud/sand from the banks does not fall into the canals, reducing their depths.

### DAMS AND RESERVOIRS

- a] India is fortunate to have mountainous regions like Himalayas, Vindhya, Aravali, Sahyadri, Nilgiris etc where there is further scope for construction of dams to store huge quantities of water. However, only in the first 2-3 decades since Independence, a few major dams were constructed. Not many were built thereafter, partially due to cost constraints, environmental issues and legal objections by population likely to be displaced, whose homes and fields may be threatened by the back waters. As such it is unfortunate that most of the river water is allowed to flow into the seas leading to draughts and famine like conditions especially in times of scanty/delayed monsoon.
- b] **Major and Minor Dams:** Some of the noteworthy major dams are the Bhakra Nangal in Himachal Pradesh, Hirakud in Orissa, Nagarjunsagar in Andhra Pradesh, and Sardar Sarovar in Gujarat. Apart from these, there are other big and small ones, though more are needed due to vastly increasing requirement for water for drinking, industry and irrigation for agriculture.



Bhakra Dam



Hirakud Dam



Sardar Sarovar Dam



Koyna Dam

- c] **Koyna Dam:** Mention must be made of Koyna dam built in 1964 in the Sahyadri mountains of Western Maharashtra. The Shivajisagar reservoir has a surface area of 892 Sq Km and stores a huge quantity of water. The trapped water sent through tunnels also runs turbines generating 1960 MWs of hydro electric power. No wonder then that this dam is also called the ‘lifeline of Western Maharashtra’.
- d] **Pune Dams :** The total capacity of all 5 dams around Pune City located at Khadakwasla, Panshet, Varasgaon, Mulshi and Temghar is barely adequate to supply water throughout the year to the ever expanding city, burgeoning with population of almost 50 lakhs. This is particularly critical when the monsoon rains are scanty resulting in inadequate water for the purpose of irrigation. Except when all the

dams are full or when monsoon is heavy, a limited supply of water has to be released from these dams.

A majority of reservoirs built many years ago no longer have the original water storage capacity due to the silt/mud brought down by head waters. Most of these are neither surveyed periodically nor dredged regularly, yet there is a false impression that their capacities are same when filled up during the monsoons. Their actual capacities need to be determined, and increased where needed, by regular dredging.

The only bund in Mutha River above the Bund garden, which had helped in maintaining a specific water level below the Sangam Bridge, was broken a few years ago. This has resulted in flowing of accumulated silt and hyacinth to be flushed down. In turn this has lowered the river level considerably. Below the broken bund, mostly exposed rocky bottom is now visible.

#### **RIVER LINKING**

The well conceived and useful plan of joining Indian rivers to supply surplus water to other drought prone areas was on drawing boards some years ago. However, work has not started on this project. In a few states like Gujarat, some of the rivers have been connected by canals enabling the latter to have adequate water throughout the year. In turn, some of the adjacent villages in Gujarat too have been connected by smaller pipelines and pumps to enable transfer of water from surplus to deficient villages.

#### **RIVER PORTS AND TERMINALS**

Facilities for loading and unloading of cargo along the rivers are expensive to maintain, especially if they are used only for a limited part of the year. On the other hand, the ports and terminals at sea are generally better maintained as these are occupied throughout the year and also earn considerable revenues. In comparison, floating terminals and pontoons moored in adequate deep water are more common in rivers, which do not have a sustained flow of water.

#### **DREDGING**

Capital cost for dredging of rivers and waterways is very expensive. In addition, dredging does not always yield the desired results due to excessive



silt, and also because of difficulties in dumping such quantities of dredged silt either on land or in deeper areas. In rivers, under water currents often carry the silt dumped in deeper water back into shallower stretches of the waterways. Maintenance costs of dredging to maintain minimum desired depths are also heavy and more difficult in dry seasons as the dredgers may not have required depths to operate in. Regular surveying and dredging of reservoirs and lakes can yield good results, though here too large areas of land may not be readily available for dumping considerable quantities of dredged silt.

Moored cutter suction dredgers should be used for dumping dredged material through floating and land laid pipelines where required, though huge heaps do create difficulties. The advantage of using such dredgers is that these can be dismantled and carried to new sites for reassembly and use.



Of late, some of the municipal bodies and NGOs have been removing silt from the edges of shallow water bodies using JCBs fitted with grabs. Though laudable, these efforts are at best miniscule in comparison to the quantity of silt and are not usable in deeper waters unless mounted on pontoons. One of the long term solutions is to plant trees on slopes and also retain mangroves, which will help in preventing loose soil flowing into the water bodies.

## THE KALPASAR PROJECT, GUJARAT

*“Little drops of water make a mighty ocean”.*



This ingenious project in Gujarat envisages building a 32 Km-long dam across the Gulf of Khambhat connecting Bhavnagar on West to Dahej on East to create the world's largest fresh water reservoir. It is aimed at providing a sustainable solution of fresh water supply for irrigation, drinking and industrial purposes in an otherwise arid Saurashtra and Central Gujarat region. A 10 lane road link will also be built over the dam, vastly reducing the distance between Saurashtra and South Gujarat. This would also lead to several other developments. They will include rejuvenation of rivers, generation of wind and solar energy to be used for lifting fresh water from the reservoir to the canals, revival of the Bhavnagar port and reduction of soil salinity in the coastal areas.

## LAKES

There are many big natural lakes in various parts of India. These serve multifarious purposes including supply of drinking water to towns/cities,

tourist attractions for recreation and so on. For instance, Hyderabad has many lakes including the famous Hussain Sagar lake and Gandipet lake. Pune has the Katraj and Pashan lakes, Jaipur has the famous Palace lake, Nainital has Naini lake, Srinagar has Dal lake and Tamil Nadu has the Ooty lake. Some of these are kept clean, while others are somewhat polluted. Almost all of these lakes are not dredged and depend on the monsoons for filling up. In the event of scanty rainfall these get depleted in dry/summer seasons causing immense hardship to those who depend on the lake water.

### **OBSTRUCTIONS**

Bridges and bunds across the rivers do not allow free passages of river crafts. In India, regularly used waterways are mostly in rivers close to their estuaries as tidal inflows during tides raise water levels and allow sufficient depths, thus enabling navigation.

### **NAVIGATIONAL AIDS**

Navigational floating buoys demarcating the best navigable channels and transit marking beacons on land need regular maintenance. In strong currents, the buoys can drag and need to be correctly repositioned so as to prevent vessels/barges from going aground. Major ports have separate departments to service and maintain them round the year as per Uniform System of Maritime Buoyage, agreed and adopted by maritime countries around the world. Their positions and characteristics are shown on world's regularly updated nautical charts for use by mariners.

### **DEVELOPMENT AND MAINTENANCE OF RIVERS**

Development and maintenance of rivers and waterways in India is a Herculean task because of unhealthy habits, indiscipline, lack of national pride, which keep adding to the general squalor and filth that abounds in India, be it in waterways or on land.

Take the case of the mighty Ganga, which has water even in the dry season mainly because of melting of ice in the Himalayas. But various townships along the river course keep dumping untreated effluents. Since the time of independence, despite various conservancy schemes like Ganga Action Plan [GAP] and vast expenditures, the efforts have not

been successful. One hopes that new action plan for cleaning Ganga will be successful and become a role model for other rivers.

For the Mutha River of Pune there is a plan on paper to implement Inland water transportation. However, the entire project has envisaged that there will be perennial water flowing through the river. Due to increasing demand of water for this growing city the continuous supply seems improbable. Also if dykes have to be built to arrest water it will be a safety issue for the ferry boats especially in the event of engine failure. As reported in May 2013, the Municipal Corporation has stated in an affidavit filed before the National Green Tribunal in Delhi, that it has planned to carry out only river restoration works including laying gabion mattresses, desilting and undertaking plantation works to strengthen embankments for a riparian eco-system.

#### **RIVERS AND WATERWAYS ABROAD**

The US Coast Guard and other such agencies in the developed world keep strict vigil not just on the coastline, but also on ports, rivers and waterways. Thus they are kept clean, their banks have ramparts built with proper sloping walls, dykes and protective railings along the walkways.

The author during his career in the Merchant Navy has visited many ports situated on major rivers like the Hudson, Mississippi, Columbia in North America, Amazon in South America, Weser, Rhine, Elbe, Thames in Europe. Similarly he got the opportunity to sail through canals such as the Panama, Suez and Houston ship canal. He was impressed with their outstanding cleanliness and management of ecology, which contributes to the development of their hinterland and economy.

#### **RECOMMENDATIONS**

In India, with very dense urban/rural populations living in towns and villages on the banks of rivers, some stringent measures are a must. Some of the solutions could be as follows:-

- i] The municipal bodies must monitor and improve cleanliness, ecology and bio-diversity of all rivers and water bodies round the year. Only treated minimum effluents should be allowed to flow into the rivers avoiding solid wastes, including plastics,
- ii] Prevent/discourage the population from bathing, ablutions and washing of clothes.

- iii] Exhort the populace through warning boards/hoardings as well print media and TV/Radio programmes to take pride in not polluting the waters or the banks. If this is also not effective, recover punitive fines from defaulters.
- iv] The state pollution control boards in conjunction with municipal bodies must regularly monitor and prevent pollution, levying fines on all including industry, which cause pollution.
- v] Unauthorised dumping as well as illegal sand mining has to be stopped by all Government conservancy bodies including the police.
- vi] All reservoirs and lakes must be surveyed regularly to determine their actual capacity and dredged as required, to restore capacity to the extent affordable.
- vii] Feasibility studies for river linking must be reassessed and implemented. State level projects can be initiated selectively in phases.

#### CONCLUSION

It is time the central and state governments display a pro-active attitude towards nurturing our rivers, waterways, and lakes round the year. These are the lifelines for India's economy and for well being of our population. India is blessed with many rivers and regular inflow of rain water. However, we should not allow the water to flow into the sea, polluting it en-route. Only when the Indians develop a sense of cleanliness, pride and patriotism to stop water wastage and pollution that India can hope to join the ranks of disciplined developed nations. Our country has all the knowledge and wherewithal to implement this and one hopes for a new beginning.

**CAPT SUBHASH M BHATE**



He is an ex-T.S.Dufferin cadet (1961-63), experienced Hydrographer, Dredgemaster and Hugli River pilot. A Merchant Mariner with years of experience in sailing through many rivers, canals and waterways around the globe, he has also served as a Technical officer in Corps of Engineers (Inland Water Transport), Territorial Army. He has to his credit the experience of navigation in Bangladesh rivers in 1971 war till early 1972 for transport of Pakistani Prisoners Of War, Indian Army troops and later also in Hugli River estuary. He has been a Marine Manager at Enron's Dabhol Power Plant.

He is a Fellow of the Institute of Chartered Shipbrokers, London [FICS], Fellow of the Narottam Morarjee Institute of Shipping, Mumbai [FNMIS] and ex-member of the Institute of Surveyors, India [MIS], Hydrographic Society, U.K. [MHS] and Member of the Institute of Marine Technologists, Mumbai [MIMarTech].

He can be contacted at *[captsubhash@yahoo.com](mailto:captsubhash@yahoo.com)*

## Relevance of Nehru's Foreign Policy in Today's World

*Amb MK Bhadrakumar*

I intend to stress three main templates of Jawaharlal Nehru's foreign policy and examine their contemporary relevance – first, of course, non-alignment; second, Nehru's emphasis on Asian solidarity; and third, his rooted faith in politics and dialogue.

To begin with, let me go back to the world of Nehru, the world of yesterday, and examine how it morphed into the world of today. Needless to say, Nehru's world was, qualitatively speaking, a very different world. And, yet, curiously, the fundamental themes have continued, and are easily recognisable. It was a world where the rising tide of history brought into existence many countries like India as newly independent countries leaving behind their colonial past. These newly liberated countries were embarking on a trajectory of new identity and were demanding equity and participation in the prevailing world order – just as today's emerging powers, which are also manifestly aspirational.

To be sure, this past fifty-year period since Nehru's departure has seen a period of phenomenal shift in international politics. To borrow from the old Soviet concept of the correlation of world forces (which was of course a means of Soviet policy rather than a scientific construction), the actors, the forces, the character of the co-relation, and the role of the correlation in world development shifted in the five decades since the early 1960s when Nehru passed away.

The world did not exactly evolve according to the laws of history – towards socialism, as the Soviet ideologues predicted – but the correlation of power has continued to be on the global scale (while at the same time it has a highly

---

Based on Prof SV Kogekar Memorial Lecture, Pune, 26 May 2014.

*ISSN 2347-9191 print*

© 2014 Centre for Advanced Strategic Studies

*CASS Journal, Vol. 1, No. 3, July–September 2014, pp. 55–62*



important regional scale) and the world equation of power has changed, while the principal competitors have continued to be present even today co-mingling with new entrants.

The 1962, Cuban missile crisis was the turning point in international politics. It was the high noon of the Cold War, the only time that the two superpowers found themselves in an eyeball-to-eyeball confrontation. It lasted for 13 momentous days and the world held breath.

However, looking back, it was also an event of rude awakening on the part of both the superpowers the United States and the former Soviet Union, as they realized that there are no victors in a thermonuclear war. Out of this 13-day confrontation in the autumn of 1962 nuclear disarmament process seriously began and the Partial Test Ban Treaty of 1963 followed, prohibiting all testing of nuclear weapons except underground.

However, the most stunning development of the 1960s in the global balance of the 'post-Nehru' era was the eruption of the Sino-Soviet rift in armed hostilities in Ussuri in 1969. This in turn prompted the Sino-American rapprochement, dramatically regrouping the global strategic chessboard. In turn, these two processes – MAD or Mutually-Assured Destruction and the US-China rapprochement – gave impetus to the concept of 'peaceful co-existence' in the Soviet-American relations.

The general easing of geopolitical tensions between the Soviet Union and the United States can be traced to 1969 under the Gerald Ford and Nixon administrations, but if a date is to be put on the high water mark of the détente process itself, it has to be the then Soviet President Leonid Brezhnev's visit to Washington in June 1973. *Prima facie*, how unrecognizably, the world politics had changed within a decade after Nehru's death!

But in reality, the more the things seemed to change, the more they remained the same. The Cold War continued under the rubric of détente and even after the signing of the famous Helsinki Accords in 1975. In fact, the Soviet-American rivalries took a new form and became more acute through involvement of surrogates, which led to a spurt in conflicts in what used to be known as the Third World. No region was spared – Africa, the Middle East, Asia or Latin America – and the rivalry took myriad forms ranging from guerilla war in the heart of Africa to right-wing military coups in Latin America.

What punctuated this phase of cold-war rivalry was the 1980 American presidential election, which saw Ronald Reagan being elected on a platform opposing the perceived concessions by the West to the Soviet bloc under the rubric of détente. The Reagan presidency took a directly hostile stance toward



the Soviet Union aimed at the collapse of the USSR. It was characterized by a massive US military build-up. The so-called Reagan Doctrine openly sought the overthrow of all and any communist or leftist government. It also initiated new technologies such as the missile defence system with the intent to gain 'nuclear superiority' for the US.

When the unraveling of the Soviet bloc finally began by the end of the Reagan era, many factors contributed to it, which we need not get into here, but two points need to be noted. First, the end of the Cold War was a negotiated settlement in the mid-1980s. When the unraveling of the Soviet bloc began – first in Poland followed by the other East European regimes one after the other like dominoes – Gorbachev refused to intervene in these dramatic happenings that ultimately culminated in the tearing down of the Berlin Wall in the autumn of 1989.

Equally, it was a decision by the then Russian President Boris Yeltsin as a matter of political expediency to disband the Soviet Union. Was the Soviet collapse inevitable? There are no clear answers. Certainly, it was not Mikhail Gorbachev's agenda to disband the Soviet Union. Nor is there any empirical evidence that the Afghan war accounted for it – or that the drop in the price of oil drove the Soviet economy into a terminal crisis. Put differently, the disbandment of the Soviet Union and the end of the Cold war were two different events.

The US and its allies were actually taken aback by this torrential flow of events. This is important to take note of because the subsequent triumphalism regarding the end of the Cold War and the 'collapse' of the Soviet Union that crept into the American narrative was completely unwarranted and unnecessary. The plain truth is that no one really 'won' the Cold War.

To recapitulate, the first twenty-five years of the 'post-Nehru' era ended with the rollback of the Cold War. As we move on to the 'post-Soviet' era, new vectors begin to appear, but the cold-war animosities – and the old mindsets, in particular – refused to wither away. In a nutshell, even in the weakened form, Russia continued to be regarded by the US as a potential challenge in the medium term to its global hegemony. And, on the Russian side, the vast reservoir of suspicion regarding the US' intentions toward it lingered on. Influential sections within the strategic communities of both countries have failed to jettison old attitudes. Thus, in retrospect, it shouldn't cause surprise that the US not only rebuffed Boris Yeltsin's attempts to get Russia inside the European home and repeatedly humiliated it, but Washington was also being prescriptive toward Moscow.

Just about three years into the post-Cold War era, by 1994, the Bill Clinton administration had already brought forward a proposal for the eastward

expansion of the NATO, going back on the understanding given to Gorbachev that the alliance would not move 'one inch to the east' provided Moscow agreed to allow the German reunification. By the mid-1990s, Yeltsin was disillusioned with the US' triumphalist policies, heaping humiliations on Russia as if it were a vanquished enemy.

Nonetheless, steamrolling the Russian objection, the NATO intervened in the dismemberment of the former Yugoslavia and by 1999, Poland, Hungary and the Czech Republic were inducted into the alliance. The three Baltic States and Slovenia, Slovakia, Bulgaria and Romania followed suit in 2004. In 2009, Albania and Croatia joined the NATO. Today, countries, which have a stated goal of joining the NATO include Bosnia and Herzegovina, Montenegro and Georgia. The crisis in Ukraine today quintessentially devolves upon the Russian suspicion that there is a hidden Western agenda to induct the country into NATO, thereby bringing the alliance right to the Russian border within a distance of 300 kilometers from Moscow.

The reset in Russian-American relations, which the US President Barack Obama initiated in his first term, has petered out and has been replaced by a deepening distrust between Washington and Moscow. During the past 3-year period we have also witnessed the return of Russia to the world stage and an overall assertiveness in the Russian policies to advance the country's interests regionally and globally with an overall objective to compel the US to negotiate with it and to treat it on an equal footing.

The vastly increased income from energy exports has helped the rehabilitation of the Russian economy and the steady build-up of the Russian strategic power. This poses challenge to the US' global hegemony. The Syrian question turned into the first proxy war between Russia and the US in the post-cold war era. The stalemate in Syria cannot be broken without a US-Russia concord, but the prevailing friction between the two big powers does not allow that to happen.

Compared to the alignment of forces in Nehru's world, the contemporary world situation does not allow the formation of blocs of nations. The tendency is toward multi-polarity and several factors account for it. For one thing, multiple power centres have emerged, especially the emerging powers in Asia, which seek due recognition for their legitimate interests in the world order and are determined to pursue independent foreign policies. Again, the locus of growth has been shifting to the Asian region, away from the West. Regional cooperation rather than bloc mentality is the preferred way forward in the mainstream Asian outlook.

Indeed, the nature of the global problems is also of a kind today that no

individual power or even a 'coalition of the willing' can solve them. The NATO's failure in the war on terror in Afghanistan and the chaos in Libya are telling examples. Meanwhile, Russia has succeeded in shedding the 'enemy' image and has taken to globalization and integrated with the European economies. Ideology has indeed drained out of global politics.

The Ukraine crisis in many ways becomes a case study of the interplay of many of these post-cold war trends. One, much as Russia is resisting any NATO expansion further toward its borders, Russia still is manifestly keen that its ties with the European countries remain intact. Russia's priority still lies in its European identity. Although Russia's relations with China have reached a strategic level and are at their highest point historically, as the leaderships in both countries affirm, neither side desires an alliance. For both, in fact, relations with the West come first.

Equally, the Ukraine crisis brought out China's 'positive neutrality' vis-à-vis the tensions between the West and Russia. On the other hand, European countries also harbor a sense of unease about the deterioration of relations with Russia. The major European countries, especially Germany, have been noticeably lukewarm about imposing sanctions against Moscow, despite strong US urgings, given the appreciable level of interdependency in their relationships with Russia. The Kremlin, in turn, has heavily banked on Germany to ensure that the tensions over Ukraine do not degenerate into a confrontation with Europe. Never once Russia threatened that it would retaliate by cutting off its energy exports to Europe.

This is not to say that Euro-Atlanticism has lost its *raison d'être* but merely to point out that the cold-war era bloc mentality is palpably dissolving in Europe.

The question today really is not how Nehru's foreign policy becomes relevant but how it can optimally serve India's interests in the contemporary world situation that I have outlined. The issue here is about creatively adapting Nehru's foreign policy to meet today's circumstances. Indeed, that is also what Nehru would have expected of us to do. To my mind, this salience needs to be appreciated from the three different angles, which I cited at the beginning.

First and foremost comes the idea of non-alignment. There is often a mistaken notion of non-alignment being passive neutrality. Whereas, in Nehru's scheme of things, non-alignment was a way of leveraging India's position, of maximizing India's power without having to be part of any alliance system. On the occasion of the birth centenary of Panditji in 2009, Narasimha Rao wrote, "Non-alignment was not a negative policy of being neutral in great power disputes or staying equidistant from the two superpowers".

To quote from a speech by Nehru himself in the Parliament on December 9, 1958, “It is a policy inherent in the circumstances of India, inherent in the past thinking of India, inherent in the whole mental outlook of India, inherent in the conditioning of the Indian mind.”

In the post-cold war discourses in our country, non-alignment had become a pejorative term signifying ‘diffidence’ on India’s part to become deeply engaged with the international community – meaning the West – as is apparently expected of a rising power. The prevailing advice of many pundits in our country is to seek our security by being part of the US’ rebalance in Asia.

I have often wondered that part of the problem in our discourses today regarding Nehru’s foreign policy lies in the mistaken impression that he was ‘anti-Western’. In reality, though, ideologically, Nehru was at home with the liberal principles such as democracy, liberty, equality, sovereignty and so on. The problem arose because he was often critical of the West for not adhering to those principles. Of course, Nehru also sought a fair international order, which found him critical of Western policies of hegemony.

For a while during the middle part of the last decade, India came dangerously close to advocating a ‘Quadripartite Alliance’ with the US, Japan and Australia. It was projected as a concert of democracies but the barely-hidden intention was to conclusively bury India’s non-aligned outlook by becoming part of a containment strategy toward China. Fortunately, the miserable idea failed to gain traction following the government changes in Japan and Australia. Quite obviously, I cannot see how an option of that sort – seeking our security through an alliance system led by the US – would serve India’s interests. India needs a creative solution to its strategic dilemma over China’s rise and that should be most judiciously realized through the kind of strategic autonomy that a non-aligned policy represents.

That is to say, we should have the freedom and ability to judge each issue in the Asia-Pacific by its merits and assess its effects on India’s interests. This is extremely important because China is our immediate neighbor and geography cannot be wished away; China’s rise is a geopolitical reality and it is becoming irreversible; and, most importantly, there is a real possibility that China’s economy can be a driver of growth for our own economy. Clearly, for the kind of massive investment we require for development of the infrastructure and manufacturing sector, China makes the ideal partner.

In sum, the solution to India’s unique challenges and dilemmas vis-à-vis China must be one hundred percent Indian and it must be arrived at and worked out autonomously rather than by India hitch-hiking with the US’

rebalance strategy. By the way, this approach of strategic autonomy is somewhat discernible in Mr. Modi's thinking about China and it seems to me that Beijing has duly taken note of it while forecasting that the bilateral relations are poised for an upswing in the coming period.

The 'Nehruvian' vision attached high importance to Asian solidarity in world politics. One of Nehru's first acts in international diplomacy was to convene the Asian Relations Conference in 1947. Let me quote from Nehru's stirring speech at the conference: "For too long have we of Asia been petitioners in Western courts and chancelleries. That story must now belong to the past. We propose to stand on our own legs and to cooperate with all others who are prepared to cooperate with us. We do not intend to be the playthings of others".

These words have proved prophetic. To be sure, the phenomenal economic growth of the Asian region has also led to negative developments such as the resurfacing of old territorial or historical disputes and antipathies to which India needs to take a clear-headed and practical view. In certain ways these tensions have been exacerbated wittingly or otherwise by the US' 'pivot' to Asia. At any rate, just as Nehru would have visualized, an Asia of confrontation and crisis divided into blocs and alliances is certainly not in India's interests. As the leadership in India has affirmed, there is enough space in the present-day world for India and China to grow. The Indian officials have been on record that there are more issues of common interests today bringing India and China together than differences and disputes separating them.

A third pillar forming the architecture of Nehru's foreign policy was his steadfast belief that problems and threats cannot be solved through ideology or economic fixes or military means. Instead he thought through problems politically, case by case, and assessed where India's own interests lay, how they'd be affected and what could be India's options. Indeed, if only India had not been bogged down in the problematic relationships with Pakistan, it could have played a far more dynamic role in world affairs. Unfortunately, while India has done a reasonably good job in the recent decade in managing its relations with Pakistan and China, the progress in finding solutions to the differences and disputes with these two neighbours has been tardy.

There are no military solutions to today's problems, as Iraq, Afghanistan, Libya, Syria, Iran etc. amply testify. Yet, a kind of 'militarization' of India's foreign policy has been taking place in the past decade. For nearly a decade we have been entrapped in a 'catch-up' mentality vis-à-vis China, which was plainly unrealistic and unwarranted. Again, for the first time, India and Pakistan have been locked in a kind of proxy war in Afghanistan through the past decade-

and-a half, which was bizarre since the cup of discord between the two countries was already overflowing without the great game in Central Asia.

The point I am making is that while the modernization of the Indian armed forces is a continuing necessity, there is no gainsaying the fact that India faces no threat of external aggression as such. Our main threats are emanating out of internal security. And this challenge needs to be largely addressed through a deft mix of coercion, rapid economic and social development, and partly by creating a relationship of mutual benefit with adversaries such as Pakistan or China.

Quintessentially, the problem in India's Pakistan policy remains to be that we have not succeeded in making that country a 'stakeholder' in good-neighbourly relations. This is where strong economic linkages come in, such as the Iran-Pakistan-India gas pipeline, which can contribute significantly to the amelioration of Pakistan's energy crisis. Similarly, we need to find a way to convince Pakistan that we are not interested in a turf war in Afghanistan. In conclusion, I would say, we need to put politics in command of India's foreign policy and this is an area where we have fallen short.

**AMBASSADOR MK BHADRAKUMAR**



Shri MK Bhadrakumar served in the Indian Foreign Service for three decades and served as ambassador to Uzbekistan and Turkey . Apart from two postings in the former Soviet Union, his assignments abroad included South Korea, Sri Lanka , West Germany, Kuwait Pakistan and Afghanistan. He served thrice in the Iran-Pakistan-Afghanistan Division in the Ministry of External Affairs, including as the Head of the Division in 1992-95.

Shri Bhadrakumar sought voluntary retirement from the IFS in 2002 and has since devoted himself to writing. He contributes to various publications in India and abroad and is a regular columnist for *Asia Times* and *The Hindu*. He has written extensively on Russia, China, Central Asia, Iran, Afghanistan and Pakistan and on the geopolitics of energy security. He is presently residing at Delhi and can be contacted at [mkbhadrakumar@gmail.com](mailto:mkbhadrakumar@gmail.com).

## The Current Crisis in Ukraine

*Lt Gen (Retd) Ashok Joshi*

### INTRODUCTION

One wonders if many of us in India would have known of Balaclava or Crimea in our school days but for Tennyson's 'Half a league, half league....' a poem about great valour and poor generalship in equal measure. Some would also recall the Yalta Conference, held at the Black Sea resort in 1945.

Ukraine had been a part of the Russian empire, till it became one of the founding members of the Union of Soviet Socialist Republics (USSR) in 1922. Within three months of the commencement of 'Operation Barbarossa' against the USSR, by Hitler on 22 June 1941, Ukraine had been overrun by Germany. Actually, there was a sigh of relief then amongst many of the Ukrainians who felt constrained by the central authority of the USSR, and sought autonomy.

Apart from this sense of 'relief', at least some of the Ukrainians gave vent to their xenophobia by collaborating with the German forces of occupation. They went along with the German forces in extermination of Jews. As many as 30,000 Jews in the ravine of Babi Yar were blindfolded and shot. Very few Jews survived in Ukraine. Persistent Xenophobia of Ukrainians against those of Russian origin may be understood more readily because of this historical background.

Ukraine attracted worldwide attention when the Russia Federation virtually intervened in Crimea early in March 2014, and later annexed it after a referendum. Later events make it appear that the modus operandi had been well thought out and the preparation by Russia was thorough.

---

*ISSN 2347-9191 print*

© 2014 Centre for Advanced Strategic Studies

*CASS Journal, Vol. 1, No. 3, July–September 2014, pp. 63–76*

The annexation was followed by disturbances in eastern Ukraine. Russia, on account of its direct intervention, raised the temperature there. Some have suggested that it could well lead to World War III. That of course sounds like hyperbole for now. Even so, Ukraine needs to be watched because the Russian Federation and the US are supporting the opposing contenders. Up to a point there is a proxy war in Ukraine. Also, there is amassing of troops by the Russian Federation and violence is in the air in the Eastern Ukraine.

#### FACT-SHEET ABOUT UKRAINE

Ukraine is a country of some 44.29 million people of Slavic origin with an area of 603,000 sq km. Similar figures for Maharashtra are 115, and 308,000. It is twice as large as Maharashtra, and its population is hardly 40 percent of it. By our standards, it is a very sparsely populated country.

It lies in the same northerly latitudes as France; it is about 5,000 km from Mumbai.

Its GDP per capita at PPP is 7,400 dollars . Similar figures for some other countries are as follows:<sup>1</sup>

- India .....4,000 dollars
- Russia .....18, 000 dollars
- US .....49,800 dollars.

Its GDP at PPP is 337.4 billion dollars. Similar figures for some other countries are as follows:

- India .....4,962 billion dollars
- Russia .....2,553 billion dollars
- US .....16,720 billion dollars

Its Military expenditure as a percentage of GDP is 2.77. Similar figures for some other countries are as follows:

- India .....2.43
- Russia .....4.47
- US.....4.35

#### THE IMPORTANCE OF BEING UKRAINE

Once upon a time, Ukraine and Russia were not viewed as different counties. In fact, Russian state had its beginning in the 17th Century at Kiev, now the capital of Ukraine, and Ukraine had been part of the Russian

*1. Data adopted from : [www.cia.gov/library/publications/the-world-factbook/](http://www.cia.gov/library/publications/the-world-factbook/)*



empire from 1654. Russian and not Ukrainian, was the daily language of life in Soviet Ukraine. After independence in 1991, eastern Ukraine still looked to Russia; western Ukraine gravitated toward Europe. Russia and Ukraine had often been at odds, and sometimes rancorously so, over gas pricing and supply, and over the tariffs and indeed control of the crucial pipeline to Europe”.<sup>2</sup>

It is obvious that Ukraine is a ‘midget’ in the international context. So, what is the importance of being Ukraine? Ukraine derives its importance firstly, from its location on the globe and the resources it commands, and secondly, its juxtaposition with the surrounding countries.

### THE LOCATION OF UKRAINE AND ITS RESOURCES

Ukraine shares 35 percent of its border with Russian Federation; another 35 percent with five members of NATO and EU; the balance of



The map has been adopted from <http://www.infoplease.com/atlas/country/ukraine.html>

2. “The Quest” – “Energy Security & the Remaking of the Modern World” by Daniel Yergin.

30 percent of its periphery lies on the Black Sea.

It has cultural continuities across the borders with seven surrounding countries. Out of these, five are members of NATO, whereas Russia and Belarus have adversarial relationship with NATO. This is not a happy situation to be in for any country. Like it or not, it cannot but help being a buffer state. That question arises only when it can assert its independence and autonomy. Alternatively, it has a choice of making common cause with Russia. 'Non-alignment' does not look like one of the choices open to Ukraine.

The break up of Ukrainian population is as follows: Nearly 78 percent of the population is Ukrainian; the Russians constitute a little over 17 percent. These two add up to 95 percent. The rest of the five percent is an overflow from other six neighboring countries. The Russians are concentrated in the Eastern part of the country. There are very few Jews—about .2 of a percent.

The rich dark soil of Ukraine is very fertile, and the climate is right so much so that it is called bread basket of Europe, particularly because of wheat production.

Russia exports natural gas to the countries of the European Union through the network of pipelines that run through Ukraine. The European and US capital in search of high profits is invested in Russia. There are ongoing disputes over price, and recovery of dues from Ukraine as well as the ultimate buyers. The transit infrastructure and accounting is complicated. State controlled commercial gas suppliers and operators of transit facilities are influential and venal. Russia can and does exert pressure on Ukraine because it provides oil and electricity to it, and some other European countries. These dealings, at times like these, verge on economic warfare. In the immediate future, Russia can exert pressure on the EU members, Ukraine, and their supporters by raising prices, or by reducing supply. If Russia were to deny access to gas, the leverage would be even more and situation would become dire, but Russia would also suffer.

Ukraine has significant gas and oil reserves but its location makes it more profitable to be a corridor for sending Russian gas and oil to countries of Europe. The present crisis does have an oil and gas angle—Russia would certainly like to increase its earnings and invite foreign capital—but possibly, the trade and commerce angle is not the most dominant one as of now. It appears that the present crisis in Ukraine has more to do with the

Russian effort to keep Ukraine in its flock.

**JUXTAPOSITION OF UKRAINE WITH SURROUNDING COUNTRIES**

Listed here are countries from North to South that border the Russian Federation.:

	Date entered EU	Membership of NATO
Finland	1 Jan 1995	
Estonia	1 May 2004	Yes
Latvia	1 May 2004	Yes
Lithuania	1 May 2004	Yes
Belarus		
Ukraine		
Bulgaria	1 Jan 2007	Yes
Georgia		

It is noteworthy that four countries surrounding Ukraine—Poland, Hungary, Slovakia, and Romania—are members of the EU and NATO both. The pull of the EU is in terms of trade and employment opportunities etc. On the other hand the membership of NATO places the country in the adversarial camp. It is readily understood that the situation could not be to the liking of Russia. Russia could do very little till such time as it was getting its own house in order, but now it seems that Russia feels sufficiently strong to make its preferences known to Ukraine and others. The expanding membership of NATO is a singular cause for Russian concern. At the height of Cold War in mid 1980s, the NATO had only 16 members, now it has 28. Russia does not wish to lose its ‘bench strength’ to the NATO any more.

**THE OUTLINE OF EVENTS THAT CONSTITUTE THE CURRENT IMBROGLIO IN UKRAINE**

Ukrainian parliament declared independence from USSR following attempted coup in Moscow, in 1991. In a nationwide referendum in December 1991, an overwhelming majority had preferred independence.

In exchange for surrendering their nuclear weapons, US, Russia, and Great Britain had given Ukraine a territorial guarantee that its borders

would be safe. This international guarantee has proved to be of little use to Ukraine.

Its independence did not result into improvement of its economy; unemployment continues to be a problem. Discontent with the government came to a head in November 2004. There were demonstrations against Presidential candidate Victor Yanukovych although he had won the election. He was pro-Russia. The internal disturbance had an anti Russia dimension. The angry demonstrations were in a public place called Maidan by people who sported orange scarves. The moniker these protest demonstrations attracted was 'orange revolution'.

Russia has been contributing an annual subsidy of 3 billion dollars to Ukraine for the gas it consumed. The gas was cheap, so Ukraine's economy became more and more gas intensive, on the one hand, and the population got used to guzzling gas on the other hand. Russia did not fail to remind Ukraine of this state of affairs after the Orange Revolution. Since 50 percent of gas exports from Russia pass through Ukraine, it was aware of its hold on the supply to EU, and felt that it could get away with what it was doing. Ukraine showed little awareness that the Russians had the option of closing the tap, or reducing the pressure to exert direct pressure on it and that too with considerable leverage. Europe too was pressurized since it imported 24 percent of its gas requirements from Russia; out of this fifty percent of the gas passed through Ukraine.

Though now independent, the leadership in Ukraine was the self same party apparatchik that had brought with them their good old methods and habits from the erstwhile USSR. It seems that the political class in Ukraine thrived by misusing their power over state undertakings that transit Russian gas. So much so that the regime could well be classed as Kleptocracy. One wonders if there is a need to add Kleptocracy to Plato's list of regimes. The protests, led by opposition candidate Yushchenko continued through 2005.

In 2010, Yanukovich won in a free and fair election—it was so declared by observers. This would indicate that resentment against Russia was not palpable at the time. But by 2013, when Yanukovych started veering away from agreements reached with EU countries, protests gathered momentum once again. It seems that a considerable proportion of the population did not approve of any greater collaboration with Russia. This led to protests on a mass scale that resulted into injury to 35. Violence erupted and the

pro-Russians came to be described as separatists, terrorists and so on.

In December, Putin offered to buy Ukrainian debt of 15 billion dollars, and to sell gas 33 percent cheaper. Unrest continued. By Feb 2014, Yanukovich signed a deal with the opposition but that brought no relief. He then took up residence in Russia. The Parliament named speaker Olexander Turchynov as interim president. An arrest warrant was issued for Mr. Yanukovych. Pro-west Ukrainian government was making an effort to face the pro-Russians with limited military muscle.

At this stage the Russians moved: Pro Russian gunmen took control of Crimean airports etc. Through the device of referendum held on 16 March 2014, Crimea was absorbed into Russia by the 20th.

On the roll, Russia repeated the exercise in Eastern Ukraine on the basis of local support. The interim power in Ukraine condemned the lot as Russian Separatists. On the other hand there is a supportive militia in favour of Russia. There is, also, an involvement of Russian Special Forces, but not on a massive scale. On 3 May 2014, pro-Russian forces brought down two helicopters sent against them by Kiev. A fire in Odessa resulted in death of 31. These are signs of eruption of a civil war. A full scale civil war could yet develop.

International Observers in Eastern Ukraine had remained in custody at Sloviansk till they were freed by their pro-Russian captors on 3 May 4, 2014. They had complained of being blind folded. A 'People's Republic of Donetsk' has been announced by the pro-Russians. Donetsk is located some 700 km Southeast of Kiev, North of Crimea.

In the last week of May 2014, elections were held in Ukraine although they were resisted in eastern Ukraine. The Russian separatists did not vote themselves and discouraged others from voting. Poroshenko, a billionaire was declared elected to the office of President in the first count itself since he polled sufficient votes. President Putin had declared in advance that he would respect the outcome of the elections. However, even as the results were being declared, the Russian separatists seized the Donetsk airport. The government forces bombarded the airport with a view to reclaiming it. Just as this ding-dong went on the Russian foreign minister indicated that Russia would deal with the elected government but only on bilateral basis and would not allow any role for the EU, or the US in resolving differences. The foreign minister of Ukraine returned the volley by announcing that Ukraine would be quitting the membership of the Commonwealth of

Independent States (CIS).

In the mean time, Americans have talked big, and announced sanctions directed at specific individuals. But they have shown no willingness to intervene.

Contours of Russia's strategic objective on the one hand, and the reasons for Russian preemptive action on the other hand have emerged. It is quite likely that President Putin anticipated the extent and tone of anti-Russian feelings and decided to act preemptively to protect what he considered to be the inviolable interests of Russia.

No wonder that the people of Russian origin in Ukraine had been supported and encouraged by Russia. It appears that Russia carved and annexed the strategically important Crimea to start with. President Putin is now striving to create additional depth by continuing to slice and annex the southeastern portions of Ukraine. It is quite likely that a low intensity civil war may continue for quite some time.

Specific details in a fluid situation are not as significant as the causes that give rise to them and the nations ranged against each other. The frequent use of force by both the sides is indicative of strong compulsions. Russians seem to have seized the initiative, at least for now, and the Ukrainian authorities are seen to be in a reactive mode.

#### FRAMEWORK FOR ANALYSIS

We could view the current crisis within three frames of reference:

- Geopolitics
- Cold War
- Recent history

The three frames are not totally independent of each other, but one can examine them, one at a time.

#### GEOPOLITICS

The Black Sea gives access to the other oceans through the Bosphorus and the Dardanelles. Russia needs it. The good old warm water policy will forever retain its relevance to Russia. The Ukrainian coast line on the Black Sea has always been prized by the USSR—remember Yalta? There is a Black Sea Russian fleet that shares facilities with Ukraine. It is highly unlikely that Russia would ever cede the Ukrainian coastline to any other Navy. Annexation of Crimea has already achieved this purpose. Russians have the

geopolitical compulsion and the will to exert their hegemony over Ukraine in a more authoritative manner if need be. We have seen that the People's Republic of Donetsk which is in the Southeastern region of Ukraine has already come into being. This gives depth to the annexed portion of Crimea. It is obvious that control over the Black Sea is central to Russian strategy.

Geopolitics is about continuities and discontinuities. When national borders run along the geographical barriers, or ocean coastlines the complications are fewer. When national borders do not coincide with any major geographical or cultural discontinuities, there are major problems. There is always a temptation to push the borders outwards for greater advantage. When that is not possible, opportunities for better livelihood across the border lead to migration. Closer home we notice that there is movement of population from Bangladesh into India. This is so because there are continuities of language and ethnicity. That is not to say that this illegal migration should not be firmly dealt with.

There are 17 percent Russians mainly in eastern Ukraine. They do exert in favour of Russia if and when the central government in Ukraine shows insensitivity to their requirements. As happens in this case, the minority of Russians in Ukraine become charged, as if by induction, with the feelings and aspirations of Russia. They pose challenge to local authority and may well lead to even more disturbances.

It seems that Russians want to firm up new borders in a manner that their access to Black Sea is assured; they also wish to maintain a firm divide between the Ukrainian and Russian populations so that even if Ukraine in the future goes the way of the five surrounding countries on its Western border, the Russian interests, including the economic interests, are protected.

We could briefly go over a past events just before World War II—the Sudetenland crisis that bears a resemblance to current happenings. It may help us to interpret what is happening now in and around Ukraine. There were over 3 million German speaking people in the mountainous peripheral area of Czechoslovakia in 1938. The area was called Sudetenland. Hitler fomented the trouble and created a crisis by backing the demands of German speaking people. An agreement was reached for the transfer of German speaking areas to Germany. Hitler had deliberately created the crisis and insisted on occupying the Sudetenland militarily soon after the agreement was reached for the transfer of the land to Germany. It was the

hesitation on the part of the Western powers to act that had emboldened Hitler. The borders had been adjusted to Hitler's liking.

Obviously, there was some kind of spring in the air when the former members of the USSR, or the regions on the peripheries of those members, showed a desire to move away from the central authority. There were major disturbances in Georgia in 2003 when President Eduard Shevardnadze held firm for the central authority of Georgia. But a few years later that is in 2008 the Russian Federation opted to recognize the breakaway region of Abkhazia, bordering the Black Sea, against the will of Georgia. It may be worthwhile to dwell on these events and the cause and effect relationships involved. Because they explain a great deal of what is happening in Ukraine, and what has already happened in Crimea.

#### COLD WAR

The present crisis may well have been contrived: maybe Russian Federation wants to communicate to the West—the EU and the NATO led by the USA—that the onward march of the West, that began in 1991 will have to stop now. It seems that President Putin has drawn the line at Ukraine. It is not in sand. Ukraine is surrounded by members of EU and NATO. If Ukraine walks into EU and/or NATO, there would be no buffer state left. Besides, what is there to stop this process continuing endlessly into the vitals of the Russian Federation? The present crisis in Ukraine is certainly about gas exports and the like, but it is not restricted to these issues; the scale is bigger, and the Russian apprehensions appear to be more substantive. That is not to underplay the long term impact of economic factors and energy security. The trade and commerce carries on merrily across borders only in times of political stability. As of now, the Russian security objectives seem to be prevailing over the economic considerations.

A pro-west head of state in Ukraine could take Ukraine into NATO by following democratic means. If that were to happen, it would limit Russian options. Thereafter it would be extremely hazardous for Russia to think of carving and annexing parts of Ukraine. The window of opportunity seems to be open right now. It may not remain open forever. Russia seems to want to secure its minimal security and strategic objectives by carving and annexing parts of Ukraine.

The pattern is visible. The West wants to hem in the Russian Federation while enticing the people in border areas with the joys of free markets and



freedom. It seems that Putin has made up his mind that he is going to make it difficult for the West to do so, at least in the near future. He has held up his hand saying so far, and no further.

### THE RECENT HISTORY

President Reagan took up antimissile defence--then termed SDI--to guard the US from ICBMs in 1985. Nominally defensive, it aimed at anti missile defence. It was obvious that immunity from missile strikes could tempt the US to make the first strike—a way had been found to step out of the MAD regime, and then to flex muscles in the ongoing Cold War. The Soviet Union fell into the trap and took up a corresponding project. This overloaded the economy which was creaking under the burden of inefficient party hierarchy, and poor productivity. The seduction of Ivan by the Western white goods and personal freedom did the rest.

Gorbachev concluded then that if he tried to save all of the USSR as it was, he might end up losing everything. He opted to de-compress in a controlled manner starting in 1983. The rubric for this exercise was Glasnost and Perestroika.

In 1987, Yeltsin, a politburo member, who was the virtual mayor of Moscow, resigned when he was criticized for allowing two popular demonstrations in Moscow in 1985. He had adopted populist measures like traveling in a trolley bus etc. He had aided in the loosening of the party-discipline and the party's hold on the people.

The matters were brought to a head with German reunification which took place in October 1990. Such was the impact that the Soviet Union disintegrated by 1991.

This sequence of events and the head of steam that had propelled them must have been studied in great depth by President Putin. He must have decided that popular demonstrations if not controlled in time can develop into tornadoes. Governance, economy, and the security must remain properly balanced. Russian Federation must have stable borders that are in consonance with its geopolitical compulsions and economic requirements. What he seems to be doing is partly damage limitation, and partly consolidation.

Perhaps, there is another factor at work: President Putin must have concluded that what hit the former USSR was in the nature of 'implosion', contrived and brought about by the West. The common man was seduced

by white goods, and supermarkets overflowing with necessities and luxuries; by private TV and radio channels, and unrestrained personal freedom. The conditions in the Soviet Union were ripe with dissatisfaction. They were right for an implosion that would strike at the inefficient Government, and the moribund political system. The West had acted as catalysts in bringing about the implosion.

President Putin may have concluded that events in Ukraine could well set off another implosion, and then the wave could well travel eastward towards Russia. It seems that he has decided to preempt the possibility of such an occurrence by intervening in Ukraine. President Putin may also have observed that the Americans are reluctant to fight on land using their own troops. That is also largely true of their Western European NATO Allies. The 'Fourth Afghan War' seems to have ended with the planned exit of the US and NATO troops. It is highly unlikely that the NATO will use its troops to intervene in Ukraine.

Power projection against nuclear weapon state like Russia is hazardous and the US is unlikely to undertake such an exercise even if President Putin carves and annexes parts of Ukraine. There will be some tough talking and some sanctions. Sanctions do produce effect but after a long time. No one uses a rope, no matter how thick and stout, to push. Pulling becomes effective only after the slack disappears. Sanctions by themselves are unlikely to frighten President Putin, unless there is a credible threat of use of force against Russia. That is a highly unlikely scenario at present.

One cannot ever forget that Russians also have an imperial heritage; and although the Tsars may have been repudiated and discarded, the magnitude of Tsarist Empire is a historical heritage that communist Russia has not given up. Some analysts in the US, e.g. Zbigniew Brzezinski of Polish descent have made a mention of this leitmotif in Russian actions.

#### **LIMITATIONS OF THE PRESENT REVIEW**

This review assumes that there is rationality and coherence in the behaviour of all principal actors and further that they have acted, and will act, after carrying out proper evaluation. This may not turn out to be so. Emotions may prove to be overpowering and excessive force may be used by some of the contenders leading to unforeseen situations; or, internal political compulsions may lead to inaction when action is called for.

## CONCLUSION

This ongoing 'power play' in Ukraine is without umpires, referees, and replay facilities. The would be referees—observers—found themselves in a basement, duly blind folded. But isn't 'power play' about exploiting to own advantage the restraints and constraints that competitors are forced to operate under? Surely, Russians seem to be doing that.

There are other emerging crises: (1) Syria (2) North Korea (3) Territorial disputes between China and Japan. What is the thread that runs through them all? It is the struggle for assertion by the emerging power centers. A multi-polar Cold war has flared up; demarcation of spheres of influence is underway. It will be sometime before a multi-polar world stabilizes.

There is another flashpoint closer home, Pak-Afghanistan imbroglio. As of now, it seems that Pak is losing internal coherence. Will Russia try to take advantage? What kind of room China would make for Russia or Iran for that matter? Will the Great Game recommence?

If India is to become a great power, it will have to learn the art and craft of forging the right instruments of power and employing them to secure the prizes of its choice.

Not in too distant future, India would have to cope with the after effects of Pak-Af crisis. This may bring cold war that much nearer. India ought to anticipate the fall out by way of further disturbances in Pak-AF region and take counter measures so that the situation is not exploited to India's disadvantage.

Within, India must eliminate separatism, Maoism, and other forms of insurgencies that threaten the machinery of governance. These are often put across as no more than armed protests by their academic sympathizers. These, if they continue unchecked could lead to dire consequences.

**LT GEN (RETD) ASHOK JOSHI, PVSM, AVSM**

- An alumnus of the Joint Services Wing of the National Defence Academy, and the Military College, he was commissioned into the Corps of Engineers, the Bombay Engineer Group, in December, 1965. As a Combat Engineer, he held all commands from the platoon to the engineer brigade.
- He saw active service, both in 1965 and 1971, in Naushera, Rajoari and Poonch areas of Jammu and Kashmir. In all, he served for nine years in J&K, including an assignment in the high altitude areas.
- He was initiated into the General Staff as a brigade major of a formation carrying out counter-insurgency duties in Manipur in 1970. Since then he carried out staff assignments in every rank, including those in G (general staff), A (personnel) and Q (logistics) branches of the staff. He was a member of the Expert Committee appointed in 1989 by the Chief of the Army Staff to review and recommend organizational changes in the Army.
- He served in Washington DC as the Defence and Military Attached of India from July, 1985 to October, 1988. He was concurrently accredited to Canada during this period.
- He was awarded the second highest and the highest medals for distinguished services, respectively, in 1991 and 1993. Director General of Military Training was his last assignment in the Army from which he retired in April, 1994.
- Later, he was Chhatrapati Shivaji Chair Professor in policy studies for two years, from April 1996, in the University of Pune.
- His book titled Restructuring National Security has been published by Manas Publication, Delhi in January, 2000.

## Forget the CDS for now, let's get on with the Integration of Service Headquarters

*Air Marshal A R Ghandhi*

### INTRODUCTION

The issue - and history repeats itself - has receded from the national consciousness because it does not suit the body politic or the bureaucracy to resolve it, and the media of course has more important and exciting stuff to air based on TRPs alone. A serious discourse on matters of 'Services' does not suit the public because they have never been sensitized to the subject. It is not my intention to go through the whole gamut of a subject about which enough has been said, and more has been forgotten. The issue, like a Phoenix, rises out of the ashes every time we have a war or a skirmish, but soon finds the shelves, like it has for over two centuries. Since independence we have been the masters of our own destiny, and yet never bothered to resolve this issue.

Are the 'Services' part of the national consciousness at all except when it suits to score brownie points? We pay only lip service to Defence, a matter of great seriousness, except when our pants are aflame and we need someone to pull our nuts out of the fire. Only a strong nation with the capability to defend its rights, and honour, whenever or wherever it be put in jeopardy will find respect and influence in the comity of nations. It is the duty of the nation not to forget the soldiers as they recede into the sub-conscious with peace.

---

*ISSN 2347-9191 print*

*© 2014 Centre for Advanced Strategic Studies*

*CASS Journal, Vol. 1, No. 3, July–September 2014, pp. 77–96*

### JOINT STRUCTURES IN OTHER COUNTRIES

Let us see some experiences of other countries in the same dilemma as we find ourselves in, today. Changes in military structures are an evolving process as much as in any other field of endeavor. Such changes are a process of organizational adjustments in which human nature, and one must add human failings, will dictate the ease with which the change will be effected. The debate about the need for restructuring our Higher Defence Organisation (HDO) has to be kept alive lest we find ourselves wanting someday in a crisis. Thanks to some verbalization Post-Kargil, the debate appeared to have set in motion some evolutionary changes. But alas! Only some very cosmetic changes took place. The most visible face of this debate has been the appointment of a 'Chief of Defence Staff'. The 'Integration of Armed Forces Headquarters' with the Ministry of Defence is a far more important step which still languishes in the corridors of power because it leaves the political bosses and the bureaucracy free of any accountability.

One of the problems faced by all nations is the primacy of decision making in defence matters. It is ironic that whereas there is generally no doubt that the civilian element must be the driver, there is also acceptance that it is the armed forces who know best how to structure, equip and fight. That this boils down in simple terms to how the cake is shared between development and defence. But has the civilian hierarchy ever enunciated a national vision, or stated national objectives to drive this division of the cake? The balance between political power and authority and service expertise and responsibility as laid down by law is a tenuous one indeed, and vulnerable to expedient politics at the best of times. Whereas the 20th century was replete with examples of wars fought for 'ideological supremacy', the 21st century has seen a virtual demise of conventional warfare on such a large scale. This has occurred because of the breakdown of colonialism, and resolution of boundary problems in most cases. Economics, not ideology, drives the power equation more subtly than wars. The world is not ready to let any nation rock this economic power boat as far as possible.

Let us start with the erstwhile Communist States, where the military has been all-powerful. Structures had been created more as a matter of dictat, to centralize power, and not after enlightened discussion. There is no dissonance on any issues as we have. Politics is run by the military, or

the military is the Party.

The Israeli system stands at one end of the spectrum of totally integrated armed force which has the services under command of a Chief of General Staff ( CGS ) of the Israeli Defence Forces ( IDF ). This system has worked very well indeed for the Israelis in all their wars and in their ongoing exposure to terrorism. There are some very cogent reasons why this system has served them so admirably.

Israel is a 20th century nation, and does not suffer from mindsets with centuries of tradition and status behind its military hierarchy. The whole nation, including the Israeli people, is virtually part of the war effort on a routine basis. The Israelis have a singular vision of SURVIVAL, and so for them HDO was dictated by this need. India has to find its own answers to this most vexing issue. Our history and compulsions are complex and different; we need a 'desi' solution for a 'desi' problem.

The French system is similar in that they have a Chief of Staff of the Armed Forces (CEMA), under the Defence Minister, who is the principal Military Adviser and the Commander in Chief of the Armed Forces. Even the Gendarmerie, their national police, is under him. He coordinates the services through a 'Chiefs of Staff Committee'. It is chaired by the Minister for Defence. He exercises control over military operations and commands combatant forces. The service Chiefs are only the providers of trained and equipped manpower.

Examination of the British and US systems, however, do provide us with the best examples for study and evaluation. The British system has worked on the basis of a totally Integrated Defence Headquarters with a Chief of Defense Staff, since the WWII. The irony is that the architect of their system is the same person who left India with what we have today, Lord Mountbatten. He commissioned Lord Ismay, his COS, to suggest the HDO for post-partition India which resulted in the COSC system along with its coordinating committees. This was done on the plea that there would be turmoil enough for the sub-continent during partition and the absorption of the CDS system might create undue stresses were the military to exert too much power. Whereas as the architect of British HDO, Lord Mountbatten, and Lord Ismay, championed the Integrated Defence Staff and the CDS system for Britain. Even so it took a while before, in true spirit, the organization evolved to what he had foreseen as a strong CDS under the Secretary of State for Defence

with a 'command function' in case of war or any deployment of UK forces. The whole process of creation of Mountbatten's vision which started in 1946 came to fruition only in 1985, after the Falklands war, when Britain initiated some reforms in their defence structures. Though they created the CDS in 1959, it was only in 1985, after the Falklands War, a Reforms Commission suggested the present hierarchy. The CDS was finally given operational command of the three services. They also created the Permanent Joint Headquarters (PJHQ) headed by the Chief of Joint Operations (CJO) who would generally become the Joint Force Commander for any operations. The CDS now had the wherewithal to execute his job with full freedom. The Service Chiefs still enjoy direct access to the Prime Minister and the Defense Minister, and there is still a Chiefs of Staff Committee ( COSC ), but the CDS is not constrained by their advice when he advises the PM or the Secretary for Defence. British HDO has a parallel bureaucracy under the Permanent Undersecretary of State (PUS). Since both, the CDS and the PUS, are equals there is a diarchy of control which does create piquant situations at times, but these are generally overcome by the fact that their politicians are far more aware of defence matters and therefore are able to resolve issues quickly by the intervention of an informed Civilian Higher Echelon. The PJHQ, however, has no purview over the following:-

- Strategic Nuclear Deterrent
- Defence of the UK Home Base
- Territorial Waters and Airspace
- Northern Ireland
- Counter-Terrorism in the UK
- NATO Article V (General War)

The PJHQ under the CDS is, therefore, only a creation for Out of Area Contingencies. Obviously in most of the cases mentioned earlier, the COSC as part of the Council of War gets active.

A look at the evolution of the US system of HDO indicates they felt the need for Joint Chiefs of Staff during WWII. President Roosevelt created the American component of the Combined Chiefs of Staff of Great Britain and the US for the execution of Allied Strategy in the early forties. After the war, the National Security Act of 1947 first laid down the structure of the Joint Chiefs of Staff (JCS) of the US. This Act saw the JCS as an advisory and planning body without any executive authority



over combatant forces. Despite this, the expedient of the 1948 Key West Agreement was used extensively for providing them executive functions, until in 1953 it was finally abolished by an Act of Congress. Eisenhower then created the Office of an Executive Secretary to coordinate all defence matters. This was not a statutory function; it was only an interface with the JCS in its infancy. This office came into prominence as policy adviser when Eisenhower revamped the National Security Council (NSC) later in 1953. The revamp provided for a full-time staff for the NSC and re-designated the Executive Secretary as the Assistant to the President on National Security Affairs, now popularly known as the National Security Advisor (NSA). The JCS was finally put into shape by the Goldwater-Nichols Act of 1986. This Act is an ingenious piece of legislation for it lays down with great brevity and yet clarity the functions and authority of each individual in the hierarchy, along with the Department of Defence Re-organisation Act of the same year, which also laid down very clear guidelines on structural reform required. This Act was virtually thrust down the throats of the US Armed Forces, top down, because tri-services lobbying had taken on very alarming proportions. It finally created the Chairman Joint Chiefs of Staff (CJCS) as it exists today. This Act makes it very clear that:-

- The CJCS shall be the senior among equals,
- The CJCS shall be answerable only to the President, Secretary of Defense and the NSC
- The CJCS shall be the single point advisor to the Secretary of Defence, however he is by law required to place on record any dissenting or individual opinions of JCS members,
- The CJCS may transmit executive orders to the Commanders from the President or the Secretary of Defense but does not exercise military command over any combatant forces.
- Responsibilities as members of the JCS take precedence over duties as Chiefs of individual military services.
- The CJCS shall have directly under him, a Director Joint Staff (DJS) along with equal representation of staff from the three services,
- A very important duty of the CJCS enunciated by the Act is the 'Report on Assignment of Roles and Missions'. This is to be provided:-
- Not less than once every three years, or upon the request of the President or the Secretary of Defence, the Chairman shall submit to the Secretary

of Defence a report containing such recommendations for changes in the assignment of functions (of roles and missions) to the armed forces as the Chairman considers necessary to achieve maximum effectiveness of the armed forces. In preparing such a report, the Chairman shall keep in mind the following:

- Changes in the nature of the threats faced by the United States.
- Unnecessary duplication of effort among the armed forces.
- Changes in technology that can be applied effectively to warfare.
- The Chairman shall include in each report recommendations for changes in policies, directives, regulations, and legislation as necessary to achieve the changes in the assignment of functions recommended by him.

To make the office more effective and provide for proper manning the Department of Defence Reorganisation Act 1986 has enshrined into policy that:-

- 50% of Joint vacancies shall be filled by other services at the sharp end of the stick (3.5 yrs) by officers specially selected for future positions in joint staff,
- Joint training institutions would come under the purview of the CJCS and Joint training programs were a pre-requisite for Joint Tenures,
- Joint tenures are a prerequisite for promotions to higher levels,
- An officer without joint tenure cannot aspire for a general/flag rank,
- An officer without joint tenure cannot become a Chief or VCDS or Theatre Commander,
- CJCS will generally be chosen from among, VCDS, Service Chiefs, Theatre Commanders,
- Joint tenures are 3.5 yrs at the sharp end and at least 3 yrs at the one /two star level.

#### **HISTORICAL INDIAN EXPERIENCE**

Let us now look at the historical backdrop of HDO in our country. The origins of attempts at HDO in India can be traced back to British India. Pre-1784, the three presidencies of Bengal, Madras and Bombay had independent armies directly under the Board of Directors of the East India Company, and each had its own 'Commander-in-Chief' (C-in-C). After the British parliament passed the PITT'S INDIA ACT in 1784, the Governor General came into being and the three armies came under

his supreme political authority. A combined C-in-C was, however, not nominated and this led to the separation of the Army Headquarters and the Department of Defence (DoD) which is part of what we seek to redress even today. Strangely enough the Governor General created an anomaly in the Executive Council, by appointing a military member for communicating orders, who was actually junior in rank to the C-in-C's, which caused heartburn.

It was only after 1857 that combining the armies into an 'Indian Army' began, but the DoD continued as a separate entity. This aberration was resolved after the Curzon- Kitchener conflict of 1906. The Government sided with the C-in-C and this led to the resignation of Lord Curzon, the Governor General. The C-in-C now had both the DoD and the Army under him, though not integrated for some reason.

In 1947 Lord Mountbatten and Lord Ismay evolved an HDO for post-partition India, on the COSC system. At the political level, he suggested the Defence Committee of the Cabinet (DCC), and the Defence Ministers Committee (DMC). The HDO was set for the next five decades in a mould that was a creation of an insensitive colonial master, and an insecure civilian body politic, pushed into a corner by a manipulative bureaucracy.

#### **POST-INDEPENDENCE**

Preying on Nehru's suspicions of a 'too' strong Indian Army, the civilian bureaucracy, aka Shri HM Patel, the Defence Secretary, by an innocuous government note on May 27, 1952 declared the Armed Forces Headquarters as 'attached office' of the Defence Ministry. In one stroke the bureaucracy divested the Armed Forces Headquarters of policy-making roles as the Government 'Manual of Office Procedures' decreed that while Ministry of Defence could make policy, their 'attached offices' merely implemented it.

In 1958 the Estimates Committee of Parliament under Shri Balwantrao Mehta suggested that the present HDO was inefficient and duplicated work as also there was a serious imbalance between 'Responsibility' and 'Authority' of the Service Hqs. But once again this proposal did not provide for the integration of Service Hqs with the Department of Defence. In any case the Committee report was shelved.

In 1962, a serious erosion of the status of the Service Chiefs took place

when after the Chinese debacle, the Cabinet Secretary was given a higher protocol status than Service Chiefs, thus creating a serious imbalance in the channels of authority.

A few years later in 1967 an 'Administrative Reforms Commission' was set up to examine the functioning of government departments. For some strange reason there were two Committees on defence headed by Nawab Ali Yawar Jung and Shri SN Mishra. Whereas the Nawab supported the integration of service hqs and the creation of a CDS, Shri Mishra disagreed on both counts. The Navy and Air Force Chiefs disagreed with the concept of a 'Super Senapati'.

In 1978, a Committee of Defence Planning was created under the aegis of the Cabinet Secretary (CabSec) with the Secy to PM, DefSec, ForSec, FinSec, SecDefProd, SecPlgComm, and the three service Chiefs. Without any dedicated staff, this committee did not even get off the ground.

In 1986, the creation of the 'Director General Defence Planning Staff' (DGDPS) was an attempt to forge some sort of integrated staff for the COSC. However, this institution was never able to function as perceived because it was never manned as required nor given the authority it should have had.

The Arun Singh 'Committee on Defence Expenditure' (CDE) of 1990 once again suggested the creation of a single point advisor in the Joint Chiefs of Staff (JCS). Although it did not call it the CDS, in effect it was a semantic exercise to push the British system through. The CDE to its credit also mentioned the integration of Service Hqs with the ministry, but history repeated and another study found the shelves and gathered dust. The only recommendations instituted were the creation of Integrated Finance and Budgeting Centre for each service, which did make a positive change in the financial powers of the commanders at all levels.

In 1992, once again the 'Estimates Committee of Parliament' suggested Integration of Service Hqs with MoD and greater fiscal powers for Commanders. At this point an important aspect which started gaining awareness was the need for running budgets, and carryover of allocations for a whole plan period.

In 1996, the 'Standing Committee on Defence' again reiterated the same but by now this was a futile verbal exercise with no one bothering

to pay any attention.

The 1999 Kargil Committee Report once again stressed the need for reorganization of the HDO in India. One thought that at last now some changes would take place where so much had been said in the past but never acted upon. The list is endless, the inaction virtually etched in stone. One could resort to some name-calling but, in the final analysis I am afraid, we will have to do some serious introspection within the services themselves, because invariably one finds that:-

- The services themselves are not united about the shape of the HDO,
- Personal ambition and power equations within the services stall the process,
- The perceived lack of equality between the services is a major drawback to a unified approach,
- Fight for the budget has prevented the services from agreeing to allow any one of them to take over a centrally overarching position,
- Each service sees its own role independently in the defence of India,
- The bureaucracy is content with being the power broker, in the absence of unity between the services, a position of authority without responsibility,
- India has no stated position on its aspirations in the comity of nations, we lack a Strategic Culture,

There is a great ongoing debate about whether change should be instituted top down or bottom up. The first tends to bring insecurities into the realm of the higher ranks and every senior officer wants change to take place after his tenure, unless of course he gains a rank. While change from the bottom up generally gets diluted with the frequent movement at the decision making levels, there is no set formula for change and if change we must then the less palaver and the more action the better. Change can be started from both ends with adjustments gradually at the centre, with a hope that we finally achieve what was conceived. Consistency of policy is the need of the hour.

### **OBJECTIVES AND PITFALLS**

As one can see, the history of HDO in India is quite bleak and unless someone decides to bell the cat nothing will happen. It does not suit the political masters to complete any action started by another party lest it lose credit. The body politic did show some action taken post-

Kargil, but public memory is short and unless it suits someone's agenda politically, or the next war, the media will not bring it into the national consciousness again. In fact one is given to understand that even today there is no unity in the armed forces themselves for the institution and as has been suggested earlier people change and so do opinions. The erstwhile whipping boy, the Air Force, has left it up to the government to decide and yet there seem to be objections from somewhere apart from the bureaucracy. Essentially the objection now, one is given to believe, stems from the loss of 'operational control' of the service by the individual Chiefs if the CDS system is enforced in its present format. Full circle. Those in power do not want to relinquish power to another service chief unless, like I said earlier, there is a rank involved.

So let us put together, if we can, the objections and pitfalls from the start of this saga of indecision, and then see if we cannot answer all or at least most, to create the institution we want. These are:-

#### **TURMOIL AND INSTABILITY**

This may have been a matter of concern for an insecure polity at independence, besieged with problems of its own creation like Kashmir. However, the Armed Forces of Independent India have more than proven themselves to be apolitical and totally supportive of the government in power at all times. One can therefore rule out this factor as an obstacle.

#### **FEAR OF EXCESSIVE CONCENTRATION OF POWER IN A INDIVIDUAL FROM THE ARMED FORCES**

Whereas this may have been a concern at Independence, after 300 years of colonial rule enforced by military power, this no longer holds true because of the creation of strong institutions and the proven allegiance of the armed forces to the democratic process in India. In fact, the services are seen as the last bastion of our secular society and the strongest pillar of democracy. The armed forces are seen as a symbol of stability, not the other way around. Institutional checks and balances exist that preclude such an occurrence. We could say therefore that this fear cannot continue to remain a stated impediment.

#### **SERVICES MINDSETS HEWN OF LONG STANDING TRADITIONS AND SELF IMAGE**

Armies and Navies have existed for centuries and though turf wars have erupted between them, off and on, it has been kept to a bare minimum. The predominance of the army over the centuries in India has created a senior service culture which has pervaded the very psyche of the people who man it which is repugnant to the 'Synergy' sought to be effected. The arrival on the scene of Air Power, symbolized by the Air Force, has been the major canker in the pudding. Turf battles have accompanied the birth of this service, not because of the capability it provides, but its control in a sphere long considered a protected preserve. Air forces have been born of the army and yes, and stayed attached, but only when their capability was constrained to battlefield observation, in balloons. The twentieth century has proven beyond doubt that air forces are here to stay as independent entities. This then is a bone of contention, control of Air Forces, though one must admit to a gradual but definite change of heart on that score among most, especially in the Army. But then, one individual with a chip on his shoulder takes over and can create an atmosphere of conflict of interest, which lands it in the eager lap of the bureaucracy again. That is why one needs to accept that it is impossible to remove the man, and some of his baser instincts, from the creation of new structures as proposed. One of the areas that need urgent attention is the breaking down of such mindset before the creation of new structures. This can only be done top down, for if the chiefs show the way there will be a change.

#### **LACK OF UNITY AMONG THE THREE SERVICES**

One need not belabor this issue, except inasmuch as to say, that more often than not it has been a creation of personal ambitions of top brass more than the hierarchy below. In fact the inconsistency of policy at the top has been a cause for confusion and even disinformation amongst the juniors. Human affinity for grandstanding is one of the causes. Full advantage has been taken of this perennial situation by the bureaucracy, which then projects itself as the power broker and problem solver. This is the image with the politician, who then finds it convenient and necessary to keep the bureaucracy empowered. It is for the higher echelons of all the services to break out of this mould and set the example. There can be no institutional cure for this malady.

#### **PERSONAL AMBITION AND MANIPULATION OF THE SYSTEM**

This is an individual trait and can only be changed by examples of integrity, and keeping the services interest ahead of personal gain. Just personal ambition can to some extent be condoned, but the rampant manipulation of the system by individuals, colluding with the bureaucracy and the politicians, is repugnant to institutional character building. There are many examples that bring shame on this grand institution of the armed forces. There is, once again, no institutional cure for such individual behaviour, except in building up an atmosphere of social stigma within the services of such individuals, for having broken an unwritten code of conduct. It is not something one can legislate, or for that matter create overnight. It has to be a long hard struggle of continued education and ingrained into the very psyche of every serviceman. There is need to develop a code of conduct for the Services with a deep sense of moral commitment, mental and physical attributes which characterize the leadership of the armed forces. There is a need to apply it with resolve and honesty of purpose to rebuild such an ethos in the services.

#### **LACK OF ACCEPTANCE OF THE PRIMACY OF EXPERTISE AMONG THE SERVICES**

One of the irritants that have created inter-services conflict is the lack of recognition of each service's individual expertise in the element it operates in. It is necessary to leave each service to operate in its own element and not create conflict situations by wanting to take over assets to keep them under command. Only one exception need be made here, and that is, the air power assets carried on board by the navy since they often operate beyond assistance from land. There is no reason why the army cannot provide all land based expertise to all the three services, the navy all sea based, and the air force all airborne expertise. Surely it is no one's case that an individual can spread himself over all three elements of operations and be an expert in all? A jack of all trades is not an acceptable solution in something as serious as preparing for war. The day we learn to accept this formulation, it would end all turf wars that have dogged inter-services unity and synergy in the past. This is, once again, a matter which cannot be legislated, but one of continued policy among the leaders.



#### **ABSENCE OF EQUALITY AMONG THE THREE SERVICES**

If integration is truly to get off the ground then the acceptance of equality of the three services has to be a building block. As long as a senior service syndrome continues, there will always be a junior service revolting. We have such an example in our situation in the littorals. India is by far the big brother, but has been stymied so often by the smaller nations of South Asia, who all have common borders with India, but none with each other. We have learned, as a nation, to accept them as equals in our relations. Power if it still needs to be applied, has to be done far more subtly if it ever is to succeed. The same applies to the inter-services situation. This in fact was one of the factors enshrined in the Ismay formulation of creating a COSC in which each service by turn took the lead despite the fact that the navy and air force chiefs at that time were a rank junior. Where it did not succeed was in not laying down that 'agreeing to disagree' was not an acceptable decision by the COSC. This has promoted the process of sliding decision making under the carpet when tough decisions are required. Neither has our body politic ever really had the knowledge or the gumption to force a decision from this forum. The bureaucrat has played on this indecisiveness of the COSC with great glee as it has made him the power broker, since he can provide a politically acceptable solution upwards without carrying the responsibility for it. The solution will never be the best one for any situation, because after the three best men could find no solution and were not amenable to a compromise, how could a bureaucrat who knows nothing of operational imperatives provide any answer except one meant to please the political master? Such advice then comes down as a decision from the politician and leaves the services no choice but to follow the directives of government. The solution to this problem lies in an innate sense of equality among the higher hierarchy and education of the leadership to eschew such an attitude. Leave the 'divide-and-rulers' no choice by a show of unity.

#### **LACK OF CLEAR CUT ROLES AND MISSIONS**

The identification of 'Roles and Missions' enunciated by the highest decision making body is crucial to the smooth functioning of the HDO. In fact it provides the *raison d'être* for the structure, manning and, equipping of each service. It lays down the independent and support

functions of each and towards the other. It also allows for a continuity of acquisition policy since the budget dispensers then become responsible for capability creation as identified. During the Arun Singh committee briefings, this was a major drawback which would have meant an expertise based identification and allocation of resources. Identification of Roles and Missions must mean independent and joint roles and missions. Where joint roles and missions are identified both the services must carry the responsibility for identifying and providing the machinery and expertise required in its own element of operation. One of the first tasks therefore of the present HQ IDS should be to identify these. No new structure or expertise is required for this exercise.

#### **ARMED FORCES AS AN 'ATTACHED OFFICE'**

The history of the creation of military structures for higher defense decisions is replete with repeated identification of the shortcoming of this arrangement and yet inaction for a variety of specious reasons at best. This was a creation of an insensitive body politic, suspicious of the military at partition, and a manipulative bureaucracy which has kept the services on a leash since. There can be no doubt about the need for integrating the Services HQ into the Ministry of Defence for a variety of reasons. Some of these are:-

- To involve the Services more meaningfully in policy formulation,
- To achieve transparency, the 'single file' system should be followed for all cases with due regard for confidentiality wherever necessary,
- To create a sense of common purpose and an integrated approach amongst the civilian and services staff,
- To reduce layers of decision making for speedier disposal of cases,
- To ensure time-bound progress of all cases, and be able to ascribe responsibility where necessary,
- To provide responsibility and accountability with corresponding authority, be it on a civilian or serviceman,

#### **BUREAUCRATIC INEFFICIENCY AND INEPTITUDE, LACK OF A DEFENCE CADRE**

The bureaucrat today is a jack of all trades and moves from department to department with sublime ease, learning on the job, without any real involvement in the subject he deals with. Being a general manager is considered enough to handle all manner of tasks equally well from

Irrigation and Forests to Defence. Defence is a very specialized subject and appointment in this sensitive post without any experience or knowledge is fraught with danger, our history is replete with such examples. This system encourages a new incumbent to set off with far reaching decision making powers on subjects that are very complex without the personal knowledge or necessary experience. The reorganization of HDO needs a separate cadre for Defence. A generalist must not be allowed to take on the very important department of defence without prior exposure and training at lower levels. A special cadre will go a long way, indeed, in alleviating some of the problems of understanding in the decision making that we face today, since they would then be ingrained in services matters. There is the danger of the civilian bureaucrat who is forceful and clever enough becoming all powerful, but then institutional checks and balances should be able to cater for such aberrations when they occur. An Indian Defence Service cadre is therefore a very important necessity.

#### **BUREAUCRATIC AUTHORITY WITHOUT RESPONSIBILITY**

The system today breeds this anomaly. The bureaucrat is never there to face the music for his lack of performance or decisions because he is invariably long gone to some other ministry, with his career uninterrupted. Even when blatant misuse of position and power is proven, at best, he is just moved to some other ministry. Creation of a cadre for Defence would ensure that the bureaucrat is available to answer for his failings. The danger of an individual manipulating his past decisions, when in trouble, exists, but institutional checks and balances will have to be put in place to cater for such contingencies. Creation of this cadre will ensure bureaucratic responsibility for the authority he wields.

#### **DRAWBACKS IN THE ACQUISITION PROCESS FOR THE ARMED FORCES**

Whereas some of the drawbacks have been discussed already, it is necessary to examine them from another aspect, that is, the need for accountability of the political masters in delays of decision-making which have cost the country dear in terms of pricing and more importantly loss of 'operational capability'. Unless the nation enunciates a 'VISION STATEMENT' which can be transcribed into National Objectives, the creation of the wherewithal for meeting these projections will always remain an exercise in ether. Every government to date has sublimely

remained above answerability for this aspect. Military capabilities take time to develop and acquire, they are cost intensive, and technology dependant and therefore require a long term approach to planning and acquisition. Governments tend to raise issues more for political mileage than for fiscal accountability. Delays in decision making because of the fear of scrutiny have besieged defence acquisitions since Bofors and the like. A case in point is the Air Force requirement of the AJT. Because of political indecision and with undue fear of exposure, this project had been delayed by nigh onto twenty years. The cost has escalated from Rs 800 crores to over Rs 8000 crores. Cost escalation apart, 'operational capability' does not exist, and this aspect is never considered. Defence Committee of Parliament must be empowered to reflect, and provide reasons for losses owing to delays in decision making, by the powers that be, every year.

**POLITICAL EXPEDIENCE CREATING GIANT SINE WAVES IN FISCAL SUPPORT TO  
THE ARMED FORCES**

For quite some time now the politician has been using the expedient of providing for what appears a handsome defence budget, sanguine in the knowledge that invariably owing to procedural delays in acquisition, the defence budget will never get spent entirely. This stratagem caters for some delicate balancing acts during, end of financial year, judgment time to cut budget deficits. This has happened repeatedly over the years making a sham of the original budget outlays. For years on end the politician went on a virtual budget holiday as far as defence outlays were concerned. The effect on major defence acquisitions which are mostly long term projects was extremely detrimental for defence preparedness. Such giant sign waves in defence allocations are not acceptable and will cause a very major embarrassment for the country in the future. Some of the urgent acquisitions during Kargil are representative of this malaise. The reorganization of the CCS on the lines of the erstwhile DCC would go a long way in obviating such political expedience.

**LACK OF POLITICAL WILL OF THE PARTY IN POWER**

Despite the fact that the issue of creation of an integrated defence mechanism and restructuring of the HDO has come up repeatedly in

our history, there has been a very distinct lack of resolve of the party in power to create the institutions required. They are insensitive to such matters and only pay lip service until a crisis forces them to put on a façade of concern. Reconstitution of the CCS on the erstwhile pattern of the Defence Committee of the Cabinet with the service chiefs, and on its creation the CDS at all meetings of the CCS would be a step in the right direction. It would at least keep the military aware of the compulsions and allow them to make suitable representations to the politicians when some radical changes are to be made.

#### **LACK OF STRATEGIC CULTURE IN INDIA, AND CONSEQUENTLY LACK OF A VISION STATEMENT**

Finally the lack of a strategic culture in India is the greatest drawback for resolving change. Unless a nation has a vision and states it unequivocally, how does one plan for the future? How do the armed forces build the required capabilities for meeting national objectives? Much water has flowed under that bridge since independence and it is time that the body politic abjures ambivalence as a convenient fallback for indecision and states its Vision and the time frame it expects to do so in. One often quotes the Chinese example for this continuity of vision and consistency of policy. In another democratic country like ours, the Australian Policy Paper on Principles of National Defence is noteworthy indeed. It reads:-

#### **EIGHT PRINCIPLES OF AUSTRALIAN DEFENCE**

- The first time we fire a shot in anger, we have lost the first battle
- The defence of Australia means the defence of Australia's interests
- Australia must combine with friends and allies to preserve peace
- The task of the defence organisation is to provide government with the widest possible range of military options
- The defence organisation exists to serve the Australian Defence Force
- The Australian Defence Force must be flexible, adaptable and sustainable
- Modern conflict demands a professional defence force possessing firepower, mobility and resupply
- Australia is economically capable of paying for an adequate defence force

### RECOMMENDATIONS

Having examined some of the baggage that proves an impediment, one has hopefully reached some conclusions. Thus the restructuring should entail:-

- 1) Removal of the tag of 'attached offices' of the three Services HQ and integrating them into the ministry as departments. The only problem one can foresee is the status of the service chiefs vis-a-vis the Def Sec. At present they are senior to the Def Sec. Will they accept the de facto lowering of status to virtually Addl Sec, especially if the Def Sec is to be kept the same level as the CDS? The other advantages have been discussed at length earlier.
- 2) Creating the office of the CDS after careful thought, keeping the following suggestions in mind:-
  - he will be the senior among equals.
  - he will not exercise Command of Combatant forces.
  - he will be the single point advisor as laid down by the considerations for the US CJCS.
  - he will exercise command over Strategic Forces Command ( Nuclear Forces ).
  - he will exercise authority over a new command to be created by the return of Fortran to the Navy as was and creation of a Tri-Services Special Operations Command Headquartered somewhere in Central India, possibly Hyderabad, to cater for Out of Area Contingencies. Neither the location nor the tasking are really relevant for the Andaman and Nicobar Command as it is, because with ENC there is no requirement for a separate A&NC.
  - he will provide oversight to the Services Procurement Boards and all cases will move to the RM only after his scrutiny.
  - he will be the de facto head of all inter services training institutions and provide for the creation of a suitably trained joint services cadre for manning the CDS central organization; he will also drive policy for training and manning of such cadres for all three services.
  - he will be required to place before the DCC/CCS a Joint Paper on Roles and Missions of the three services at a periodicity laid down, or as and when asked for.

This office should be created only after the enshrining in policy of the compulsory Joint tenures and training as laid down by the CJCS example i.e. a tenure at the sharp end of three years in another service, and a tenure at the one/two star level in another service preferably at the Command/Service Headquarters level. Also this should be made a requirement for all officers to rise above two star level in any service, and for either the VCDS, C-in-C, Service Chief, or CDS appointments.

- 3) Integration of tri-services Admin Logistics, Accounting, Administrative Services, Personnel and Medical Services for Administrative and Operational functions as allotted under the CDS.
- 4) Providing for the Chiefs to continue as Operational heads of the services for all except those matters specifically identified for the CDS.
- 5) Creating an Indian Defence Cadre as part of the IAS and letting it work on the same principle as the IFS as part of the bureaucratic cadre system but distinctly different where required.
- 6) Providing for consistency in support of defence budgets with Long Term Plans and Running Budgets because of bureaucratic delays.
- 7) Reconstituting the CCS on the lines of the erstwhile Defence Committee of Cabinet which would include the CDS and the service chiefs in attendance.
- 8) The RM should Chair the COSC to ensure greater awareness of service problems, ensure better decision making, and exercise of greater control of this body by the civilian authority as it should.

#### CONCLUSION

The services would be happier and progress better if they were to show greater RESPECT for each other and their professional capabilities, and start talking TO each other rather than AT each other as they often do at present. The services have to learn to 'Think –PURPLE' and 'Act –PURPLE' without getting into a PURPLE uniform. Change is an integral part of evolution. One cannot stop it, and neither should one, but surely one can make it more palatable to all.

**AIR MARSHAL A R GHANDHI, PVSM, AVSM, VRC**



The author has been an IAF fighter pilot for 41 years. He retired after serving as the AOC-in-C of both the premier commands of the Air Force, Western and South Western Air Commands. He was awarded the Vir Chakra in 1965 for shooting down a Pakistani F-86 Sabre over Halwara. He has held a host of Operational and Staff appointments in the Air Force including Commandant of the College of Air Warfare. He was a member of a study group of Military Colleges of Warfare to examine the 'Future Battlefield Milleu', ordered by the Arun Singh Committee in 2000.



## Need For Slim, Trim, Light and Agile Security Mechanism for India

*Lt Gen (Retd) (Dr) DB Shekatkar*

There is an age old philosophy of good governance and national security since Mahabharat, which was reaffirmed by famous Indian Strategic philosopher Chanakya :

*“If you wish to prevent a war, be prepared for it.  
But never be too eager for a war”.*

Though it was an Indian philosopher who propounded the philosophy; Indian rulers have more often ignored the dictum. Instead, the political, diplomatic and even military strategy has been over-shadowed by a new philosophy that said “We (India) will deal with our adversary diplomatically”. Thus instead of dealing with our adversary on his land or turf in an appropriate manner before he could attack India, we took recourse to diplomatic tables in conferences, negotiation rooms of world bodies after we had been hit by our adversary in our land. The practice prevails even today. Unfortunately the same philosophy influenced the military minds too. Indian security mechanism became defensive and reactive instead being pro-active. Indian political leadership, diplomats, governing mechanism, totally conditioned by British philosophy, ignored the important theory of war which states, “if you wish to prevent a war, be prepared for it”. Initially Pakistan, and 12 years after our independence, the Chinese shocked us and taught us a

---

*ISSN 2347-9191 print*

*© 2014 Centre for Advanced Strategic Studies*

*CASS Journal, Vol. 1, No. 3, July–September 2014, pp. 97–116*

lesson which continues to hold good even today. It will always remain relevant: “If you are not prepared for war/conflict, you will be forced into a war or you will get sucked in to a war at the place, time and circumstances which will not be of your choosing”. Ignorance of the Indian philosophy of governance and national security resulted in our defeat during Chinese invasion of India in 1962. Just three years later, our deliberate defiance of national security philosophy encouraged Pakistan’s military dictator to launch a military attack on India in 1965. Again Indian governing mechanism and security mechanism was caught ‘off guard’ initially. Thanks to the professionalism and combatant excellence of our Armed Forces we retrieved the situation but we could not get back our land which we lost to the enemy during initial phase of the war of 1965. Thus, even today, Chamb is under Pakistan’s occupation.

Due to our over-dependence on Western philosophy of international governance and relations, we have totally ignored the age old Indian philosophy of security and war to protect Indian territory and Indian national integrity from our immediate, next door hostile neighbours. We continue to fight the concept and philosophy of ‘People’s War’ and ‘Jehadi’ concepts of war, based on Western philosophy, which is not at all relevant in Indian context. Due to our reluctance to acknowledge this aspect, we want to apply American and Israeli experience to deal with our external adversaries and internal misguided elements in our society, who are instigated, motivated, indoctrinated, brain washed, and sustained by our hostile neighbours based on their political, religious ideology. It is for this philosophical reason that Indian security mechanism is always caught off guard, ill prepared, and wanting when fighting a war/conflict. Unfortunately, our philosophy is totally oriented towards conflict management rather than ‘conflict resolution’. We have inculcated an attitude which is summed up by statements like: ‘every difficult situation will get resolved over a period of time’, ‘time is a big healer’ and “let us manage for the time being”, “let us somehow manage for the time being, rest we will see later”!! While serving as Colonel General Staff and dealing with aid to civil authorities to control communal violence in different parts of the country, I was always asked by the ‘power managers’, “can we manage the situation for a few days/week?” At Army Headquarters, while dealing with insurgency in North East India, I always came across one standard phrase: “can you manage the situation for next three months”? No one ever asked, how one could ‘resolve’ the issue, or conflict; everyone was always eager to ‘manage’ the conflict. This is because our vision and the thought process have remained restricted. When experts say “Indian government has no strategic

vision or thinking”, have we ever tried to analyse the causes of our short, narrow, momentary thinking? This is the main reason why we are always found wanting and unprepared to meet the challenges, which erupt suddenly.

If we study Manusmriti the guiding Indian philosophy of governance and national security, we will find that there are ‘four categories of threats, challenges, impediments to national security’. They are Bahyotvipatti Bahya Prativyapa, Bahyotvipatti – Abhyantar Prativyapa ; - Abhyantrotvipatti – Bahyaprativyapa, and Abhyantarotvipatti – Abhyantar Prativyapa. Translated in English, these are:

- a) **External Threats Externally Abetted:** Examples are Pakistan’s attack in Kashmir in 1947, China’s attack in 1962, Pakistani attack on India in 1965, Kargil War. Terrorist attack on USA 9/11. Terrorist attack on Mumbai 26/11.
- b) **External Threats Internally Abetted:** Examples are Insurgency in North East India, Terrorism in Punjab, Kashmir, Insurgency in Assam, Terrorist attack on Parliament, 26/11.
- c) **Internal Threats Externally Abetted:** Insurgency in North East supported by China and ISI, Terrorism in India, Bomb blasts at Bodhgaya in Bihar, strategically planned illegal migration in India etc.
- d) **Internal Threats Internally Abetted:** Insurgency in Manipur, unrest in Meghalaya, Maoists, Naxalite threats, terrorism in India, bomb blast by Indian Mujahidin, increasing radicalism in India, Radicalism in America – where Americans are killing Americans due to lax gun laws, increasing sectarian violence in Pakistan where Muslims are killing Muslims, LTTE in Sri Lanka, communal violence in India.

Since our independence, India has been subjected to all four types of threats as explained above. Before independence, the philosophy, role, organisation of security mechanism was to protect the interests of British Empire in India and abroad. India’s national strategic orientation (especially of the British Indian Army) was basically as overseas expeditionary force, with limited home defence (North West frontiers and Burma, now Myanmar). However post 1947, it changed to ‘Defence of Home Land, Defence of Mother Land’ from external aggression. Despite this change, the Indian leadership failed to grasp the reality. Defence of Home Land from whom? Who will be the aggressor? What will be the motivations for aggression on India? Why, where, and how will India be attacked? How should India prepare to ensure defence and security of India’s territorial integrity and India’s national interests? For some reasons we again failed to understand the philosophy advocated in Manusmriti and by Chanakya: “by

failing to anticipate, failing to predict, and failing to prepare, you (nations) are actually preparing to fail and get defeated on battle field and in combat". It is this failure to organize, and prepare India's security mechanism, intelligence mechanism and the armed forces, which has encouraged both Pakistan and China to attack India and threaten our territory not once but again and again. China continues to enlarge her hold on Indian territory in Ladakh and Arunachal Pradesh even today.

In-depth analytical study of British rule in India and especially of the World Wars would convincingly reveal that in all major military battles in Europe, North Africa, Burma, Indian soldiers (British Indian Army) played a major role in winning the battles. British Empire and British Army Leadership were fully aware of the combat capacity, capability, and endurance of Indian soldiers and officers. Till Chinese invasion of India in 1962, Indian Army and Air Force were equipped with almost the same weapons, armaments, and equipment which brought victory to Indian soldiers during Second World War. There was a very marginal change and improvement in combat capabilities of Indian Armed forces after independence. It is therefore reasonable to infer and deduce that setback to Indian Army in 1962 was not due to poor armament and equipment as compared to Chinese Army, but due to poor leadership at political, and diplomatic levels which also impacted the minds, vision, philosophy and combat effectiveness of senior leadership of Indian Army. Chinese Army was still under the influence of the philosophy of 'People's Army', 'People's War', 'War of Liberation' and so on. PLA did not possess any significant modern technology and armaments either! In fact the rank and file (soldiers and officers) of Indian Army were more battle and combat worthy due to the experience of Second World War in comparison to Peoples Liberation Army. So what caused the defeat of Indian Army in 1962? Let us not forget that the same Army, Navy, Air Force, within just three years, gave a tough fight and appropriate reply to Pakistan in 1965 war. This was despite the fact that there was very marginal improvement in the weapons and equipment of Indian Army between 1962 and 1965.

#### **FORCE LEVEL OF INDIAN ARMY**

Since Indian Army is highly manpower intensive, I am deliberately taking up the example of the Army for further analysis.

<b>Period</b>	<b>Strength</b>	<b>Formations</b>
Oct. 1939	3,52,213	Indian Army (2,05,038)+ British Troops (63,469)
Sep. 1945	6,47,017	Due to World War II
Jul. 1947	5,07,422	
Apr. 1948	3,29,388	After Partition and Division of military assets 3 x Infantry Divisions 2 x Independent Brigades 2 x Parachuit Brigade Other supportive Arms and Services.
<b>After 1962 War</b>		
1966 to Dec. 1974	8,37,800	5 x Corps HQs 1 x Armoured Division 22 x Infantry / Mountain Divisions
1972 to 1978	8,51,800	7 x Corps HQs 2 x Armoured Divisions 27 x Infantry Divisions / Mountain Divisions
1978 to 1986	9,98,045	9 x Corps HQs 2 x Armoured Divisions 22 x Infantry / Mountain Divisions
1987 to 1996	9,98,046	Increase of only one person !!! 11 x Corps HQs 2 x Armoured Divisions 2 x Mechanised Divisions 31 x Infantry / Mountain / RAPID Divisions
2013	11,00,000	13 x Corps HQs 2 x Armoured Divisions 2 x Artillery Divisions 4 x Rapid Divisions 15 x Infantry Divisions 12 x Mountain Divisions

**Note :** The above table does not include Independent Armoured Brigades, Mechanised Brigades, Engineers Brigade, Artillery Brigades etc.

I have deliberately confined only to the Indian Army though the data of increase of manpower, HQs of Navy and Air Force are all available from 'open source'. Similarly, I have deliberately not covered the details of Para Military Forces such as Border Security Force (BSF), Central Reserve Police (CRP), and security organizations like National Security Guard (NSG), Special Protection Group (SPG) and Intelligence organizations like Research and Analysis Wing (R&AW) and Intelligence Bureau (IB), NIA etc.

It would be seen that there has been sudden increase in the strength of Indian Army and other organizations after 1971 war. Between 1986 and 1996 there was an increase of only one person and probably this appointment was that of the General Officer Commanding in Chief (GOC-in-C) of Army Training Command. However there was an increase of Corps Headquarters and other formations by internal adjustment of human resource within the Army. It is to the credit of Indian Army that combat power was increased probably by reducing the 'fat'!

There has been an increase of human resource and new headquarters after Kargil War. In all probability this was a panic reaction by the government.

There has been a substantial increase and proliferation of Para Military Forces, Intelligence Agencies, Counter Terrorism Organisations etc., after the attack on Indian Parliament and spread of terrorism and also the cancerous growth of Naxalite/Maoists in India.

All the above information is available in the open source. However, it is not at all surprising that a good deal of secret information is leaked from various sources outside the control of Army, Navy, Air Force HQs. Yet we continue to spend crores of rupees to ensure security of information and to prevent leakage of information. India's intelligence and security mechanism has overgrown and has added 'fat' and weight to an extent that it seems to have become lethargic and sluggish, unaccountable, unanswerable to anyone.

While examining the large strength of Indian Army and suggesting restructuring we must take note of the fact that due to factors such as our peculiar security environment, type of terrain for military operations, and dispute along the borders, Indian Army is a manpower-oriented organization. The terrain varies, encompassing deserts of Rajasthan – Plains of Punjab hilly terrain of Jammu Region, High Mountains and High Attitude region of Kargil, Siachen Glacier, Laddakh, India Tibet border in Himachal Pradesh, Uttarakhand, Sikkim and Arunachal Pradesh, dense forests and hilly terrain of North East, Andaman Nicobar Islands and Coastal Region of India. Indian Army has to cater for

operations in all types of terrain, climatic condition and operational environment. Mountains absorb troops as there is very little scope for employment of modern technology and mechanized forces. Kargil war exposed the fact that there are limitations of use of even air power in mountainous terrain.

It is questionable if there is any other Army or Air Force anywhere in the world which has to conduct military operations and battles at such heights, which has to manage the border region 24/7. We have a line of control in J&K, Actual Ground Position line in Siachen Glacier. Despite various agreements and understanding between political leaders, Pakistan Army continues to conduct trans-border operations in J&K. It continues to violate ceasefire agreement to infiltrate terrorists. To extend its area of control, China continues to encourage PLA to intrude into Indian territory and strengthen claim on border region. We have McMahon line which is not acceptable to China and hence has to be guarded round the clock throughout the year. Is there any other Air Force except China which has to operate and fight battles, engage targets at heights of 15000 to 20000 feet? While the Indian Navy and Air Force are equipment intensive Services, Indian Army is manpower oriented organization. The cost of aircraft, bombers, transport aircraft, helicopters, ships, and radars are astronomically high. Their manpower strength may be less in comparison to Army but the cost of platforms, frames, armament and equipment is very high. In this context, it is absolutely incorrect to equate ourselves with US Armed Forces.

#### **WHY FAT IS HARMFUL TO NATIONAL GOVERNANCE AND SECURITY?**

Extra fat and obesity affect functioning of vital components of human body and put pressure on their critical functioning resulting in lethargy and sluggishness. Similarly, extra fat, obesity in any organization, governing mechanism or institution of governance; result in sluggishness, lethargy and ineffectiveness. It results in extra pressure, extra financial and administrative weight, and blockages of vital arteries and ill functioning of vital or critical organs of security mechanism. The 'fat and obesity' in governing mechanism, administrative mechanism, law and order mechanism, intelligence mechanism and even in security mechanism have resulted in deficit of governance, deficit of confidence, deficit of faith and deficit of trust. Every intelligence agency suspects the other, every Para Military Force is busy to project itself and out do the other, the same is the case all across the governing mechanism. There are many examples across the world where such lack of trust, faith and confidence have resulted in the downfall of governing regimes. It is questionable if India can

remain an exception. Our Intelligence, Security and Defence mechanism have seen uncontrolled, unregulated and uncoordinated growth in last three decades, and this is resulting in ill-functioning of the entire mechanism and system. In Manusmriti, there is a concept of 'SARVATRA' ("be effective everywhere"). But when it comes to defence and security mechanism in India, everyone is everywhere, but without being effective anywhere! It is a sad reality and a harsh truth. While the nations across the world have been reducing their defence and security expenditure in every aspect, it is the other way in India. We carry out a wrong comparison of the percentage of GDP spent on security and defence in some selected countries and want similar allocation to Indian security mechanism. Unfortunately our emphasis has always been on numbers, numerical superiority, quantity instead of quality and effectiveness. We take great pride in claiming to possess the largest para-military force in the world, or third largest Army or fourth largest Air Force, but do we ever claim to be the 'most efficient and most effective'? We feel happy by calling ourselves the largest democracy in the world. Why can we not aim to be the most efficient democracy in the world? There is a need to change our mind set and emphasis. Largest does not mean efficient and effective! This is true in all fields including our institutions, research and development organizations, ordinance factories, ordinance depots and other defence PSUs. There is an urgent need for course correction before the entire system becomes ill managed and uncontrollable.

#### **SHIFT IN STRATEGIC MEGA TRENDS IN EMERGING WORLD**

While discussing reorganization of the security mechanism in India, there is a need to examine the emerging trends in the world. Geographical distances and boundaries have almost lost their relevance due to increasing connectivity, inter-dependence, interoperability and greater transparency. India cannot remain unaffected by the developments across the world especially in our region of interest, influence and dominance. India will have to ensure that her immediate neighbours are engaged constructively and meaningfully to ensure peace, stability and prosperity along with our neighbours, since we will all have a common future and destiny. Being considered as a Regional Power, India's security mechanism will have to prepare to face this reality in a comprehensive and integrated manner.

- a) The centre of gravity of geo-political, geo-economic and geo-strategic scenario is gradually shifting to Asia-Pacific. This will necessitate greater cooperation



and coordination among nation states to ensure collective security, peace, stability and prosperity. We need to evolve a new philosophy, and strategy. Intelligence agencies, security and defence mechanism will have to share greater responsibility. We should never make a mistake of blindly copying NATO model and philosophy in Asia-Pacific Region. NATO has totally failed in Afghanistan, Iraq, Middle East and North Africa in every aspect of international governance, peace and stability.

- b) Geo-Political, Geo-Strategic uncertainties and unpredictability will not only persist but are also likely to increase in future. This will demand constant and continuous predictability and anticipatory threat analysis by security and defence experts to ensure that we are not taken by surprise.
- c) Shift from geo-political to geo-economic will dictate geo-strategy and security.
- d) Transformation of conflict is underway with unconventional, irregular, non-standard conflicts and terrorism gaining prominence and priority. Even the war terminology is being influenced due to the nature and urgency of conflict resolution. Examples: “war of necessity – and war of choice”. The so called strategic and security experts must realize that a war is a war, either by choice or default, either due to the urgency or by the necessity of response. The characteristics of weapons armament, aircraft, and gunships, the lethality of bombs or bullets do not change in different forms of conflict/war, but it is their application which varies.
- e) Efforts will be concentrated on introducing and enforcing international intervention in local conflict, which may either extend the conflict or give further impetus to internal unrest (like in Syria) forcing ruling regime and armed forces to use force to ensure stability.
- f) Despite nuclearisation of the Indian subcontinent, space and scope still exist for limited high intensity conventional conflict like Kargil war. Pakistan was fully aware of India’s nuclear capability and still took calculated risk to attack Kargil. Pakistan was convinced and confident that India’s threshold of tolerance will not encourage India to escalate war in other sectors to punish Pakistan for the misadventure.
- g) Force structure, organization and control of security mechanism will have to cater to face threats and dangers arising from nuclear, chemical and biological proliferation. This technology and capability in the hands of non-state actors will create new challenges. There will be a likely shift from weapons of mass destruction towards disruption of masses. It will be difficult to pin point and

hold nations accountable.

- h) How to use combat force in war against terrorism in our own country?
- i) There will be a shift from 'how many killed' to 'how quickly killed'. There will also be a shift from 'survival of the fittest' to 'survival of the fastest'.
- j) Survival of fastest is directly co-related to how slim, trim, agile, active and lethal you (security, defence, intelligence and war mechanism) are.
- k) Restraints due to public opinion, both national and international on conventional war would remain a major factor during coming decades. Decision to go to war will also be influenced by interests of some influential powers and international players. Recent example is Syria. Despite the philosophy, doctrine, concept of 'crossing the red line', USA and NATO could not take a military initiative against Syria, after the allegation of the so called use of chemical weapons there. An important philosophical issue arises: how do you punish a nation state for the deeds or misdeeds of non-state actors? India has no other option but to evolve a doctrine, mechanism to punish non-state actors who are operating within India or from across the borders.

#### **CRITERIA FOR REORGANIZATION AND RESTRUCTURING**

First and foremost, we need to accept that no one can fight someone else's war. War, combat, national or individual security cannot be outsourced. The concept and era of alliance of armed forces to fight a war on the lines of World War II or Cold War is over. Involvement and attitude of NATO forces in Afghanistan and Iraq to fight America's 'war of necessity' and 'war of choice' is an example. America's over-dependence on Pakistan to fight terrorist organizations in Afghanistan and betrayal of America by Pakistan is yet another example. Indian policy formulators must understand clearly that India cannot and should not depend on any one else to fight India's war. There is an emerging tendency to look towards America to solve India's security problems especially with Pakistan. Nothing can be more unprofessional than such an overly dependent philosophy.

America has been involved all over the world in one form of war/conflict or the other in every decade since 1950 to protect and further America's national interests. Over the years America's economic and combat power has resulted in philosophy of over-confidence. Lured by the so called 'strategic partnership' between America and India, we in India tend to copy American way of life blindly. Our young generation is borrowing the US way of life, thinking process, consumerism, undesirable and unwarranted dependence on technology. Youth in

India is looking towards America as a role model not realizing and understanding the adverse impact of such philosophy on Americans themselves. The same youth will join the Indian Armed Forces shortly and gradually rise to senior ranks that will influence the strategic vision and philosophy of India's security and defence mechanism. No minister, policy formulator, decision maker, Head of Intelligence and Security Organisation feels satisfied unless he makes a pilgrimage to USA during his/her tenure. When they return home they advocate the application of American philosophy in Indian context. We must never forget the fact that Indian security mechanism and Indian Armed Forces are basically focused to ensure territorial integrity of India and our integrated and comprehensive national security. We are an inward looking nation and society. Of course this needs a reorientation and change to respectfully survive in the emerging world of 21st Century. We must look outward too, because majority of challenges and threats to India are from outside. As I have stated earlier, geographical distances, boundaries, lines have lost their credence in 21st Century. India must aim to protect our national interests in the region from Suez Canal to Straits of Malacca and Cape of Good Hope and gradually reach out to our 'area of influence' up to Pacific and South China Sea. Basically Indian Navy and Air Force together, and NOT independently, should be capable enough to protect our interests. Indian Army must resist the temptation to get involved in the affairs of other countries as part of any military alliance, except our commitments to the United Nations. So far India has been successful in keeping away from any military alliance. Our forces operate outside India only under UN flag. USA will be keen to involve India in Afghanistan post 2014 (as we were invited to join US alliance in Iraq in 2003) and may be in North African Region. We must remain firm and resist all temptations.

Thanks to the political, diplomatic, ideological leadership, India's security and defence philosophy and strategy became over-focused on Pakistan. Due to our Pakistan-centric vision, India's military leadership basically focused on mechanized warfare which was the need of the operational environment during 1960 and 1970. Unfortunately by default, we allowed Pakistan to become India-centric.. India became its only enemy country in the world. Pakistan even named the nuclear bomb as Islamic bomb to be used only against India. The concept, philosophy and strategy of 'bleed India by thousand cuts' and Jehadi philosophy against India emerged. The same thought process continues even today in Pakistan and is not likely to change for at least next 30 years, no matter who rules Pakistan. By default we have given a too large and unrealistically important

role to Pakistan. Pakistan's young generation which grew up under General Zia UL Haq's regime has been totally radicalized and is in prime youth today. It is totally indoctrinated and converted into 'human bombs'.

We should have relegated Pakistan to its rightful place and status in our national security philosophy and strategy. Our focus and thrust should have been towards destruction and neutralization of Pakistan's war potential and national endurance for war/combat. We should have focused on Pakistan-occupied Kashmir and areas opposite Jammu and Kashmir which is India's territory under adverse possession of Pakistan since 1947. By default we concentrated on territorial gains opposite Rajasthan and Punjab sectors across international border. In doing so, we totally ignored our bigger adversary and competitor China. Right from 1965 to 1994, we ignored our Eastern and Northern theatre of operations spreading from Ladakh to Arunachal Pradesh. The neglect was to such an extent that some areas and formations were relegated to the 'Operational Status of Priority Three' for infrastructure development, defence preparations, and procurement. This impacted the 'operational philosophy'. The philosophy was: "let us deal with Pakistan first, we will contain China later". It is this flawed philosophy and orientation gave time and opportunity to China to develop and improve infrastructure, combat capacity and combat capability against India right from Arunachal Pradesh to Karakoram Pass in Ladakh and even in POK.

May be it was part of grand strategy jointly formulated by China and Pakistan against India. No wonder China is almost 30 years ahead of India in capacity building along disputed territory and was very keen to 'freeze' capacity building and combat potential building by both sides. Fortunately India did not fall prey to such offer during the visit of our Prime Minister to China in Oct 2013. It is this inbuilt weakness of India's security mechanism which encouraged China to enhance her hold and area of influence all along, under a cleverly designed phrase of 'the historical problem' and 'different perceptions' about territorial claims. China has cleverly increased the area of control, area of domination and area of influence from Karakoram Pass to DBO to Arunachal Pradesh. One wonders as to who will be accountable and answerable for such a ground reality? Our adversaries know our capacities and capabilities, and hence will continue to challenge us, without permitting us to cross 'national threshold of tolerance'. We may be forced into another Operation Parakram without achieving anything and in the bargain expose our combat and operational inadequacies. There are powerful elements within our governing mechanism even today who are convinced that they will be able negate and neutralize combat superiority of

China at political and diplomatic level, which was the thinking before China's aggression against India in 1962.

#### **TRENDS ACROSS THE WORLD TO RESTRUCTURE, RE-ORGANISE AND REDUCE DEFENCE EXPENDITURE**

But for a few exceptions, all over the world the trend since 1988 has been to reduce the defence expenditure. Many countries in the Western World have reduced the armed forces and related defence expenditure. The strength of British Army, French Army, Navy, and Air Force has been reduced. Even the USA and China are in the process of restructuring and re-organising the Armed forces. China is also in the process of reducing the 'fat' from PLA. USA is in the processes of relocating combat assets in Pacific Region. British Empire is struggling hard to remain United Kingdom. One of the causes of dismemberment of Soviet Union was the heavy burden on the economy of Soviet Union to maintain Super Power Status. Soviet Union was a Military Power; it was not an economic power. Soviet Armed forces despite their large numbers were not combat worthy. Soviet Union could not sustain or win the war even in Afghanistan. US economy has been drained out due to war in Afghanistan and Iraq. There is a deficit of almost 13 trillion dollars in USA today. We must always remember that economic security of a nation is the first form of security. Everything else flows out of that. And therefore Armed Power supported by adequate industrial and economic power constitutes the only safeguard against any threat to countries security, safety, stability, independence and overall well being.

Obese and fat security mechanism of India must not be confused with a strong and efficient mechanism. World's largest para-military force, and the third largest defence mechanism should not be confused as efficient mechanism in the world. In Indian context the word 'largest' must be replaced with 'efficient' in all organs of governance including security and defence.

Surprise attack in Kargil by Pakistan and attack on India's Parliament and half hearted Operation Parakram thereafter, proved the concept: When forced due to circumstances, you go to war with what you have, and not what you want or what you should have. Our adversaries will not give us a warning and advance notice before launching an attack on us. Success of adversary's misadventure will always depend on 'how well would he catch us off guard'. Yet another example is 26/11. We will never get advance warning to make up our deficiencies, and our inadequacies before our adversary force us in to war/conflict. We cannot repeat 1971. The geo-politics, world environment, regional environment and

war setting were totally different in 1971 war, where India could decide on time, place and manner to respond to the situation created by Pakistan. The 1971 war was the war of choice for Pakistan but it was the response which India could decide on. It would be strategically and professionally unsound and foolish to even think that we can repeat 1971 war philosophy, doctrine, strategy and tactics. The environment of 21st century is totally different.

Every security expert, strategist, General, Admiral, Air Marshal throughout the world prepares for last and conclusive war/conflict against adversary. There are no exceptions. This is necessary also, because there are no runners up in War, there are no Silver or Bronze medals in the war. The outcome is simple, either you win or lose. One may write about an 'Untold Story' or a 'Surprise into Victory' to cover up professional inadequacies and shortcomings or personal failure, but we can never hide the truth. The truth will always surface in due course of time. We can never get back our commanders, our soldiers, and our young officers who lost their lives and limbs. We can never hide our initial failures in losing the 'first round' of combat bout. While professionally it may be correct to prepare for the last war, it is equally necessary to prepare for lasting peace. The biggest challenge to the political, diplomatic and military leadership (which includes all organs of intelligence, and security mechanism) all over the world today is, how to avoid war/conflict. The best way to avoid or prevent a war/conflict is to be prepared for it. Do not be eager for it but be always prepared. Can India be an exception?

#### **INDIA'S SECURITY MECHANISM**

An in-depth, honest and unbiased examination of India's security mechanism is essential. Its uncontrolled, unplanned growth as a result of our knee jerk reaction to sudden shocks to our national governance and security doctrine (if we have any) needs critical examination. At philosophical, doctrinal, strategic level we feel shy of carrying out 'anticipatory threat analysis' and 'predictability threat analysis' and prepare ourselves and our nation to meet the emerging threats while these are in a state of infancy. We allow them to grow bigger and more dangerous and then call upon the Armed Forces to control the situation.

An examination and analysis as well as performance audit of the Para Military Forces and Central Police Organisations will be an eye opener. We have Border Security Force (BSF), Central Reserve Police Force (CRPF), Indo-Tibet Border Police (ITBP), Seema Shashtra Bal (SSB), Central Industrial Security Force (CISF), National Security Guard (NSG), Special Protection Group (SPG) and so on. These are independent empires, without any meaningful and purposeful

co-ordination, co-operation, and connectivity. Is there any performance audit and periodical evaluation of these organizations? Is there any accountability? Every one claims to be busy in strengthening and ensuring national security and protecting India, and hence no one is accountable. “We all will ensure it, we all are responsible”, means no one will ensure it and no one will be responsible. Ever since the raising of these organizations, how many heads of the organizations have been made accountable for the security failure, insurgent, terrorist and naxalite attacks, breach of border security, intrusions, unchecked infiltration of illegal migrants, criminals and terrorists? Same is the case with many of the state police organizations. Has anyone been able to prevent a terrorist attack, or a serious crime? Everyone is busy in investigations and booking the culprits. Is there any ‘preventive police mechanism’ in any of the states in India?

Let us examine the ‘intelligence mechanism’. We have Research and Analysis Wing (R&AW), Intelligence Bureau (IB), National Technical Research Organisation (NTRO), Defence Intelligence, Military Intelligence, Naval Intelligence, Air Intelligence, Revenue Intelligence, Economic Offence Wing, Narcotic Intelligence, State Intelligence and so on. We have various investigating agencies, busy investigating an offence, or an internal or external attack. The most important question is who is responsible to prevent terrorist, naxalite, criminal attack or communal violence, before it takes place? Again, the standard answer is always “we all are responsible”. The unfortunate harsh truth is that professional inadequacy, inefficiency, incompetency is at almost all levels get suitably overlooked and rewarded.

The Army, Navy, Air Force also need to look inward and carry out honest critical self assessment, since no other organ in our governing mechanism is capable of concluding a performance audit of defence mechanism. There are enough ornamental, ceremonial, and recreational organizations within defence mechanism which do not offer any combat advantage. This valuable human resource can be redeployed, reorganized to improve combat potential and combat capacity. This will reduce the demand for additional man power/human resource.

Organizations such as DRDO, Defence Public Sector Undertakings (PSUs) Ordnance Factories, and Ordnance Depots have over grown and have become obese over the years. We are still conducting research to grow vegetables in high altitude and pre-cooked food for our forces, though we are operating in high altitude areas since 1963. There is enough ‘fat’ in defence research and development mechanism. There are ‘hardliner statusquoists’ in defence and

security mechanism. They just refused to reduce 'fat' and change the body structure to make it trim, slim, agile and effective. Except Aviation and Missile technology what has been the contribution to improve the combat capability and capacity of Indian Army? Have we been able to induct a main battle tank or an artillery gun in Indian Army during last 40 years?

#### WHAT IS THE WAY AHEAD?

- a) There is enough 'fat' obesity all over. There is an urgent need to reduce the 'fat' and obesity before the security and Defence mechanism suffers on 'heart attack' like Kargil, Parliament attack, 26/11 and recent intrusions, armed ingress and terrorist attacks across Line of Control (LOC) between India and Pakistan and Line of Actual Control (LAC) between India and China. In any case there seems to be an impression (may be wrong) in the decision making, policy making bodies about the POK, Aksai Chin and some parts of Arunachal which are under our adversary's illegal possession and control, ever returning back to India's possession. Successive governments and their advisors are playing for time under various pretexts. For any serious student of geo-politics, geo-strategy, strategy and warfare, it will not be difficult to draw an unpleasant but convincing conclusion or inference.
- b) A slim, trim, agile, alert, proactive and combat worthy mechanism is urgently needed. Firstly to prevent a war (launched by our adversaries), conflict, terrorist attack or communal violence. In case we get caught again like Kargil, Parliament attack, 26/11, intrusions in J&K, Ladakh and Arunachal Pradesh, we should be able to respond immediately with 'whatever we have' and not 'whatever we want'. In any case learning from our past experience it is reasonable to assume that 'whatever we want' will always come after the war/ conflict is over and not before the commencement of war or emergence of conflict. The essence of capable and sound leadership lies in ensuring desired results with whatever we have. That is true professional caliber and excellence.
- c) There is an urgent need to cut or disband ornamental, ceremonial, recreational organizations (FAT) which are part of Defence and Security mechanism. How many powerful, combat worthy, effective nations across the world have such organizations as part of their Security and Defence mechanism?
- d) There is a need to impose a strict ban on man-power accretion at least for five years to start with, which can be extended to another five years. Manpower should not be confused with 'human resource'. 'Human resource' is created or generated out of existing man-power. The professional caliber of leadership



should be measured based on conversion of manpower in to 'combat worthy human resource'.

- e) Our national vision, philosophy, orientation, strategy, policy for infrastructure development in border and coastal region should be to meet the emerging threats from more powerful adversary. If we are powerful enough, combat worthy with a sustainable national endurance to respond to, or face a bigger adversary, we can always take care of smaller adversary. China is preparing to replace USA as world's lonely super power by 2030. Once China is powerful enough to take care of USA, India will get accounted for automatically. Without getting trapped by 'honorary degree or status of Regional Power' offered by Western countries, India's focus and orientation must be to face bigger adversary. However while dealing with smaller rival or adversary who claims 'India to be the only enemy in the world', we must remember the philosophy of Chanakya that weak have one very strong weapon in their hands, the errors of those who think they are strong. Al-Qaida, Taliban, Osama-bin-Laden were not military powerful, they were weak, but they had full knowledge of weakness of America's security mechanism. Same was the case with Pakistan while planning terrorist attack on India's Parliament and at Mumbai.
- f) There is a need to shift our focus from 'mechanized' to 'Avionics'. In 21st century warfare avionics will play a major role. Avionics will have the capacity and capability to switch over from Mountains to Deserts and other type of terrain. It will not be so in case of Mechanised combat capability. The employability will be limited to Rajasthan and Punjab and the area opposite to Pathankot and Jammu sectors. We should retain the present combat strength but there is just no need to increase it further.
- g) There is a need to reorganized re-orientate and re-focus our combat elements in task and mission oriented formations up to Brigade and Divisions.
- h) There is a need to control the temptation to raise more headquarters like Corps and Command. Headquarters do not win a war or combat. Our historical combat experience shows and proves beyond doubt that professionally unsound, wanting, ineffective and incapable leadership at higher levels always brought combat defeat and professional disrepute to our nation. I do not wish to go into specific details. It is the cutting edge, junior and middle level leadership duly guided by professionally sound higher leadership which saved the situation and retrieved adverse fall out.
- i) The strength of the DRDO, Defence PSUs, Ordinance factories and Depot

can easily be reduced by at least thirty percent. Instead of cutting the present strength, fresh recruitment must be controlled and kept under suspension.

- j) The focus and overall emphasis should be towards in-house readjustments, reorientation redeployment of human resource and reorganization of existing strength.
- k) There is a need to consider human resource ceiling at 10,00,000 for Army and similarly for other Services. Money thus saved should be permitted to be utilized by Army, Navy and Air Force to make up existing deficiency and in service infrastructure to improve quality of life of our soldiers, sailors and airman. The government must give a written undertaking that money saved will not be diverted for other purpose at the cost of security and defence mechanism. On a number of occasions in past Army got a rude shock due to sudden slippage in financial allocation. This can result in lack of trust and confidence in our governing mechanism (not to be confused with political leadership).

Since India's leadership at various levels and every aspects of governance is going out of the way to please USA under the banner of 'strategic partnership' it is important and will be useful to consider the harsh truth frankly stated by Secretary of Defence on 10th Sep 2001 (just one day before 9/11). He was speaking about the bureaucratic inefficiency in USA. He said:-

- The inefficient bureaucracy poses serious threat to national security.
- Bureaucracy is adversary.
- Not the people, but the process.
- Not the civilians, but the systems.
- Not the man and women in uniform, but the uniformity of thought and the action we impose on them.

How true he was then. Are we different today in India?

I am very positive, the masterminds of 9/11 attack did not get encouraged by the statement of Secretary of Defence of USA made on 10 Sep 2001. They were planning for 9/11 since 1995. I have enough reasons to be sure and I stand by my analysis. The important issue is, can we learn from this statement at least in 2013-2014? My experience of four decades in dealing with civil and police officials in different parts of India at different levels, in my different ranks and appointments is that there is absolutely nothing wrong with bureaucrats, the problem is with 'bureaucracy' which is a system of functioning and state of mind.

To conclude, it would be useful to remember that wars and conflicts will always be with us. The causes, forms, format of war and conflict may change but these will remain with us. We must recognize and accept wars to be one of the mankind's most enduring endeavours. Our children, coming generations and their children must learn to defend themselves and secure themselves. If we anticipate the nature of tomorrow's challenges, conflicts, patterns of warfare, reorganize, restructure our security and defence mechanism and we begin to counter new dangers (for this, there will be a need for more frequent doctrinal revisions), perhaps the future world, emerging world would be safer than what we have witnessed and what we are witnessing. Indian sub-continent has seen more than its share of wars and conflicts and also human misery. Slowly the wind is moving towards China. Can India and China become good neighbours? Would China like to learn with India's experience and prevent blood-bath in China? We can see the symptoms already developing in China.

You cannot deter your adversary with extra, avoidable 'fat' on your body, a sluggish, ineffective physical structure, but you can deter your adversary with a trim, slim, active, agile, rugged and robust structure with ability to hit first if forced to do so.

#### **LT GEN (RETD) (DR.) DB SHEKATKAR, PVSM, AVSM, VSM**

Lt. Gen. (Retd.) (Dr) DB Shekatkar Served in Army for 4 decades. He participated in India-Pakistan war in 1965 in Kashmir and in 1971 in Western Theatre. He trained Mukti Bahini in Bangladesh before war of liberation. During Kargil war in 1999 he was in-charge of entire China front in Arunachal Pradesh, which is claimed by China and is now called by them as South Tibet.



He was in-charge of border management with China in Arunachal Pradesh, Myanmar, Bhutan and part of border with Bangladesh. He served extensively in North East combating insurgency (internal Revolt) in Assam, Nagaland, Manipur, Mizoram, Tripura and other areas. He served as member of "Joint Working Group" dealing with India-China boundary other disputes. He also served as member of "Expert Group" dealing with boundary dispute. He was member of drafting team of Peace and Tranquility Agreement signed during Prime Ministership of Shri Narsimha

Rao. He has participated in negotiations with China and also with Pakistan on Siachen Glacier issue.

He served in Bluestar operations in Punjab and later, combated terrorism as Brigadier in Punjab, as Major General in Kashmir and as Lt General in Assam and other parts of North East India. He has experience of controlling communal violence in Gujarat and Uttar Pradesh.

He served at Army Headquarters, New Delhi as Deputy Director General of Military operations, as Additional Director General of Military operations and as Director General of Perspective (Strategic) planning. He was member of India-USA Defence Cooperation and Strategic Partnership initiatives. He forced a record number of terrorists in Kashmir (1267) trained in Afghanistan and Pakistan to give up terrorism and lead a normal life.

He has Co-Authored 12 books on Security, Terrorism, Internal Security, and Intelligence. One book has been published in USA by Centre for American and Global Security, Bloomington.

After retirement he served as Chair Professor in Department of Defence and Strategic Studies, University of Pune. He is National President of Forum for Integrated Security of India.

## Internal Security And Police – New Challenges

*Shri Jayant Umranikar*

The concept of policing all over the world is undergoing a change. In the West, the police institutions are being re-invented with better-paid, better-educated police to replace industrial age bureaucracy with information age performance accountability. The role of the police has moved beyond a mere law-enforcing agency to a service provider looking after the needs of safety, security and welfare of the community. As observed by the U.N. Commission on Crime Prevention and Criminal Justice in 1995, “to feel safe from crime is as important to a person as access to food, shelter, education and health”.

### CHANGING ROLE OF THE POLICE

The role of the police in India has been evolving as per the requirements of the changing society. From their prime role as crime investigators, keepers of the public order and collectors of intelligence, they have become road traffic managers, enforcers of social reforms, counter-insurgency and anti-terrorism specialists. They provide myriad community services, they are considered first responders to any emergency, and the new laws have also turned them into guardians of senior citizens and mentors of neglected parents.

There are hundreds of laws on our statute that the police have to enforce every day, many of them archaic but some of them as recent as the year 2013. Such proliferation of laws has diluted the core functions of the police while inadequate legislations have handicapped them in dealing

---

*ISSN 2347-9191 print*

*© 2014 Centre for Advanced Strategic Studies*

*CASS Journal, Vol. 1, No. 3, July–September 2014, pp. 117–128*

with the new challenges of trans-border terrorism, interstate/ transnational organized crimes, cyber crimes and multi-billion economic scams. Non-core duties and extraneous responsibilities divert scarce policing resources and exhaust under-trained manpower. More than 'malum in se', the burden of 'malum prohibitum' is keeping the police pre-occupied and clogging our judicial system to dysfunctionality. In addition to the proliferation of laws, we also have proliferation of organisations with overlapping responsibilities and jurisdictions, making 'confusion worse confounded'.

#### FUTURE CHALLENGES

The Planning Commission committee headed by Dr S.P.Gupta had prepared a Vision 2020 report that indicated what the police will have to deal in future.

1. Population 1.3 billion; 120 million over the age of 60; 76 million above 65 years.(Senior citizens' problems)
2. Less than 40% in agriculture; greater industrialization (organized labour) and urbanization.
3. Urban population to rise to 40 %; 60 to 70 large cities with million-plus population (slum policing, crime against women).
4. An information society and knowledge economy built on information and communication technology (ICT); mobile telecommunications and the Internet.(internet will become the backbone of crime)
5. Explosive growth of personal vehicle movement in cities (traffic woes)
6. Two way migration: outflow of scientific, engineering and medical talent and influx of labour ( migrants/human trafficking).
7. An agrarian economy changes to a modern multi-dimensional economic enterprise and a traditional stratified society into an egalitarian society. Economic disparities will aggravate sub-national, linguistic and communal groups, fostering ethnicity and communalism (law &order).

Policing larger, more urbanized population will definitely need an increase in the police strength and organisational restructuring on Maharashtra (police commissionerate) pattern. The endemic shortage of police personnel may be alleviated using the concept of 'extended police family' promoted by HMIC (Her Majesty's Inspectorate of Constabulary for England and Wales), by involving a diverse mix of personnel, from volunteers to part time officers and special police officers in local policing.

Globalisation and info-tech revolution have created new challenges to policing and internal security. The perpetrators and causes of crime or public disorder often reside beyond the local community as well as legal jurisdiction of the police. In terrorism or internet-based offences the criminal or the victim or the crime scene could be thousands of miles away. Internet affords anonymity, instantaneous communication and easy access to potentially destructive technologies and weapons. With modern technology, saboteurs and terrorists from anywhere in the world can threaten you with chemical, nuclear or biological WMDs. Viruses can threaten nuclear programmes, with unforeseen consequences. Far-away hackers, individual or state sponsored, can subvert internet-based financial or communication systems and bring government to a stand-still. Internet financial scams can subvert economy and rumours or disinformation on social media can organise masses to bring the governments down. Are our police forces equipped to deal with such security threats? We need a tech-savvy policeman and modern policing systems to face such challenges.

#### **INTERNAL SECURITY**

Traditional internal security duty mainly involves keeping peace and public order within the borders of a sovereign state by enforcing the rule of law and dealing with internal security threats. Internal security is one of the core responsibilities of the police, other duties being investigation, protection (life and property) and intelligence gathering. Efficient investigation and speedy justice help preserve peace and public order and enhance internal security; so do protection and intelligence functions. Thus every core function of the police impacts on internal security.

By definition, internal security is a federal responsibility but our Constitution includes 'Public Order' and 'Police' in the state List (List II, Seventh Schedule). For maintaining internal security, the states have exclusive powers [Article 246(3)] to make laws and take necessary executive action on these two subjects. Thus, the states are responsible for maintaining internal security within their territories, normally. However, the Constitution also prescribes the duty [Article 355] for the Union to protect the states against external aggression and internal disturbances and impose Presidential Rule [Article 356] or the emergency [Article 352] if a situation demands or if there is an imminent danger of the security of India being threatened by war or an armed rebellion.

Threats to the general peace and order may range from civil unrest, mass violence, extremist ideology or even an armed rebellion and insurgency. Threats to internal security are directed at the individual citizens, organs and infrastructure or the political philosophy of the state itself. They emerge as petty crime, organised crime, political, social or industrial unrest, extremism or even terrorism. Foreign powers and vested interests may also threaten internal security, by sponsoring trans-national crime, terrorism or secession, through asymmetric warfare. Besides, if internal security is not maintained, governance cannot be delivered. Inversely, internal security could be jeopardized by an inefficient, insensitive or corrupt administration that delivers bad governance.

India's internal security problems have roots in its history, geography, colonial legacy, socio- economic disparities, rising expectations as well as competitive identity politics practised freely in our liberal, secular democracy. Regional and international developments also affect our internal security concerns. Threats to internal security could come from wrongly motivated individuals, mass movements or different extremist, communal and militant outfits asking for greater regional autonomy, independence, ouster of the 'bourgeois' order or challenging the democratic structure of the Indian polity.

Since independence, the Centre has been continuously involved in tackling serious internal security problems - in the border-lands of Punjab, J&K and North-East - besides various states affected by the Naxal insurgency and recently, in all incidents of violence caused by Islamic or 'saffron' fundamentalist groups. On specific requests of various states, the Centre has deployed Central Police Forces or even units of the Indian Army, when needed.

#### **STATE RESPONSIBILITY**

However the responsibility of the states does not end with the deployment of Central Police or armed forces. Constitutionally, the state concerned remains entirely responsible till public order is fully restored. Inter alia, the state police bear the burden of public order and internal security. Invariably, lack of coordination between the central paramilitary forces and the state police in dealing with the security threats and their divergent approaches to such threats (especially when the Centre and the state are governed by rival political parties) result in inadequate responses



to the challenges posed.

Experience has shown that the deployment of Central Police Forces, or the Army, for carrying out anti- insurgency or anti-terrorist operations is not effective unless the entire state administrative machinery, and not just the state police, led by the political executive remain involved and attend to the root causes which contributed to the breakdown of public order. Time bound programmes to identify and resolve the socio-economic problems or consider political demands and aspirations of the unsatisfied elements and agitating groups are essential. It must be remembered that the police only perform a 'holding operation' that gives time to the state or Central administration to resolve the pressing issues, provide effective governance and evolve solutions satisfying or, at least, pacifying dissident groups.

For example, almost every Naxal-affected state has raised special police units to deal with this left-wing insurgency. These police units, in coordination with central police forces are battling Naxals without adequate administrative cover. Re-establishing administration and good governance leading to development in areas freed of Naxal menace is crucial to win over the local population and prevent the return of Naxal cadres. Unfortunately there are many states where Naxal affected areas carry more than 50% vacancies in district administration.

May be, a time has now come to have specially trained, sensitised and motivated administrative cadres (like special police units) who could be posted to such liberated areas and retained till the situation returns to normal.

Our internal security is mainly looked after by the ordinary police and law enforcement agencies, with the help of state or central para-military police forces and other special police units besides intelligence agencies. The level of authorised force used by these formations range from the 'minimum, effective force' using less-lethal weaponry to military type equipment such as AK 47 or non-military armoured vehicles. The normal police dealing with mass protests prefer to use non lethal weapons while those facing the armed terrorists need the most lethal weapons to be effective.

Hence the police forces involved in internal security operations need a range of equipment enabling them to give a graded response. The proportionality of force and non-combatant immunity are essential while fighting terrorists or insurgencies challenging democratic India. Hence, besides proper recruitment, training and sensitization, the police need to

be adequately equipped to deal with security threats.

This, primarily, is the responsibility of the states but due to financial and other constraints, their efforts are being supplemented by MHA since 1969-70, through the Non-Plan Scheme for Modernization of State Police Forces (MPF) on a variable, cost sharing basis. Such modernization will reduce the dependence of the State Governments on the Army and Central Para Military Forces for dealing with internal security and maintaining law and order. In practice, however, there have been instances where the central aid has either not been fully utilized by the receiving states by withholding their share of the cost or by willfully diverting these funds for other purposes.

Besides funding, introducing technologies that act as force multipliers would be essential. New technology that gives terrorists and criminals new tools, can also inspire new policing instruments. Our laws will need to be suitably modified to take care of individual freedom and privacy issues. Recruitment of better-educated, better trained and sensitised policemen and well-educated police officers with knowledge of cutting edge technologies would be necessary for meeting threats to internal security in future.

#### **SUBOPTIMAL RESPONSES**

When it comes to security, the political will in India is reactive and seasonal. After the March 1993 serial bomb-blasts in Mumbai, the government had planned to strengthen the security of the coastline. After initial hoopla, the plan got shelved till the 26/11 tragedy struck Mumbai in 2008. As per the new plans, to strengthen the patrolling of the coastline, the state police's 'marine wing' was expanded and promised bullet-proof speedboats equipped with radar, GPS and marine communication facility. Coastal police out-posts were hastily upgraded to coastal police stations and ordinary policemen posted there, converted to 'marine police' (many of them cannot swim). After nearly six years, the coastal security is still in disarray as marine policing requires a different set of skills and resources than the normal policing functions. Should this work not be given to Coast Guards or Navy?

This begs the following question; the perpetrators of March 1993 blasts and 26/11 terrorist attacks had come by sea and so the police were asked to undertake coastal security. If, in future, the saboteurs get air-dropped, are we going to create an air defense wing in the police? Using police as first

responders is one thing but burdening them with new roles, beyond their professional charter is self-defeating.

While almost every state has created ATS (anti-terrorism squad), very little attention is being paid to counter terrorism. Counter-terrorism refers to operations undertaken to prevent adversary from practicing terrorism, involving offensive measures taken to prevent, deter, preempt, and respond to terrorism. It is a set of techniques, including psywar (psychological warfare) for denying an opponent the space and use terrorism-based tactics. Such counter terrorism is best carried out by police and intelligence agencies. However, there is political reluctance to initiate the reform of police forces making their functioning autonomous and responsive to society.

#### INTELLIGENCE

On the other hand, our intelligence agencies have many infirmities starting from their unwritten mandate. In a democracy, covering activities of political opponents for the benefit of the Ruling Party is unethical. More importantly, it distracts the Intelligence from its core function of monitoring anti-national, subversive activities and other counter-intelligence work. The ever increasing terrorist threat will require undivided attention of the Intelligence. Hence, routine political intelligence should be removed from its mandate. (The Model Police Act drafted by the Sorabji Committee has such provision.)

Organisational weakness of the present Intelligence setup also needs examination, especially in the background of trans-border and international dimensions of terrorism. Even home-grown terrorist outfits have their mentors, controllers or financiers in our neighbouring countries or other foreign destinations, that is, beyond the reach of the local police. Our prime intelligence organisations like IB or RAW are federal agencies that collect, collate and disseminate intelligence to the states. They are mostly staffed by career professionals and dedicated intelligence cadres. Yet, individual incidents of terror are initially handled and investigated by state agencies as a law and order problem or as a crime.

The state intelligence agencies are not sufficiently empowered to have or use technical ability to monitor or intercept communications, so vital to tackle terrorism. They also do not have a dedicated, well-trained and motivated staff as the state intelligence wing is considered to be the

dumping ground for inconvenient officers. They also lack institutional memory that can only be built up through meticulous record keeping of source-work and operations.

This systemic mismatch with the federal agencies can lead to serious operational problems for the police, e.g. the intelligence received may not remain 'timely' or 'actionable'; the ownership of intelligence remains with federal agencies while the onus of working it out and acting on it goes to the state agencies. If the governments at the centre and a state are not on good terms, there could be lack of coordination at the best or dissemination of misinformation, at the worst. In a case having inter-state ramifications, one state may refuse to cooperate with another if their ruling parties have different perceptions of the terrorist incident or perpetrators. Hence there is need for institutionalized collaboration, including joint surveillance, interception/data sharing and joint operations. This could only be possible if the state intelligence agencies upgrade their cadres and develop professionalism. A regular audit of state intelligence agencies by IB may be useful, provided the states agree to such institutional collaboration, at least on the issues that have national ramifications on internal security like terrorism, separatism, subversion and counter-intelligence.

Intelligence agencies all over the world have started overly relying on technology. Techint is easy to obtain but difficult to analyse. Surfeit of techint can lead to 'analysis paralysis'. Besides it cannot be a substitute to human intelligence, as the cliché goes – a satellite can sight the enemy troops but only a human source will reveal their intention. Many times, while dealing with extremist threats the central agencies have shared techint with the state agencies and the latter, without corroboration from human sources, have acted on it and botched up the operations.

#### **TRUST THE PROFESSIONAL**

Since the colonial era, the Collector or District Magistrate (DM) has been the nodal government officer at the district level to deal with the public order. The Police Act of 1861 vested the superintendence of Police with the Government through the office of DM. In the 19th century, collection of revenue was the *raison d'être* and maintenance of peace and order were essential to the collection of revenue. Hence the Collector was given the authority to use the police as deemed fit, to collect the revenue and maintain order. As the 'de jure' head of the police department, today's

challenges to internal security become his responsibility.

Even with the best of intention, the Collector/DM today is in no position to discharge his duties and responsibilities related to the public order and internal security. Informed sources revealed that DM generally performs not less than 86 tasks assigned by 21 departments, heads more than 64 committees on various subjects and implements about 146 enactments. In spite of *obiter dicta* of the SC to curb the role of DM, the situation has only worsened. Developmental activity consumes most of the time of a DM and the remaining time is spent in liaising with the political executive or coordinating other government and non-government agencies. However, internal security threats need full-time professional attention and approach that cannot be acquired through the legal provisions of the archaic Police Act.

The present bureaucracy that treats the internal security as its sacred turf on the basis of little field experience and outdated Acts has been controlling security agencies. In most of the states, the Home Secretary is the senior most official after the Chief Secretary, appointed on the basis of his seniority rather than past experience of dealing with security issues. There is a need to reconsider the qualifications of those manage the internal security establishment.

The clinching evidence for executive and bureaucratic arrogance was provided by the treatment given to the report of Ram Pradhan committee appointed after the 26/11 Mumbai terrorist attacks. The report was never shared with the prime stake holders, viz., Police authorities in general and Mumbai police in particular. It was the political executive and the bureaucrats with little experience in modern policing who 'examined' the report, prepared an 'Action Taken Report' and passed it on to the police for implementation! From Henderson Brooks Report on the Sino-Indian War of 1962 to Ram Pradhan Report of 2009, the bureaucracy in cahoots with the politician of the day, has shown remarkable consistency in its pig-headedness, when it comes to management of security threats.

Historically, whenever the generalist bureaucrat had failed, the professional has delivered. It is an acknowledged fact that in Naxal- affected or insurgency-affected areas, the police are the only govt. agency that dares to work. In 1974, at the height of Mizo insurgency, an IPS officer, Surendra Nath was chosen to be the Chief Secretary to restore public confidence in the state authority. He succeeded in stamping out insurgency and returned

the state to normalcy. The Khalistani separatism was brought under control by outstanding police officers, like J. Rebeiro, K.P.S. Gill, S.S. Virk who brought peace to that border state. Kashmir in the nineties was not the 'heaven on earth' and it was Ved Marwah and J.M. Qureshi who became advisors to the Governor and later G.C. Saxena who became the governor of that troubled state, all IPS officers. Why did secessionist terrorism take hold in these states? Unresolved and lingering problems of partition and national integration were definitely responsible for some of the problems. However, bad governance and broken promises were equally responsible for the resort to violence. It required hard boiled professionals to enforce the rule of law, overcome challenges to internal security and bring normalcy in these states.

One commission after another have recommended reforms in the police force and the Supreme Court has issued self-executory orders in 2006, to implement police reforms that not only give functional autonomy to but also increase public accountability of the police. But the lack of political will has prevented their implementation till date. Inter alia, the recalcitrant states are in contempt of the Supreme Court. However, it is not merely the political executive that is responsible for the impasse. The bureaucracy has its own vested interest in keeping the police on a leash.

In a democracy, any force in uniform and authorised to use weapons needs to have civilian control. This principle has helped India to keep its Armed Forces professional and depoliticised. By the same principle, the Police Force should also have civilian supervision albeit, it should be reasonable, informed and professional. If we fail to move with times, the outdated policing system in India, supervised by bureaucrats with inadequate or inappropriate experience, may find it extremely difficult to meet growing challenges to the internal security.

#### **CORRUPTION**

Any discussion on internal security threats will remain incomplete unless it highlights corruption as one of the biggest threats to internal security. In its simplest form, corruption leads to bad governance, loss of faith in the government and injustice that leads to agitations at the least and insurgencies at the worst. Corruption can undermine any security system. The RDX used in the 1993 serial bomb blasts in Mumbai, had been smuggled in after bribing customs officers (who thought that 'normal gold

and silver' were being smuggled in)! Corruption in defence procurement can destroy a nation. Maintaining and enforcing integrity and probity in public life and services is the foundation on which the success of measures taken to preserve internal security will rest.

**SHRI JAYANT UMRANIKAR**



Born Dec. 11, 1949 in Pune; M.Sc. in Organic Chemistry from Pune University ; Diplomas in Russian and French languages;

Joined Indian Police Service in 1973, allotted to the State of Maharashtra; served at Aurangabad, Jalgaon, Thane and Satara. Selected for deputation to Cabinet Secretariat, New Delhi in 1979; specialized in International Communism, Islamic fundamentalism, esp. Pakistan and transnational organized crime/terrorism; worked as Commissioner, Special Bureau, Mumbai and participated in investigations of the 1993 Mumbai bomb blasts as well as Purulia Arms Drop cases.

Deputed to Foreign Service and served in various Indian Diplomatic missions in Africa, Asia and Europe for nearly 13 years; represented India in the UN Offices at Vienna as Alternate Permanent Representative to International Atomic Energy Agency, UN Office for Drugs and Crime; represented India at the 10th UN Crime Conference, Vienna and Conference on Transnational Organized Crime at Palermo (Italy); worked with the DAE, India's top brass during the nuclear tests in 1998.

Participated in many bilateral and multilateral negotiations and delegations to USA, Russia , European Union, etc. As an Indian delegate, he negotiated the Convention on Transnational Organized Crime. He has worked as a Member of various Joint Working Groups against International Terrorism.

Returned from deputation to Maharashtra in 2001 and served as Police Commissioner in Nagpur and Pune cities, was Chief of various Police units, like Anti Naxalite Operations, State Crime Investigation Department (CID), Training and Special Units; on promotion, he worked as Director General of Police (Special Operations) in the Police HQ, Mumbai supervising the work of Anti Terrorism Squads, Anti-Insurgency

and Special Units.

Decorated with Police Medal and President's Medal for Distinguished Services; felicitated by Lions Club, Rotary Club and Top Management Consortium, Pune for Outstanding Public Service; honored with 'Pride of Fergusson College' award in 2009.

Authored many books and articles on various subjects like Pakistan, Terrorism, Nuclear issues, Investigation, Interrogation, Dog Squads, Police Reforms, Cyber Crime, Banking Security, Financial scams, Security Audits of private/public establishments, etc.; a popular speaker on related subjects; frequent participant on various TV channels' debates and discussions. His last book on 'Police Reforms in India' was released by the then, Hon. Union Home Minister, Chidambaram at the Annual DGP Conference in New Delhi on Oct 16, 2009.

He retired on Dec 31, 2009 after nearly 37 years of outstanding service to the society in various capacities. Since retirement, he writes guest columns on security related and strategic issues in news papers and participates in TV debates on the topical issues.

He also works as a consultant on 'vigilance' and 'security' related issues for private sector companies.

He is the honorary chairman of the International Longevity Centre India (ILC-I) that looks after the problems of the elderly citizen and Community Aid Sponsorship Programme (CASP) that looks after the underprivileged children.



## Towards Energy Independence for India

*Prof Amitav Mallik*

Energy, which has been the engine for human development and economic progress through the centuries, is now ironically at the heart of the human predicament. 'Green-House-Gas' (GHG) emission from excessive human consumption of carbon fuels is affecting nature's capacity to keep our environment within certain limits of temperature and pressure for stable climate. Intense energy consumption since the industrial revolution is causing accelerated global warming which is already creating climate changes such as extreme weather conditions and natural disasters much more frequently than ever before. World is already faced with the unique dilemma of how to match two contrasting demands, the need for increasing energy of the expanding modern society and the need to dramatically reduce GHG emissions which if unchecked, can lead to unprecedented devastation and suffering for the future human generations. This is no longer a theoretical discourse but the reality of the 'Age of Consequences' where actions of the present can destroy the future.

India has over 17 % of World's population but less than 2 % of world's carbon-based energy resources. Historically, 20 percent of the world population in advanced countries has consumed 80 percent of energy resources and correspondingly added 80 % of the cumulative GHG emissions in the earth atmosphere. Now when fast growing developing countries like China, India or Brazil have growing energy demands, they are faced with the problem of global warming looming large. As the economic and ecological costs of fossil fuels burning is rising rapidly dragging down

the global economy, advanced countries are reluctant to bear any economic penalty and are thus asking the fast-developing countries to tone-down energy demands to contain global warming. In the face of imminent energy shortages, some advanced countries have even started using new 'fracking' technology to extract heavy oils and shale-gas from deep underground at enormous cost to environment. World powers are reluctant to accept that the era of cheap oil is over and hence serious global efforts to stem global warming is yet to catch momentum.

India is already the 4th largest energy consumer in the world, but its energy needs will increase further by 4-5 times by 2035 in order to sustain an average 7 % economic growth to meet the aspirations of its billion-plus population. Consequently India is also the 4th largest contributor to global warming – despite its per capita energy consumption being only 1/4 of world average and 1/10 of US consumption. Unfortunately being a relatively poor country in the tropical region with its economy dependent on monsoon rains, India will be affected far more severely by climate changes than most other nations. India therefore must take decisive action for energy independence by in-country generation of renewable energy and take leadership role in global action for mitigating climate change.

India is today over 70% dependent on imported carbon fuels for its energy needs and consequently over 80% of its foreign exchange reserves are locked-in for energy imports. India's energy basket today consists of a mix of about 70 % from hydrocarbon fuels + 18 % from Hydro-electricity + 9 % from all Renewables + 3 % from Nuclear. Of the carbon fuels, Coal is the primary source for electricity providing over 50% share of thermal power generation whereas Oil (Petrol/Diesel) and Gas are the primary fuels for transport sector accounting for over 70% of the needs. Over 40 % of coal and about 85 % of the oil-gas requirements today are based on imports. This not only represents a huge drain on country's FE reserves but also increases India's vulnerability to pricing variation and access to imported fuels, particularly under fiercely competitive or hostile conditions. This is a serious threat to India's energy security and the key question therefore is how quickly and effectively can India become energy independent for its own legitimate aspirations.

Unlike fossil fuels that are intrinsically limited, the renewable energy options like solar and wind derive energy from the limitless energy of the Sun – which is unlikely to become any less for next 5 Billion years. Sun's

energy, which is also responsible for wind generation, is so ubiquitous and so plentiful that our earth absorbs an energy equivalent of 7,000 times the current human consumption of all forms of energy. The technological progress of the last few decades in solar and wind energy has been extremely promising. The only challenge remaining is to convert this energy efficiently into heat or electricity at reducing cost to humanity, as this will help sustainable progress and also preserve our environment.

Until now, the cost of damage to environment has not been added to the price of fossil fuels because the environment was being taken for granted. But very soon, as the global warming goes beyond a certain tipping-point, costs will multiply quickly and perhaps go beyond the control of man-made technology. The irreversible damage to environment could then adversely change human life and livelihood on planet earth. Every Rupee invested in mitigating climate change today can save many times as much that would be required for recovering from climate induced damage in the future. Energy policy and climate change are thus intimately interdependent now and will remain so in the future.

Looking at the larger picture over the long term, it should be easy to accept that time is running out for humanity to continue using fossil fuels at the present rate. Perhaps this time-slot can be extended somewhat by drastic improvements in energy efficiency to reduce the demand. Secondly, whatever time is available now before fossil-fuels become unviable, can be used to build on the genuinely renewable energy options available from Sun's energy. This can ensure that the techno-economic transition from non-renewable to renewable can be technologically smooth and economically as painless as possible. Timely actions today both for reducing global GHG emissions and for reducing dependence on fossil fuels, can still save the humanity from unprecedented hardship in the future.

As of 1st Jan 2012, electrical energy production in India was 835.3 Billion KWh as against 4604 BKWh in China, 3953 in USA, 937 in Japan and 925 BKWh in Russia. India is thus 5th largest total power generator. But in terms of aggregate renewable energy production, India ranks a poor 6th with only 162 BKWh as against the world leader China at 797 BKWh. The electricity demand for India is expected to grow by about 5 times from 2010 level to 2035 for an average GDP growth rate of 7-8 percent. These numbers are quoted only to emphasise that 'business as usual' approach will not do anymore. Major policy level changes are very

necessary and urgent, and some tough decisions will have to be taken by the Government at the Centre. Given our internal political structure, for any major National objectives to succeed, State Governments must share the same vision and evolve State-specific energy action plans to leverage Centre's policy incentives to the maximum in the next 2-3 decades.

Energy policy for India needs pragmatic reforms both for generation and supply as well as for energy security. Enhancing energy efficiency across the supplier-user chain and establishing measures for energy conservation can reduce the requirement of electricity by about 30 %. For the supply side, it is obvious that main 3 conventional resources – coal, oil and gas will continue to remain in high demand for the next 3-4 decades, until renewable energy generation can be expanded substantially. Since all fossil fuels will have large import component, managing demand and improving generation/distribution efficiency will be crucial for the near term. Although gas is the preferred option for keeping the carbon footprint low, for the short-term India has to enhance generation capacity largely from existing indigenous reserves of coal and use latest technology innovations for coal-fired plants to make them more efficient and less polluting. Reducing emission will become more critical for India as the international pressure for mitigation of climate change will keep increasing in future and India's huge population transforming itself to modern ways of high consumption will be a major concern for the international community.

India is today 5th largest wind power generator in the world and future potentials continue to be fairly high with the wind energy alone likely to contribute about 20% of national energy basket by 2030. But our performance in harnessing abundant solar energy in the country has been very poor so far, mostly due to the perceptions of it being very capital intensive. In the past 4-5 years India has seen dramatic reduction of capital cost for solar photo-voltaic (SPV) generation - from Rs 13 Cr/MW to about Rs 7 Cr/MW, thanks largely to technology driven global price reduction and also the GOI initiative of National Solar Mission (NSM) in India. While the NSM has set the target of 20,000 MW or 20 GW of solar power generation by 2020, experts in the field believe it could easily be double that amount - 40 GW by 2020 and 50 GW by 2030, under suitable and conducive policy environment. USA is already poised to achieve 16 GW from solar by 2016 and China is targeting over 60 GW of solar power by 2030. Germany is already generating over 70% of its energy need from

renewable sources. India cannot afford to lag behind anymore.

Most of India gets good sunlight for over 300 days in a year and at today's SPV efficiency, a 12 Sq-Meter (3x4) SPV panel can produce 1 KW of electricity every hour. For average 5 hours of sunlight one can get 5 KWh (unit) of energy per day or 1500 units of electricity per year. With solar panel efficiency increasing steadily one could soon get 2000 units per year for every 12 Sq-Mt sunny area of India. Simple calculations show that solar farms over just about 3 % of landmass in the sunny states of Rajasthan and Gujarat can meet the total national electricity requirement for India. Most importantly, all of this would be clean energy with near zero GHG emission and this can be generated within the country without any significant import dependence. Solar power plant commissioning can be achieved in 3-6 months as compared to several years for thermal or nuclear plants and solar plants have a life-cycle of over 25 years without any demand of other earth resources like minerals or water. There is no other energy technology that is so well suited for sustainable growth.

Another promising option is to mount solar panels on rooftops in major cities and smaller towns at practically zero land cost that can have collective potential of producing over 5 GW of power per day with utilisation of just 40 % roof-top area in ten major cities of India. Distributed power generation using rooftop solar, if supported by suitable net-metering system by DISCOMs (as successfully used in many advanced countries), can reduce the T&D (Transmission & Distribution) losses to near zero and help rapid spread of clean energy in Indian society. India must revise the renewable targets more aggressively and establish appropriate policy environment to attract major investments for dramatic rise in solar and wind power exploitation. On the other hand, reduction of subsidy to carbon fuels is already becoming an economic imperative for India and this saving as well as carbon tax can be used innovatively to create incentive for India to go green in a big way in the next 10 years.

Cost of wind and solar energy are fast becoming very competitive to several fossil-fuel options. For example SPV (at Rs 7-8/KWh) is already much cheaper to diesel gen-sets (at over Rs 13/KWh) and hence solar must be used to the maximum for all new deployment for distributed power backup applications. Notwithstanding the down side of low plant load factor and wind flow uncertainties, wind energy is already competitive for grid-connected power generation. With technology advances in low wind-

speed turbines and the rising cost of carbon energy, the potential for wind energy is very promising in India with large coastal belts and sloping hilly terrains, best suited for wind-turbine performance. Off-shore wind power and Geo-thermal energy extraction are other major promising areas for increasing the contribution of clean energy for India.

Solar technology is presently going through a major transformation in terms of efficiency enhancement as well as cost reduction. Globally SPV panel cost has come down to 40% of the pricing 5 years ago and PV efficiency of converting solar energy to electricity has been rising from 7-8 % in year 2000 to 17-18 % at present. More complex technology using optical concentration can already provide 30% efficiency and it is a matter of time when this gets more cost competitive to offer affordable photovoltaic electricity at over 25 % efficiency in the near future. Solar electricity is already attractive in India for captive local consumption for high-end industrial or commercial consumers. Solar is thus fast reaching grid-parity in high-sunlight areas for urban as well as rural user. Solar becomes doubly attractive when used in distributed generation mode on urban rooftops or for rural agricultural pumps, as it totally avoids all T&D losses that are very high in India.

While being truly green technology, solar indeed has the downside of low plant-load factor of about 20% and generation cycle limited to sun-light hours, thus requiring storage batteries for night-time use. Full potential of rooftop solar can be realised in grid-interactive 'Net-Metering' mode as established in many advanced countries. This eliminates the need for batteries and brings down the cost. With appropriate policy support solar can become affordable to millions of low-income households in India, who will prefer high reliability of 24x7 locally generated green electricity.

If duly supported by State-level incentives to the DISCOMs and users, this can bring about a major societal transformation to clean electricity. Stand-alone Solar PV in remote areas is also very practical and affordable today compared to diesel gen-sets or other bio-energy sources. It is important to note that battery technology for electrical energy storage is also going through a major transformation in terms of size, cost and reliability. This will add significantly to the attractiveness to practical use of solar and wind generated electricity.

The true green quality of Solar and Wind will get increasingly important for India with its growing electricity consumption and resultant sharp

increase in carbon foot-print in the next few decades. Rise in consumption is inevitable for meeting the economic development of its Billion-plus population, that is keen on moving upward in this age of globalisation and easy information access that fuels societal aspirations. GDP growth and per-capita consumption of electricity are inseparably linked as the history has proved. Using clean technology dramatically reduces the invisible cost of carbon emission, urban pollution and the associated costs of health hazards.

Another low-carbon-footprint energy source is nuclear. India has indigenous technology competence over the complete nuclear fuel cycle for safe energy generation, but has been tied-down with various export control policies of the western countries in the past. Since the US-India agreement of 2008 for civil nuclear cooperation and India's emergence as a responsible partner in civil nuclear technology, new avenues are opening up for enhancing the share of nuclear energy contribution in our energy basket from the current 3% level to about 10% level by 2020 if we can effectively manage the legitimate domestic safety concerns. Given India's unique 3-step plan to eventually switch to closed-loop, fast breeder reactors that can utilize considerable reserves of Thorium in the country, India must keep focus on enhancing nuclear energy potentials without compromising safety standards.

Historically, India has invested very wisely in hydro-electricity project that today provide about 19% of energy needs. While prospects for future large hydro-electric plants appear limited in India, small or micro-hydro have very good potential particularly in the north-east regions of India where the scope for solar or wind may be limited due to rainy weather. However, the priority for preserving the fragile ecology of the region is an absolute must.

Transport sector is the second largest GHG emitter. While change-over from oil to gas is the first step for reducing emission, reducing consumption of both the oil and gas can offer major savings to India's import liabilities. Improving infrastructure for public transportation will be crucial to reducing the demand. Potential for efficiency improvement in this sector is very high in India and that alone can offer about 30% saving. Bio-fuels can indeed provide some immediate relief for oil import but this can harm productive agriculture patterns in the long term. Once we overcome deficiency in electrical power, electric-hybrid vehicles can become more

cost-effective for most of the urban transportation, which is a big part of the oil-gas consumption in the country. Concomitant benefits of reducing urban pollution and associated health benefits can be very significant, but often not recognised.

While political announcements of lofty goals for energy independence can be good motivators, in reality, very serious introspection is needed at all levels of government and society for a major transformation both in terms of policy and practice. Energy conservation and efficient energy management must receive immediate priority across all sectors. Simultaneously India must use the next 10 years for a decisive transition to renewable energy, mainly through fast maturing solar and wind technologies. This will not only take India towards high degree of energy independence, but would also help India create thousands of jobs to channelise the energy of India's significant youth population towards a green future.

In conclusion, it is very clear that coal, oil and gas will continue to play a major role for India's energy needs for another 3-4 decades. Similarly traditional firewood and animal dung will continue to be used in rural areas until simple and cheaper alternatives are made available and solar PV is indeed a very attractive answer. During this period, India's policy approach must concentrate on improving energy efficiency and reducing carbon emission both for demand and supply sides.

Investor-friendly eco-system will be very important for rapid growth to meet increasing energy demands without which the economy will suffer badly. Simultaneously, India must seriously aim to boost renewable resources, particularly the solar and wind energy sectors, which alone can take India to a respectable degree of energy independence. If private investments can be made attractive across the entire energy sector, it can rejuvenate the economy without governments having to bear the full burden of this major transformation.

State Electricity Boards (SEB) must be encouraged to have foresighted long-term perspective for supporting 'Renewable Purchase Obligation' (RPO) schemes for more renewable in the State energy baskets. The policy environment should encourage SEB to have long-term Power Purchase Agreement (PPA) with solar or wind electricity developers. The confidence of Banks and financial institutions must be improved for financing solar/wind projects and this can only happen by the right type policy push for inviting major investors from private enterprise.



If supported by ambitious policy environment and robust investments, the renewable energy sector is capable of meeting over 50% of the National demand by 2050. This may appear a tall-order today, but it is entirely practical. Adding 20% from Hydro and another 10% from nuclear can make India 80% energy independent! This is actually a very much achievable target today and this can transform India as a major power in world affairs. What is needed now is bold and decisive policy initiative both at the Centre as well as State levels with prudent foresight, integrated planning and highest order of professional integrity towards effective implementation, where we have failed miserably in the past. This must be treated as once in a lifetime opportunity for India.

‘Energy Independence’ thus richly deserves to be one of the highest priorities for India because the next 5-10 years will be the only window of opportunity for India to emerge as a developed and powerful nation. This is no longer a dream but an imperative. Anything less than 100% commitment to ‘Energy Independence’ can entail unacceptable loss to India’s ranking on the global stage. India’s political leadership must therefore provide pragmatic policy environment and practical solutions that all citizens of India deserve and desire.

**PROF AMITAV MALLIK**

As the founder Director of LASTEC, Amitav Mallik spearheaded many path-breaking successes in high power laser technology to establish ‘Directed Energy Weapon’ capability for the country. In recognition, Amitav Mallik was awarded the Padma Shri by the President of India in March 2002 for his unique contribution to Defence R&D in India.



After initial research work at the Solid State Physics lab (SSPL), Delhi, Amitav Mallik served as Professor of Electronics & Telecommunication at the Defence Institute of Advance Technology, (DIAT) in Pune from 1975 to 1985. He then shifted to Defence Science Centre, Delhi in 1985 to initiate Indian R&D in high power laser technology.

In 1988, Prof Mallik was deputed to US as the first ‘Adviser, Defence Technology’ at the Embassy of India, Washington DC where he established the foundation of Indo-US cooperation in high-technology which

eventually led to the Indo-US Strategic Partnership.

During 1995-1996, Amitav Mallik served as OSD to Dr Abdul Kalam, then Scientific Adviser to MOD and coordinated the SRIC (Self-Reliance Implementation Committee) of the MOD as the Member Secretary.

After superannuation, Prof Mallik was invited to serve as Member, National Security Advisory Board, (NSAB), for 3 successive years (Jan 2003 to June 2006). During 2005-06, he also served as Adviser to Chairman, Observer Research Foundation (ORF), Delhi – a well-known ‘Think-Tank’ on policy issues.

Prof Amitav Mallik has authored/co-authored five books and published many technical papers and strategic analysis reports. Presently Prof Mallik operates as a ‘Technology Consultant and Strategic Affairs Analyst’ from Pune and continues to contribute to national security issues including Defence, Space, Energy and Environment Security.

## Technology Perspective and Capability Road-map: An Initiative of Limited Value

*Maj Gen Mrinal Suman*

A responsive and vibrant defence industrial base is essential for sustaining effective military capabilities. Therefore, every country considers its defence industry to be an invaluable asset and invests considerable resources to nurture it. Unfortunately, India has failed to appreciate the criticality of having a robust indigenous defence industry and neglected it to such an extent that even after six decades of Independence, it is forced to import more than 70 percent of its defence requirements.

With 8 public sector undertakings, 39 ordnance factories and 52 defence laboratories, the public sector straddles across the entire Indian defence industry as a monopolistic giant. Even though the private sector possesses enormous potential and competence, it continues to stagnate as a peripheral player with its role limited to supplying low-tech sub-assemblies and components to the public sector majors.

Predominance of the public sector in the Indian defence industry can be traced to the establishment of Gun and Shell Factory at Cossipore in 1801. Bharat Electronics Ltd was the first Defence Public Sector Undertaking (DPSU), established in 1954 to manufacture electronic equipment for the forces. The Industrial Policy Resolution of 1956 included defence industry in Schedule 'A' (basic industries which are the preserve of the state). Thus, the door was firmly shut on the private sector.

It was only in 1991 that the manufacture of components, assemblies and sub-assemblies was thrown open to the private sector. Recognising

the fact that the objective of achieving self-reliance would remain elusive unless the potential of the private sector was fully harnessed to build a viable indigenous defence industrial base, the Ministry of Defence (MoD) constituted six Joint Task Forces in collaboration with the Confederation of Indian Industry in 1998. Consequent to their recommendations, the Government opened defence production to the private sector in January 2002.

The Kelkar Committee, constituted in 2004, made many radical recommendations to integrate the private sector. Although MoD accepted a majority of them, their implementation lacked earnestness and focus. Resultantly, there has been no discernible change in the ground situation – only a handful of India's top companies are presently involved in small value defence contracts.

On one hand, MoD and the public sector feel that the private sector itself is responsible for its current plight due to its undue risk-aversion. They allege that the private sector wants to earn profits overnight and shies away from long term investment decisions. On the other hand, the private sector has been lamenting the fact it is never taken into confidence as regards the perspective plans. It wants to be given adequate advance notice of impending procurement proposals to enable it to take considered investment decisions and explore avenues for the development/acquisition of required technologies.

Appreciating the genuineness of the demand of the private sector, MoD decided to share the future needs of the armed forces with the industry. Paragraph 9(a) of Defence Procurement Procedure – 2013 mandates that a public version of the perspective document, outlining the Technology Perspective and Capability Road-map (TPCR) covering a period of 15 years should be brought out by Headquarters Integrated Defence Staff (HQ IDS).

Pursuant to the above, HQ IDS issued TPCR in April 2013. After spelling out the technology perspective under which key technology requirements as they relate to aviation, land warfare and maritime are required, TPCR delineates the envisaged capability roadmap for all components of the armed forces. TPCR has been uploaded on MoD website for wide publicity.

### PERSPECTIVE PLANS

To be able to fulfill the envisaged tasks, all militaries follow well-planned and well-evolved courses to enhance their operational capability. In India's case, the process starts with the issuance of the Defence Planning Guidelines by the government. Thereafter, HQ IDS prepares the Defence Capability Plan Document and the Long Term Integrated Perspective Plan (LTIPP). LTIPP covers a period of 15 years and includes systems required by each service based on the operational requirements to meet each of the stated defence capabilities. Once the plan documents are ready, capability gaps are identified. The 5-year Services Capital Acquisition Plans and the Annual Acquisition Plans flow from LTIPP.

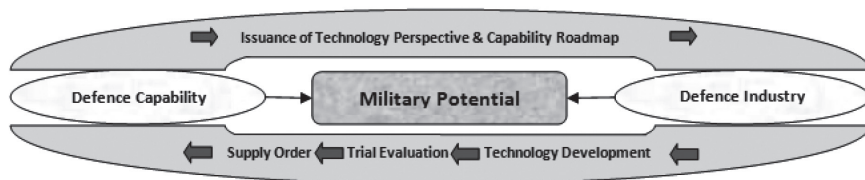


Illustration 1: Linkages between Defence Requirements and Industry

TPCR is drawn from LTIPP and endeavours to provide the industry a broad overview of the direction in which the armed forces intend to head in terms of capability over the next 15 years, thereby generating technology requirements. TPCR recognises the fact that the industry must be aware of the technologies likely to be needed by the armed forces well in advance as defence technology needs considerable investment in terms of time, money and human resource. It is an onerous process with long gestation period. See Illustration 1.

### TECHNOLOGY PERSPECTIVE

The primary objective of a technology perspective is to apprise 'the country's R&D establishments to focus on specific capability requirements' and encourage them to 'work out appropriate technologies needed to fulfill these requirements'. While identifying them, stress is laid on those critical technologies that are likely to be denied to the country by foreign companies, either due to governmental embargo or for commercial considerations.

Advance knowledge would help all developmental agencies, both in the public and the private sectors, to take well-considered decisions with well-delineated research objectives and funding arrangements. Thereafter, a detailed road-map is drawn with mile stones.

Some of the key technologies mentioned in TPCR relate to the enhancement of situational awareness of combatants through integration of information received through multiple sensors; reduction of decision-making time through suitable command and control architecture and information processing systems; real-time secure mobile communication links and integrated platforms to support voice, data, image, multi-media applications and networking; and exploitation of electromagnetic spectrum to safeguard own combat systems, intercept and decipher the adversary's information systems in a time bound manner.

Further, the perspective refers to information-dominance, electronic warfare and electro-magnetic pulse weapons; capability for the development of nano-technology, miniaturized systems and micro electro-mechanical system based sensors and devices; and improved accuracy of guidance systems and adaptive warheads. It also seeks technology for artificial intelligence and robotics; chemical, biological, radiological and nuclear warfare; unmanned systems and stealth capability; and air defence systems.

In addition to mentioning overall technology requirements, TPCR spells out technologies that are specific to various services and components. For example, it wants futuristic technologies to help the aviation arm to be able to undertake the entire gamut of missions in all the three dimensions. It seeks technologies to enhance aircraft survivability including multi-spectral signature control; active/passive vulnerability reduction technologies; damage-tolerant aircraft structures; defensive avionics and counter SAM capabilities; missile and laser warning systems; passive/active countermeasures; and multi-spectral threat warning.

#### **CAPABILITY ROAD-MAP**

Referring to the existing and emerging security scenario (both global and regional), TPCR stresses the need to maintain a high degree of preparedness of the armed forces across the entire spectrum of conflict and develop technologies for a decisive edge. Although capability building is a continuous process, definite time-lines, committed finances, periodic review and constant adaptability would be essential for meaningful progress

to achieve the desired results.

According to the capability road-map, the current and future desired capabilities over a 15 year period from 2012 to 2027, as required by the Indian armed forces, are as follows:-

- a) Capabilities of Intelligence, Surveillance, Target Acquisition and Reconnaissance (ISTAR) and Command, Control, Communications and Computers (C4) to acquire and assimilate information needed to dominate and neutralise the adversary and effectively employ own forces.
- b) Airborne platforms for operating in a net-centric environment in co-operation with space-based systems, surface and underwater platforms and joint assets to provide reliable and realistic intelligence. Secure and reliable communication throughout the battle space for providing information in real-time. A seamless integration of information from intelligence and surveillance resources to build a Common Operational Picture.
- c) Information technology to include enhancement of existing networks to keep with the latest technologies and to support resource intense applications; upgradation of existing tools or development of new products to plug vulnerabilities in IT security; development of applications using Sensor Networks; and cloud computing.
- d) Strategic communication based on terrestrial and satellite facilities with upgradation of very low frequency communication setup for naval use. Tactical communication to include progressively improved digitised tactical data-link backbone with high degree of network security with increased levels of encryption/decryption capability.
- e) State-of-the-art electronic warfare systems employing cutting edge technologies.
- f) Development of missile technology to include fully integrated and synchronised area missile defence; enhanced surface-to-air, surface-to-surface and air-to-surface strike capabilities; and state-of-the-art telemetry systems for monitoring flight parameters.
- g) Development of a capability for positive identification of potential targets as friend, foe or neutral in sufficient time with the highest possible level of confidence and at the requisite range to support weapon release and engagement decisions.
- h) Development of advanced sensors for multiple applications.

- i) Precision systems to include effective sensor-to-shooter grid for responsive and timely application of force comprising of surveillance and targeting capabilities for the employment of precision guided munitions.
- j) Building up of capability to undertake operations throughout the complete spectrum of conventional and non-conventional warfare and combating terrorism.
- k) Improvements in the concept of logistics to enhance mobility, employability, and sustainability. Leveraging of technology for fusing new organisational structures, concepts, transportation techniques, information systems and logistic systems.

#### **TPCR LACKS ACTIONABLE ESSENTIALS**

As seen above, TPCR is full of sweeping statements that provide a broad overview of the technology requirements. Lack of actionable specifics is the biggest weakness of the document. Sample some of the statements made in the paper –

- To develop a comprehensive fire power and fire support system based on long range artillery, rockets and missiles with high lethality, precision and mobility.
- To enhance night fighting capability by provisioning of state-of-the-art night vision devices. To have capability to undertake day and night operations in all-weather conditions.
- To develop an effective air defence capability based on modern radar systems, advanced seekers and guidance based surface-to-air missiles, gun systems and ammunition with advanced hit efficiencies.
- To enhance mobility of own forces and deny/retard the same to the adversary. The capability of bridging gaps, both wet and dry, development of mine laying and recording technologies and countering adversary's explosive devices.
- To enhance operational effectiveness of armoured and mechanised infantry fighting platforms, with emphasis on manoeuvrability, lethality, survivability and information dominance.
- To attain amphibious capabilities of designated forces with fighting platforms and support vehicles which will need to traverse over riverine and such like terrain.



The above desirables are applicable to all the militaries in the world. All countries strive to enhance mobility of own forces and deny the same to the adversary or seek to enhance operational effectiveness of armoured forces. There is nothing that can be termed as India-specific.

Some statements are too nebulous to be taken seriously. Objectives like 'to modernise and up-grade all fleets to meet the challenges of advancement in technology' or 'to develop state-of-the-art simulators' or 'to make submarine equipment and systems conform to stricter and superior material and quality standards' do not help a prospective investor at all.

Even different components of the services have been given a highly generalised treatment. TPCR wants the future combat systems including battle tanks and infantry combat vehicles 'to be highly maneuverable and have enhanced protection against various forms of threats, namely, tanks, anti-tank guided missiles, armed attack helicopters and anti-armour mines'.

Take the case of artillery, TPCR stresses the need for 'long range systems with higher accuracies and lethality'. Does it require innovative thinking or planning to arrive at such an objective? Since the times of bows and arrows, soldiers have been seeking enhanced range, accuracy and lethality for their weapons. No TPCR needs to be issued to state the obvious.

### **TPCR AND INVESTMENT DECISIONS**

While claiming TPCR to be a fair assessment of the direction most likely to be followed by the modernisation programme of the armed forces, the government concedes that the 'requirements are dynamic in nature and be viewed as an indicative guide only'. It also underlines the fact that the unpredictability of the global events necessitates periodic review of the perspective plans and mid-course corrections.

In addition, TPCR carries a disclaimer that 'participation of the industry is solely at its own discretion and the government would not be responsible for any loss by the industry whilst complying with the stipulations in the document or with changed requirements due to any reason'. Whereas the government is justified in issuing such a disclaimer, it can be considered as a dissuasive factor by the industry.

Defence industry is constrained by huge investments, long gestation period, limited size of the market, rapid obsolescence of technology and frequent changes in policies. Credibility enjoyed by the government is a key factor that influences investment decisions. The industry needs a certain

degree of assurance before taking major investment decisions. For that, it has to be actively engaged through institutionalised arrangements during the complete developmental cycle of the equipment. See Illustration 2.

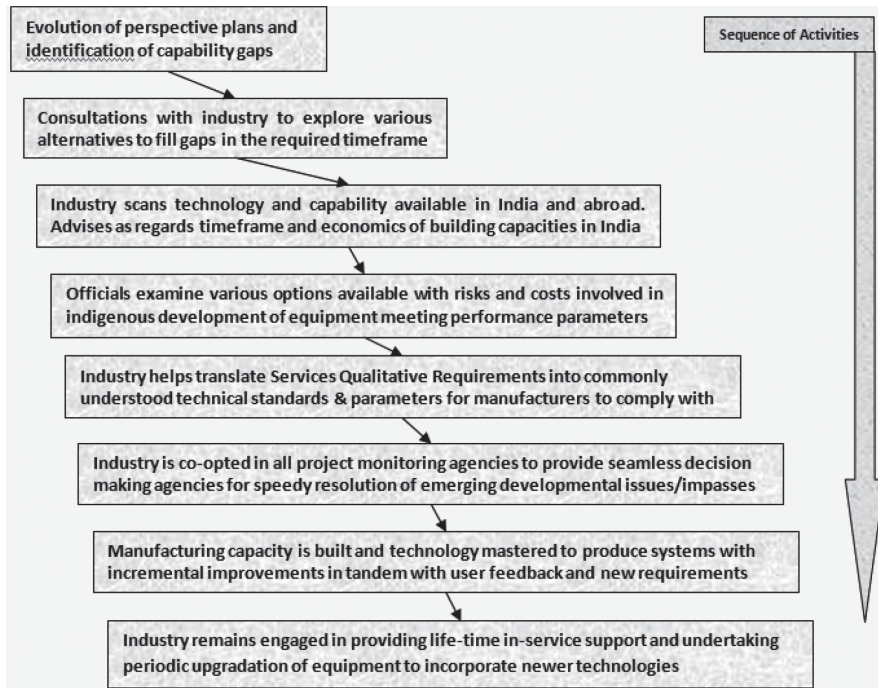


Illustration 2: Typical Government-Industry Interaction Sequence

Take the case of the British Ministry of Defence. To facilitate informed decision making on investment and restructuring by the industry through advance intimation of current and future priorities, it published a white paper on Defence Industrial Strategy in December 2005. Soon thereafter in October 2006, the Defence Technology Strategy was launched, inter alia, to create opportunities for collaboration with industry. The Centre for Defence Enterprise was established to act as a gateway between the outside world and the ministry, bringing together new technology/process and investment for the defence industry. In addition, Defence Acquisition High Level Blueprint was issued to lay down guidelines for the engagement of industry during capability planning itself for greater realism in assessing market's capability to deliver, thereby initiating action to stimulate/sustain

critical industrial capability. Constructive ideas thrown up by industry are speedily tested and if found exploitable are incorporated in defence systems.

Defence Policy Guidelines issued by the German Defence Ministry in May 2011 decree that the role of the German defence industry is to serve the armed forces (Bundeswehr) and contribute to long-term national security. Germany considers close cooperation between Bundeswehr and industry indispensable for maintaining modern armed forces and has made structural arrangements to ensure it. A division of the Directorate General of Armament has been tasked to interact with defence industry. Along with the above, Modernisation Directorate manages modernisation activities in terms of strategic corporate management.

France has adopted a unique model. General Directorate for Armament (Direction générale de l'armement), or DGA in short, is the overarching authority responsible to oversee design, acquisition and evaluation of defence systems for the French armed forces. It monitors research activities and prepares programmes for the development of technologies, ensuring consistency with the requirement of the services.

#### **INDIA NEEDS SYNERGY UNDER A SINGLE AUTHORITY**

As seen above, all major nations recognise the fact that mere issuance of perspective plans is not enough. Therefore, they have evolved their regimes on two important imperatives – one, need for an overarching authority to oversee the complete gamut of defence production-cum-procurement activities, and two, establishment of an institutionalised arrangement for regular interaction with the industry.

As compartmentalised functioning has been the bane of the Indian governance, India has overlooked both the aspects. As a result, Indian defence industry is in a dismal state today. Although TPCR is a welcome step, it is not sufficient by itself to pull the industry out of the morass. It needs to be supplemented by wide-ranging dynamic reforms.

To implement TPCR in a purposeful and result-oriented manner, major organisational restructuring is required. To start with, India should establish a duly empowered Defence and Aerospace Commission (DAC) to carry out all executive functions with respect to the execution of the approved perspective plans. As Indian experience with the Atomic Energy Commission and the Space Commission has been quite encouraging, it will be prudent to structure DAC on similar lines.

DAC should be the nodal agency to oversee the development of the indigenous defence industry, manage the defence acquisition process and facilitate export of defence goods. It should be responsible for ensuring that all approved equipment proposals are implemented within the specified timelines, satisfying all performance parameters and obtaining best value-for-money for the country.

After converting capability requirements of equipment sought by the services into performance parameters, viable and verifiable qualitative requirements should be evolved by DAC. A detailed scan of technology available in India and abroad will help explore various options available to acquire the necessary equipment in the specified time frame. Factors like quantity, economic viability, urgency, criticality, indigenous capability and acceptable timelines should help to identify the most suitable and cost-effective route – outright import or indigenous development or a combination of the two.

Suggested organisation of DAC is shown in Illustration 3. The Acquisition Wing should undertake all functions relating to outright purchases and finalisation of cases wherein indigenous manufacture under licence is planned. Acting as an interface between the government and the industrial associations, the Production Wing should act as a facilitator to promote indigenous defence industry. It should have the powers to nominate Indian recipient of technology in all cases that involve indigenous manufacture of goods under 'Buy and Make' category.

The Technology Wing should be tasked with the responsibility of evolving a comprehensive technology plan to ensure regular development/infusion of technology. Critical technologies that India must master to fill critical gaps in indigenous knowledge must be identified. Thereafter, route and methodology to be adopted should be determined with well-delineated phases. DRDO should be made accountable to the Technology Wing.

#### FINALLY

Pursuant to the provisions of the Defence Procurement Procedure, MoD has shared the future needs of the armed forces with the industry through the issuance of TPCR, covering a period of 15 years. It is primarily meant for the private sector. The public sector entities are already getting advance information of all emerging requirements through the patronage of the Department of Defence Production.

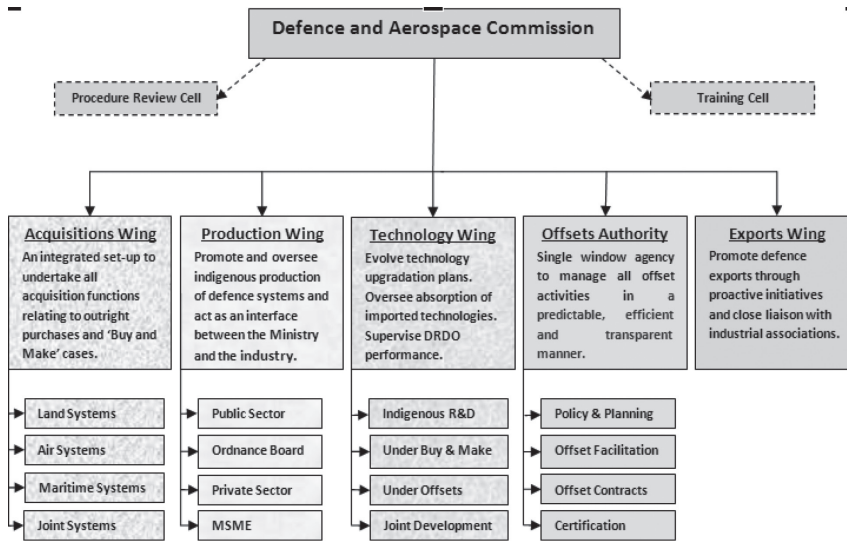


Illustration 3: Suggested Structure of the Defence and Aerospace Commission

TPCR has received an apathetic response. Most consider it to be nothing more than a wish list as it lacks substance and definite demand projections. Industrialists do not base their investment decisions on the projections that lack assured commitment of funds and are prone to frequent changes.

When asked for his response, an industry executive commented wryly, “TPCR includes every conceivable programme that can provide muscle to the armed forces. The policy makers have let their imagination run wild without any application of mind. There is no focus or prioritisation of the technologies sought. No thrust areas have been delineated.”

MoD’s bias for the public sector is a major dissuasive factor. The private sector fears that even after investing funds in developing a product and building necessary infrastructure, it may not get the orders.

Through the issuance of TPCR, the government has endeavored to create awareness in the industry of the future requirements of the armed forces, expecting the industry to undertake capability and capacity building. It is an unrealistic hope. Before expecting the private sector to respond enthusiastically, the Government has to create an environment where in the private sector feels assured of just business opportunities, level playing ground and fair play. Or else, like the Defence Production Policy, TPCR will be considered a statement of intent and consigned to the files.

**MAJ GEN MRINAL SUMAN, AVSM, VSM, PhD**



General Suman heads Defence Technical Assessment and Advisory Service (DTAAS) of Confederation of Indian Industry (CII). He has also been conducting and directing highly acclaimed Defence Acquisition Management Courses for Indian and foreign industry, both in India and abroad. Government functionaries are also detailed to attend these courses.

General Suman commanded an Engineer Regiment in the Siachen Glacier where he was awarded a gold medal for being 'the most outstanding engineer of the year'. He was the Task Force Commander at Pokharan and was responsible for designing and sinking shafts for the nuclear tests, for which he was duly honoured by the President of India.

General Suman has been closely associated with the evolution and promulgation of the new defence procurement mechanism. Today, he is considered to be the foremost expert on myriad aspects of India's defence procurement regime and is regularly consulted with regard to proposed reforms. His views are sought by the policy makers including the Parliamentary Committee on Defence.

He is regularly invited to address, both in India and abroad, various chambers, associations and industrial delegations on various facets of defence procurement policies, offsets and business opportunities existing in the defence sector.

The General is a prolific writer. His articles are regularly published in a large number of journals and have been translated in many languages. His views command immense respect, both in India and abroad. A strong proponent of dynamic participation of the private sector in defence production, he has advocating injection of professionalism in the acquisition process.

## A Political Consensus to Resolve Problems of the North East

*Shri Gautam Sen*

India's North-East has been experiencing a variety of problems of armed militancy. Some of the movements have been resolved, others are still actively festering, while the oldest of them all - the Naga militant movement encompassing outfits of different political and ethnic orientation, is in some sort of a nebulous state, politically active but militarily dormant owing to a state-sponsored ceasefire architecture in place since 1997. With India just through a national election, it is important to assess whether there is adequate consciousness among the political parties, beyond the superficial, on the need to decisively work out an agreement on the issues espoused by the militant outfits, to the satisfaction of all the interested parties, people of the region and above all in the national interest.

Leading national parties like the Bharatiya Janata Party (BJP) and the Indian National Congress (INC), have North-East cells attached to the national executive bodies, obviously to take care of respective party interests concerning the region and to extend their footprints there. The attempt is obviously to demonstrate to the people of the North-East that, the issues of concern to them will be attended to through their parties' policies and programmes. Other national parties like the Communist Party of India (Marxist) (CPI-M) and the Communist Party of India (CPI), have not set up such cells, but the issues relevant to the region, have been projected by them quite actively through their party platforms. The same however, cannot be said of other national parties like the Samajvadi Party,

---

*ISSN 2347-9191 print*

*© 2014 Centre for Advanced Strategic Studies*

*CASS Journal, Vol. 1, No. 3, July–September 2014, pp. 151–156*



NCP and Janata Dal (United), regional parties like the Anna Dravida Munnetra Kazhagam, Dravida Munnetra Kazhagam, Trinamul Congress, Akali Dal, Telugu Desam, Biju Janata Dal and the Kashmir-based parties viz. the National Conference and the Peoples' Democratic Party, as they have not indicated any policy approach with a modicum of consistency, or any discernible policy at all, on the problems and matters of relevance to the North-East, notwithstanding the fact that, all of them aspire for a significant role at the national level.

As per the latest national election results, the two major national parties viz. the BJP and the INC, will have a major political relevance in the North-East. The INC will continue to control the state govts of Assam, Meghalaya, Manipur, Mizoram and Arunachal Pradesh and has performed reasonably in these elections in all these states except Assam. The BJP is likely to play an assertive role for furthering its interests encouraged by the success in these elections in Assam in particular, by winning seven seats and its ability in achieving a political nexus with Neiphiu Rio, Chief Minister till recently of Nagaland, who has been elected to the Lok Sabha from his state. Nevertheless, post-recent elections, the political scenario is expected to be substantially influenced by the INC, BJP and the regional political outfits, apart from the Communist Party of India(Marxist) CPI(M) and the Communist Party of India (CPI). The vote share of these left parties have not been too small, as evident from the overwhelming success of the CPI(M) in Tripura, good vote share in the Meitei-dominated Imphal Valley-situated Inner Manipur seat contested by Dr Nara Singh of the CPI, and the spread of votes of in the Brahmaputra Valley (the two left parties had a total vote share of approximately 20 lakhs in the region). Though the BJP had a reasonable presence in Assam over the past 30 years, and token presence in Arunachal Pradesh, Meghalaya, Tripura and Manipur, in terms of political power achieved in electoral terms, its success was very limited. However, with new ruling dispensation in New Delhi led by the BJP and a good number of Lok Sabha MPs from Assam and one from Arunachal Pradesh, as well as with Neiphiu Rio in tow, its responsibility vis-à-vis the region has increased.

The North-Eastern regional parties eg the Boro over-ground outfits like Boro Liberation Tigers, pro-talks United Liberation Front of Assam (Rajkhowa faction), similar groups in Manipur and Tripura and Rio's political grouping the Naga Peoples' Front above all, are intimately involved



with the issues of militancy to the extent that they had either supported the efforts of different Union Govts on continuing a dialogue with the extremist outfits, their rehabilitation, etc., or advocated alternative policies, for resolving the problem. They normally advocated policies which suited their ethnic interests and the socio-political support base, and consequently, quite a few of these parties are limited in their outlook. For historic reasons, and because of the nature of their composition, some of these parties have not always been assimilative of socio-cultural and economic interests of different groups of people living within the states where they operate from. The recurring tensions in Assam's Bodoland Autonomous Districts of Baksa, Kokrajhar, Udalguri and Chirang, is a case in point.

The moot point is that, the prevailing scenario is affected by contentious politics, basically originated from within the region, and does not seem susceptible to easy resolution towards the evolution of a broad-based national consensus with active involvement of the top leaders of all the political parties, be they be of national status or the region or state based. Though the national parties like the INC, BJP, CPI-M and CPI, have shown activism in matters of the region, they have not come together to evolve a national consensus on the issues concerning control of militancy and nation-building by effectively integrating the people of the North-East. Other political parties operating at the national level and those of regional significance outside the North-East, have been more focused in the heartland states of the north, central and west India and the states where they originated from. The regional parties from outside the region, have failed to mainstream their activities in a manner that the North-East gets the due focus it deserves. As against this backdrop, by their very nature and past track record, the North-Eastern regional parties have been more a source of discord than cohesion on critical problems affecting the area. Therefore, from the national as well as the North-Eastern states' perspectives, the past as well as recent scenario has indicated a state of drift.

Unless there is some sagacity and foresight among the leaders of national political parties and involvement of leaders of eminence from the North-East like say, Purno Sangma, former Lok Sabha Speaker and long-time Union Minister, Reishang Keishing, the octogenarian leader and erstwhile Chief Minister of Manipur, (to name a few only), towards evolving a broad framework of political accommodation in the North-East, there will not be any realistic scope for resolving the contentious issues like that of Naga

statehood within the Indian Union ( and also the issue of integration of Naga areas in the North-East), on the desirability of strengthening and extending the 'inner-line permit system' to newer areas, deciding on an institutional framework of self-governance on developmental matters for different tribal groups or conglomerates, etc.

The North-East is extremely unique in its cultural, socio-economic and historical traditions. The human development potential of the region is relatively higher than many other regions of India. Economic and bio-diverse resources are also varied and substantial. The region perforce is required to be viewed with a different mindset. To obtain positive developmental outcomes, it is of essence that, each of the major political parties – national and regional, decide on their points-persons or interlocutors, to delve into the issues which are unresolved e.g. boundaries of self-governing entities in respect of the ethnic groups and the content of self-governance, and politico-administrative structures which enable economic transactions between the self-governing units as well within them in a manner which is not detrimental to the welfare of the different communities living in the places where they have historical roots. The Indian Constitution has unique and flexible attributes, which can effectively subsume social, cultural, economic and above all, political interests of different tribal and ethnic communities without militating against the needs of non-tribal people. Articles 370 and 371 of the Constitution are relevant examples in this regard.

The political parties at the national level have generally been showing tokenism through party manifestos and statements. It is high time that they rise beyond that, and decide on key politicians in their hierarchy and having more-than-superficial experience of dealing with the region, with eminent persons associated as mentioned above, who can work with each other beyond the party confines, towards a common national objective. The contentious issues have to be tackled in a sincere way, without favoring regional or local political factions. It will be quite a difficult task because; some of the regional political parties and groups eg. the grouping of prominent politicians like Zoram Thanga, Prafulla Mahanta (former Chief Ministers of Mizoram & Assam respectively), Neiphiu Rio, etc. (these leaders have come together before the recent national elections to form a North-East political pressure group), will exert their own political pressures for benefit of their communities and political interests.

In contrast, the civil society and community groups of the North-East, have an onerous role to play towards the evolving of a regional consensus as well as coalescing with progressive political and social organizations and individuals beyond the region who are of consequence at the national level. It is the coming together of internal North-East groups with national-level organizations and renowned social activist, which is likely to give a thrust towards the evolving of a national consensus on the critical issues of North-East. In turn this could be reinforced by political intervention at the national level in a non-divisive way. If the entire effort is to be left to the political leaders and parties, achieving a consensus may be quite a difficult proposition.

Unless some sort of multi-partisan approach is decided upon, with grass-root support from civil societal groups, and the key political interlocutors work consistently over a period of time and even, periodically confabulate beyond the public domain to avoid the pressures likely to be generated from public postures, with support of the Prime Minister, a political result which satisfies maximum stakeholders in the region, is unlikely to be achieved. Political awareness of the contesting ground realities within the North-East, as well as commitment to achieve a mainstreaming of the development effort and the aspirations of the North-Easterners in the truest sense, among the top leaders of the major national parties is the need of the hour. Periodic, ad-hoc political and developmental packages, without a consistent long-term commitment, is unlikely to yield any significant outcome towards national cohesion and welfare of the people of the North-East as well as of the nation as a whole.

**SHRI GAUTAM SEN**



Shri Gautam Sen is a retired officer of the Indian Defence Accounts Service (1976 Batch) of Govt. of India. The officer has been a student of Economics and International Relations and had served in different appointments with Union Ministries of Defence, Information & Broadcasting, Home Affairs and External Relations. A substantial part of his service has been in an environment of Indian armed forces operations eg. under ‘OP Pawan’ in Sri Lanka (when he was Financial Adviser to India’s High Commissioner in Sri Lanka vis-à-vis Indian Peace-Keeping Force’s operations), and in the North East and Jammu & Kashmir. The officer’s North East experience encompasses responsibilities discharged as Financial Adviser of North Eastern Council & Assam Rifles under Union Ministry of Home Affairs and his present assignment as Adviser (Finance Commission matters) of Govt. of Nagaland.

## Guidelines for Contributors

The *CASS Journal* is a quarterly, refereed research periodical published by the Centre for Advanced Strategic Studies, Pune.

### SUBMISSION OF ARTICLES

The Journal welcomes two kinds of contributions: full-length analytical articles ranging between 4000–8000 words, and commentaries/book review essays between 2000–3000 words.

Authors are requested to submit their papers in an electronic/soft format to the following email id: [casspune@yahoo.com/director@cfass.org.in](mailto:casspune@yahoo.com/director@cfass.org.in). All correspondence between the Journal editorial team and authors and reviewers will be conducted via email.

Submission of an article implies that the work described has not been published previously, that is it not under consideration for publication elsewhere, that its publication is approved by all authors and that, if accepted, it will not be published elsewhere in the same form without the written consent of the copyright holder.

Upon acceptance of an article, authors will be asked to sign a 'Journal Publishing Agreement'. If excerpts from other copyrighted works are included, the author(s) must obtain written permission from the copyright owners and credit the source(s) in the article.

### COPYRIGHT/AUTHOR'S RIGHTS

The copyright of the Journal rests with the CASS. As an author you retain certain moral rights on the work and can use or disseminate it—with the permission of the copyright holder—for scholarly and for research/teaching purposes.

### **SUB-HEADS/LEVEL-HEADS**

Divide your article into clearly defined and/or numbered sections.

### **REFERENCES**

Responsibility for the accuracy of bibliographic citations lies entirely with the authors. Each reference/citation should be clearly inserted either as a footnote or an endnote in the format listed below, with the corresponding in-text cue. Additional references should be listed after at the end as 'Additional References'. In case of Web references, as a minimum, along with the author/publication details, the full URL should be given as well as the date on which the URL was last accessed. As shown in example below:

### **PROOFS**

One set of page proofs in PDF format sent by e-mail to the corresponding author(s). The authors must mark their corrections clearly on the PDF itself or on hard copy and send a scanned file of the corrections within the stipulated time. In case the author's corrections are not received within the stipulated time, the Editor will carry out such corrections as deemed necessary.

## SUBSCRIBE NOW

Please tick the relevant boxes, fill contact details, enclose cheque/draft and return to address given below

English Edition: 1 year (4 issues) – ₹ 2,000 (includes postage)

Marathi Edition: 1 year (4 issues) – ₹ 1,500 (includes postage)



Please make the payment in favour of MENAKA PRAKASHAN

Name:

Address:

City:

Pincode:

Telephone:

Mobile:

Email:



### Menaka Prakashan

Publication division of **MEDIA NEXT...**

2117, Sadashiv Peth, Vijayanagar Colony, Pune - 411 030

Phone: (020) 2433 6960 | Helpline: +91 9823 69 69 60

Email : [sales@menakapublishing.com](mailto:sales@menakapublishing.com)

Subscribe online at: [www.menakapublishing.com](http://www.menakapublishing.com)



## SUBSCRIBE NOW

Please tick the relevant boxes, fill contact details, enclose cheque/draft and return to address given below

English Edition: 1 year (4 issues) – ₹ 2,000 (includes postage)

Marathi Edition: 1 year (4 issues) – ₹ 1,500 (includes postage)



Please make the payment in favour of MENAKA PRAKASHAN

Name:

Address:

City:

Pincode:

Telephone:

Mobile:

Email:



### Menaka Prakashan

Publication division of **MEDIA NEXT...**

2117, Sadashiv Peth, Vijayanagar Colony, Pune - 411 030

Phone: (020) 2433 6960 | Helpline: +91 9823 69 69 60

Email : [sales@menakapublishing.com](mailto:sales@menakapublishing.com)

Subscribe online at: [www.menakapublishing.com](http://www.menakapublishing.com)



# CASS JOURNAL

NATIONAL SECURITY NATIONAL DEVELOPMENT



CENTRE FOR ADVANCED STRATEGIC STUDIES

---

# CASS JOURNAL

NATIONAL SECURITY NATIONAL DEVELOPMENT



CENTRE FOR ADVANCED STRATEGIC STUDIES